

Health Knowledge, Attitudes, and Practices among Street Children in LMICs

by

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Thesis submitted in partial fulfillment of
the requirements for the degree of
Master of Science in the Duke Global Health Institute
in the Graduate School of Duke University

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ABSTRACT

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Abstract

Background: Worldwide, it is estimated that there are up to 150 million street children. Street children are an understudied, vulnerable population. While many studies have characterized street children's physical health, few have addressed the circumstances and barriers to their utilization of health services.

Methods: A systematic literature review was conducted to understand the barriers and facilitators that street children face when accessing healthcare in low and middle income countries. Six databases were used to search for peer review literature and one database and Google Search engine were used to find grey literature (theses, dissertations, reports, etc.). There were no exclusions based on study design. Studies were eligible for inclusion if the study population included street children, the study location was a low and middle income country defined by the World Bank, AND whose subject pertained to healthcare.

In addition, a cross-sectional study was conducted between May 2015 and August 2015 with the goal of understanding knowledge, attitudes, and health seeking practices of street children residing in Battambang, Cambodia. Time location and purposive sampling were used to recruit community (control) and street children. Both boys and girls between the ages of 10 and 18 were recruited. Data was collected through a verbally administered survey. The knowledge, attitudes and health seeking practices of community and street children were compared to determine potential differences in healthcare utilization.

Results: Of the 2933 abstracts screened for inclusion in the systematic literature review, eleven articles met all the inclusion criteria and were found to be relevant. Cost and perceived stigma appeared to be the largest barriers street children faced when seeking care. Street children

preferred to receive care from a hospital. However, negative experiences and mistreatment by health providers deterred children from going there. Instead, street children would often self treat and/or purchase medicine from a pharmacy or drug vendor. Family and peer support were found to be important for facilitating treatment.

The survey found similar results to the systematic review. Forty one community and thirty four street children were included in the analysis. Both community and street children reported the hospital as their top choice for care. When asked if someone usually went with them to seek care, both community and street children reported that family members, usually mothers, accompanied them. Community and street children both reported perceived stigma. All children had good knowledge of preventative care.

Conclusions: While current services may lack the proper accommodations for street children [5-9], there is a great potential to adapt them to better address street children's needs. Street children need health services that are sensitive to their situation. Subsidies in health service costs or provision of credit may be ways to reduce constraints street children face when deciding to seek healthcare. Health worker education and interventions to reduce stigma are needed to create a positive environment in which street children are admitted and treated for health concerns.

Contents

Abstract.....	iv
List of Tables	x
List of Figures.....	xi
Acknowledgements.....	xii
Chapter 1: Introduction.....	1
1.2 Health and Illness	2
1.3 Healthcare Services in Cambodia.....	2
1.4 Healthcare Financing in Cambodia	3
1.5 Problem Statement	3
1.6 Thesis Aims.....	4
1.7 Significance and Policy Implications	4
Chapter 2: Facilitators and Barriers to Healthcare Access among Street Children in Low and Middle Income Countries	6
2.1 Systematic Review Introduction.....	6
2.2 Methods.....	6
Protocol and Registration	6
Eligibility.....	6
Information Sources and Searches	7
Study Selection.....	8
Data Collection Processes and Items.....	8

Risk of Bias	9
Summary Measures	9
2.3 Results	9
Synthesis.....	9
Ethical Clearance and Funding	15
Demographics	15
Recruitment Methods.....	16
Data Collection and Analysis.....	16
Illness and Injury	17
Health Facilities Utilized	17
Barriers and Facilitators.....	18
Experiences of Stigma	19
Peer and Family Supports	19
Perceived and Unperceived Needs.....	19
2.4 Discussion	20
2.5 Limitations.....	22
2.6 Funding.....	23
Chapter 3: Street Children’s Knowledge, Attitudes, and Health Seeking Practices in Cambodia.	24
3.1 Survey Design and Overview	24
3.2 Setting.....	24
3.3 Survey Methods.....	25

Eligibility.....	25
Sampling and Recruitment.....	26
Consent and Assent.....	27
Survey Content.....	28
Data Collection.....	28
Compensation.....	29
Analysis.....	29
3.4 Survey Results.....	29
Demographics.....	29
Health Seeking Practices.....	30
Experiences of Stigma.....	32
Knowledge of Preventative Care.....	33
Tobacco.....	34
Alcohol.....	35
Glue.....	35
Phone Ownership.....	35
3.5 Strengths and Limitations.....	36
3.6 Conclusion.....	36
3.7 Discussion.....	37
4. Overall Conclusions and Future Directions.....	40
Appendix A.....	42

Appendix B	48
Appendix C	50
Appendix D	66
References	68

List of Tables

Table 1: Summary of articles included in the systematic review.....	11
Table 2: Demographics	30
Table 3: Health Seeking Practices	31
Table 4: Experiences of Stigma	33
Table 5: Data Extraction Template	48
Table 6: Phone Use	66

List of Figures

Figure 1: Process of screening articles.....	8
Figure 2: Tally of articles screened and included in the systematic review.....	10
Figure 3: Map of study locations from systematic review.....	15
Figure 4: Types of data collection methods.....	16
Figure 5: A combination of the iron triangle and Levesque’s healthcare access framework.	22
Figure 6: Map of Cambodia [18].	25
Figure 7: Map of sample locations. (Map adapted [78].).....	26
Figure 8: Flow chart mapping the consent, assent, and eligibility process.....	27
Figure 9: Children’s thoughts on what activities were good for your health.....	34

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Chapter 1: Introduction

It is estimated that there are 100-150 million street children worldwide [13, 14]. In Cambodia, the exact street child population is not known—however, it is estimated there are 10,000-20,000 children working in Cambodia’s capital, Phnom Penh [15-17].

Specific to Cambodia, street children are generally males, between the ages of 10 and 14, and have dropped out of school [18].

The majority of street children are those who work on the street (i.e. children on the street) [18].

Children may go to the street due to natural disasters, household abuse, or war. But, most commonly, street children are a result of poverty or unstable family environments [18-22].

Cambodia is one of the poorest countries in Asia [23]. In

2011, the poverty rate was an estimated 21% [24]. Here, it is important to understand Cambodia’s history as it has contributed to Cambodia’s current state. The country underwent a period of political instability and adversity under the Khmer Rouge, a Communist organization that ruled during the 1970s. During this time, nearly a quarter of the population was killed

The definition of a street child is not perfect as their situations are constantly changing. Generally, street children refer to children under the age of 18 who live, work, or survive on the streets [2, 3]. Street children have been broadly classified into three categories: 1) who live completely alone on the street 2) who spend most of their time working on the streets 3) who live on the streets with family [4].

Another system of classification groups street children as children on and children of the street. Children on the street have some degree of contact with family, whereas children of the street have no contact with family and have made the street their home [10, 11]. Often, children of the street have previously been children on the street [12].

including many educated, middle-class people [25, 26]. Today 50% of the country is less than 25 years old [23]. The majority of the population lives in rural areas where agriculture is a significant part of life in Cambodia [27]. Therefore, it is especially important that these young people are prepared to live productive and healthy lives. While Cambodia has been resilient in restoring stability, much depends on the future generations.

1.2 Health and Illness

Street children may suffer many health problems while on the street. The main issues faced by this population include:

- **Nutrition:** Street children generally have poor nutrition status as indicated by low body mass index and stunting [28-30].
- **Infection:** Parasitic infections (e.g. endoparasitic) are common [31, 32]. Bacterial infection prevalence is estimated to be relatively low (around 12%) [33].
- **Violence and Sexual Abuse:** The prevalence of violence and sexual abuse is high [34-41]. Girls experience higher rates of sexual abuse and frequently engage in survival sex [40, 42, 43].
- **Substance Use:** Substance use is common among street children. Studies indicated that of the street children sampled, 35-100% of children used substances in the form of alcohol, tobacco, and inhalants (such as glue) [44-48]. Reasons for substance use include to cope with life stresses, addiction, and to fit in with peers [40, 48-51].

1.3 Healthcare Services in Cambodia

In Cambodia, there are several types of health care organizations. They include health centers, referral hospitals, private clinics, public hospitals, and pharmacies. According to Cambodia's Health Service Delivery Profile, populations in both urban and rural areas approach

private practitioners or pharmacies as the first point of contact for their health needs [18]. It is estimated 40- 50% of the population also uses traditional medicine. It is thought that those in rural areas are more likely to use traditional medicine, due to convenience and lower cost [18].

Worldwide, street children have limited access to health services [52]. Reasons for limited access include high cost, anticipated low quality of services, and low perceived severity of illness [53, 54]. Low access is further propagated by the fact street children are often viewed as deviants or nuisances [55]. Many studies note that most street children fear discrimination and stigma due to their social status [11, 51, 53, 56]. This stigma can be so great that street children may not seek vital resources due to fear of mistreatment [21, 57]. While there is strong qualitative data exploring these factors, there are few quantitative studies that examine this issue.

Since children on and of the street have different degrees of family contact, it is suggested that they may have different support systems [12]. Generally, peer and family support networks are important to survival [58]. Thus, street children on and of the street may also have varying health seeking behavior and knowledge about proper health maintenance activities.

1.4 Healthcare Financing in Cambodia

Health care is mostly financed through out of pocket pay [18, 59]. For those who are poor, like street children and their families, the government may issue an Identification of Poor Households Card (ID Poor Card). This card gives access to discounted medical services, education scholarships, and other services [18, 60]. As of 2009, the ID Poor Card covered services in 12 of the 25 provinces (including Battambang Province) in Cambodia [60].

1.5 Problem Statement

The constitution of the World Health Organization states that “health is a state of complete physical, mental and social well-being.” Countries that are economically poor may also

be under-resourced in regards healthcare services [61, 62]. Given the prevalence of street children and the potential for this number to increase with growing urbanization, [63, 64] understanding how this population maintains their health will become essential to the development and implementation of future healthcare services. To better understand how street children access healthcare, this thesis will explore the health seeking experiences street children have in low and middle income countries (LMICs).

1.6 Thesis Aims

The systematic review summarized the barriers and facilitators that street children in LMICs encounter when attempting to seek healthcare.

The survey research provided quantitative evidence on how street children in Cambodia sought healthcare. Specifically, the survey covered street children's choice and use of health services, their attitudes towards those services, and their knowledge of preventive care.

Comparisons between community and street based children were made.

- Hypothesis I: Street and community based children differ in the health services they use.
- Hypothesis II: Street and community based children have different attitudes about their health service utilization.
- Hypothesis III: Street and community based children differ in their knowledge of preventive care.

1.7 Significance and Policy Implications

Improving the situation for street children improves the prospects for those children and provides hope for their community's future. This is especially true for places that have high rates of poverty, rapidly urbanizing, or are in the process of recovering from political conflict [65-67].

Good health is a prerequisite for leading productive lives. Maintaining good health is especially vital for street children as they may engage in risky or unsafe activities in order to survive. The results of this research will increase our understanding of street children's experiences in navigating healthcare. Specifically, the information may help inform policies on how street children are admitted, treated, and managed by healthcare professionals. Further, this information may help non-governmental organizations (NGOs) redirect, alter, or change their programs to better serve this vulnerable population. Other groups, such as the World Health Organization (WHO), or government organizations, such as the Cambodian Ministry of Health, may also be able to use the lessons learned to more appropriately and efficiently allocate resources towards programs or services for street children. By strategically placing support in certain trainings, facilities, etc., governments and other organization may be able to better reach the street child population and offer quality health services that are accessible. Extending outside this vulnerable population, this information can serve as a starting point to help other populations of similar backgrounds (e.g., migrants, refugees, etc.).

While street children are vulnerable, they have the potential to be agents of social change capable of positive impacts in their personal lives and in society provided the right support structure and resources are available to them.

Chapter 2: Facilitators and Barriers to Healthcare Access among Street Children in Low and Middle Income Countries

2.1 Systematic Review Introduction

The goal of this systematic review was to better understand the barriers and facilitators street children encounter when accessing healthcare in low and middle income countries (LMICs). The primary goals of the systematic review were the following:

- Summarize the barriers street children face to accessing care and explore factors that facilitate health seeking behavior in LMICs
- Summarize the illnesses, health facilities, health needs, and general experiences of street children's seeking healthcare in LMICs

By better understanding street children's health seeking factors, we may be better equipped to intervene and improve this population's health.

2.2 Methods

Protocol and Registration

The protocol for the systematic review was registered with PROSPERO¹ under registration number CRD42015029254.

Eligibility

This systematic review considered all studies involving children under the age of 18 who were considered to be street children or homeless children. There was no restriction on study design for inclusion, i.e., observational and experimental studies were eligible for inclusion. Studies eligible for inclusion for full text review met the following criteria: their population of

¹ PROSPERO website: <http://www.crd.york.ac.uk/prosperto/>

interest was street children, AND the study location was a low and middle income country as defined by the World Bank, AND the subject of the article pertained to health care access.

Editorials, websites, blogs, literature reviews, and systematic literature reviews were excluded. Thesis, dissertations, reports, and conference abstracts were considered for inclusion. Studies were also excluded if street children's health care access was not a primary aim or focus of the paper. If a study did not fit all the inclusion criteria, it was excluded. Studies whose abstract or full text was not in English were also excluded.

If the full text of a paper could not be found using the Duke University Libraries, an email was sent directly to the author asking for the paper and explaining the purpose of the systematic review. If after two emails (over the span of one week) there was no response, the paper was excluded.

Information Sources and Searches

With assistance from an information management specialist at the Duke University Libraries, six databases, namely PubMed, Embase, Web of Science, Scopus, CINAHL, and PsycINFO were used to search for peer reviewed literature. Terms used to search each database included words related to street or homeless children, LMIC countries, and healthcare access. A complete list of search terms can be found in appendix A.

A similar search was conducted on ProQuest Dissertations and Theses for relevant grey literature (reports, thesis, dissertations, and conference abstracts). Relevant grey literature was literature meeting the inclusion criteria. Google Search Engine was also used to search for grey literature using the terms "street youth," "homeless youth," "developing country or world," and "medicine or health or clinic." The first 200 hits were scanned for relevant literature.

The search was completed between March 2015 and April 2015.

Study Selection

After searching each database, abstracts were screened to ensure they fit the inclusion criteria: articles about street children or homeless youth in LMICs accessing healthcare. After initial screening, articles fitting the criteria were included for full text review.

Individual studies included for full text review were assessed by three individual reviewers. Disagreements about inclusion were resolved through mutual discussion. Articles that underwent full text review were again evaluated for final inclusion. Figure 1 shows the general process for screening articles.

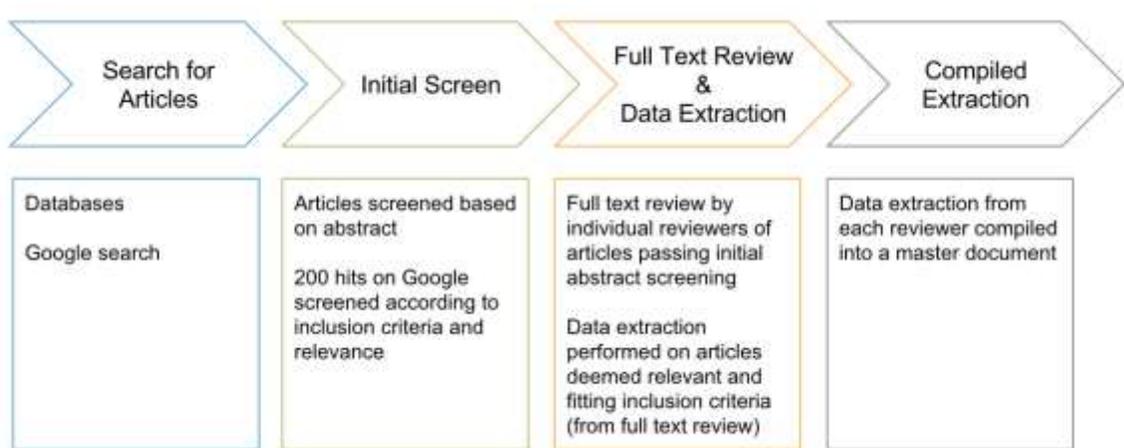


Figure 1: Process of screening articles.

Data Collection Processes and Items

For articles relevant to the main objective of the systematic review and fitting inclusion criteria, data extraction was performed using a structured form. The General Extraction Template for Cochrane Reviews² was used for data extraction. Additional rows for barriers, facilitators,

² Updated February 2013

experiences of stigma, and health care needs were added to the Cochrane template to customize it for the purposes of this review. The final extraction template can be found in appendix B.

Data extracted from included studies was then compiled into a summary sheet integrating the extract of the three reviewers. Results are presented as a narrative synthesis. When reported, samples of community based children (under age 18) were used for comparison of street children.

Risk of Bias

Risk of bias for individual studies was not assessed.

Summary Measures

Primary outcomes for this study were factors (barriers and facilitators) influencing healthcare access among street children in low middle income countries.

Secondary outcomes of interest included were illnesses among street children, types of health facilities used, experiences with care received (including stigma), and perceived and unperceived healthcare needs.

2.3 Results

Synthesis

After screening 2933 abstracts based on the inclusion criteria, 35 articles were included for full text review. Of these 35 articles, most articles were excluded due to the fact healthcare access was not a primary or secondary focus. During the full text review, 24 articles were excluded because their population on interest was not street children, OR healthcare access was not addressed, OR the study was not located in an LMIC. (Figure 2 diagrams the articles screened.) Eleven studies met the eligibility criteria and were relevant to the objectives of this systematic review and were processed for data extraction using the pre-specified template (reference table 1).

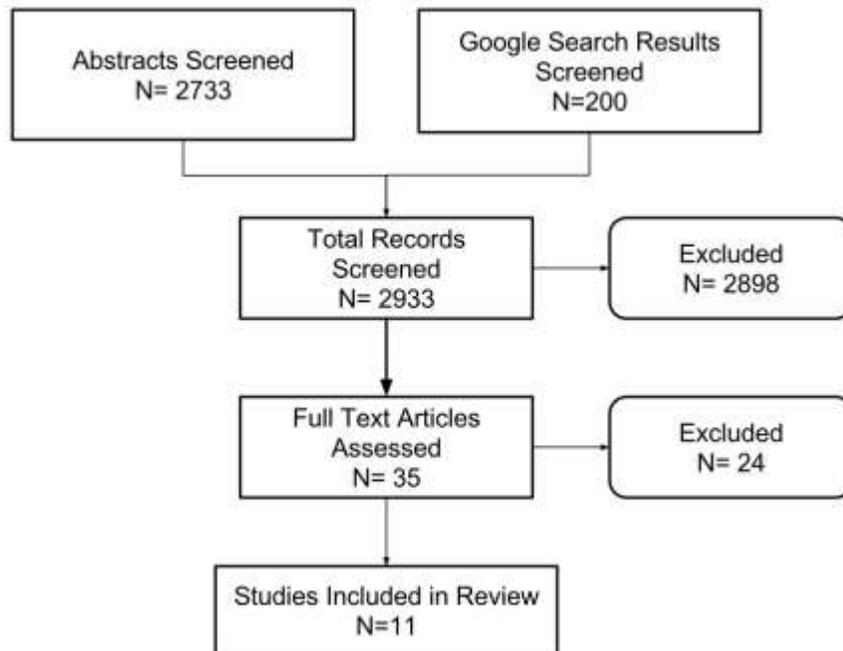


Figure 2: Tally of articles screened and included in the systematic review.

Of these eleven articles, four were grey literature including one thesis, one policy brief, one report, and one research report [6, 9, 68, 69].

All the studies were of a cross sectional design [5, 6, 8, 9, 40, 58, 68-71]. Most used a combination of qualitative and quantitative methods [6-8, 40, 58, 68-70]. The study locations included Egypt, India, Kenya, Ghana, Nepal, Pakistan, South Africa, Sudan, and Tanzania (see figure 3) [5-9, 40, 58, 68-71].

Community: “a person’s natural environments, that is, where the person works, plays , and performs other daily activities” [1].

Reflective of the street child population, the majority of the articles had populations with a high majority of boys, ranging from 60-80% [7-9, 68-71]. Most of the studies (64%) took place within a community setting [5, 8, 9, 58, 69, 70].

Table 1: Summary of articles included in the systematic review

Study	Study Design, Country	Participants	Aims	Results: Barriers and Facilitators
Ali, M. and A. de Muynck, 2005 [53]	Cross-sectional Pakistan	N= 40 Males: 80% Age Mean: 9 (sd= 2) Age Range: 9-13	<ol style="list-style-type: none"> 1) Ascertain the health-related concepts of street children 2) Understand the perceptions of health and illness, the process of their health care decision making and factors in their choice of health care provider 3) Investigate perceived barriers to health care 	Street children face many barriers including cost, waiting time, and stigma.
Amury, Z. and A. Komba, 2010 [69]	Cross-sectional Tanzania	N= 234 Males: 60% Age Range: 11-18	<ol style="list-style-type: none"> 1) Identify the diseases or infections that children living on the streets frequently succumb to 2) Determine the health-seeking behaviors of street children 3) Identify the barriers to accessing health services faced by children living on the streets 4) Provide recommendations on health services and programs to meet the health needs of this population 	Hospitals were an expensive and unpleasant place to seek care. Pharmacies and drug vendors were the main source of care.
Edusei, J. and P.A. Amoah, 2014 [5]	Cross-sectional Ghana	N=34 Genders not specified Age Range: 13-17	<ol style="list-style-type: none"> 1) Quantitatively appreciate the access to health care and health services among street children 2) Gain an in-depth understanding and knowledge on the state of health 	Affordability, accommodation, and experiences of stigma were barriers to care. However, entities such as pharmacies and drug vendors were more favored by street children due to their

			care/services among the poor and vulnerable children	accessibility, availability of various treatments, and accommodations.
Kaime-Atterhog, W., et al., 2007 [71]	Cross-sectional Kenya	N= 115 Males: 96% Age Range: 5-18	1) Present the ways boys describe and reasoned around their experiences o STIs and the way they sought healthcare 2) Highlight the methodological challenges encountered in trying to access and interview street children as well as the strategies we used to enable the children to converse on issues of sexuality	Ability to pay for treatment was related to delay of care. Peer networks were an important support obtaining healthcare.
Kapali, R, 2011 [68]	Cross-sectional Nepal	N= 206 Males: 92% Age Median: 14	1) Identify diseases and infections that street children frequently succumb to 2) Determine health seeking behaviors of street children 3) Identify the barriers to accessing health services 4) Determine the coping strategies used by street children in case of illness	Children would use free services at NGOs rather than go to a hospital. Cost and disrespect from staff at health institutions was an issue.
Kudrati, M., M.L. Plummer, and N.D. Yousif, 2008 [40]	Cross-sectional Sudan	N= 872 Males and females included Age Range: 15-18	1) Describe the street children's daily activities on the streets, as well as their relationships with their peers, families, and authorities	It is suggested that long term large scale efforts by government entities is needed along with advocacy. Street children reported family and peers were sources of support when ill.
Médecins du Monde [6]	Cross-sectional Egypt	N= NR Males: 85% Age Range: 10-15	1) This paper is a report outlining the profile of children in street situations, common health problems encountered,	Cost, accommodation, and stigma make accessing the public healthcare system difficult for street children.

			barriers to health care access, and describe health education interventions implemented by Médecins du Monde	
Patel, S, 1990 [58]	Cross-sectional India	N= 1000 Males and Females included Age Range: NR	1) This paper presents the results of research on how street children, hotel boys, and the children of pavement dwellers and construction workers meet their daily needs	Street children need access to basic care. Friends and family are points of support.
Prinsloo, L. and M. S. Richter, 2003 [7]	Cross-sectional South Africa	N= 9 Males: 100% Age Range: 9-13	1) Describe street children's perspectives on health 2) Describe suggestions concerning health promotion strategies when working with street children	Children usually self cared for illness and generally avoided healthcare visits unless illness was urgent. Cost and difficulty navigating the healthcare system were issues, but family members and peers provided support during times of illness.
Seager, J.R. and T. Tamasane, 2010 [8]	Cross-sectional South Africa	N= 305 Males: 88% Age Range: 12-17	1) Explore the health characteristics of homeless adults and children 2) Assess health services access for the homeless	There needs to be more awareness and more concerted efforts to address the health challenges, especially mental illness, street children face.
YUVA, 2010 [9]	Cross-sectional India	N= 128 Genders not specified Age Range: 3-18	1) To understand the social support available to a child on the street. 2) To understand the factors affecting health issues of street children. 3) To identify the issues related to usage of health facilities by street children. 4) To understand obstetric, maternal and child health related issues of women	Cost, fear and self-esteem, long waiting times, and unfamiliarity of the hospital system were the main barriers street children encountered. It concluded Mumbai's public health system was did not ensure healthcare access for street children.

			living on streets. 5) To understand the issues of health personnel in public hospitals with regard to provision of health services to street children	
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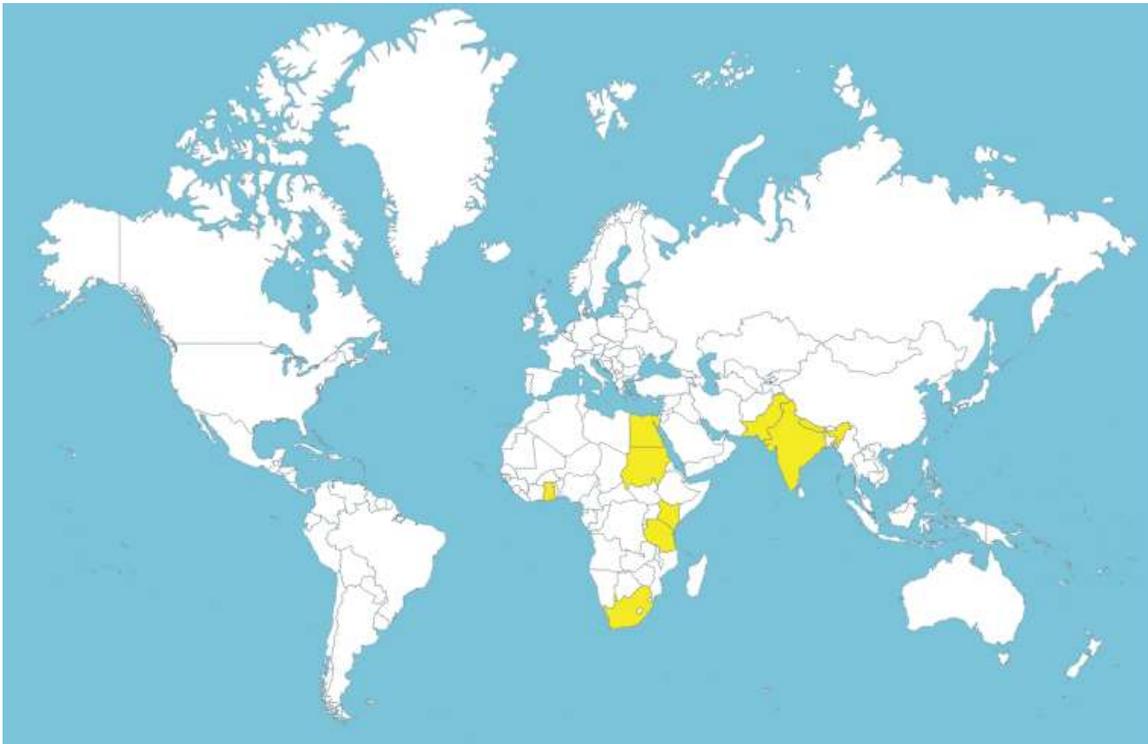


Figure 3: Map of study locations from systematic review.

Ethical Clearance and Funding

The majority of the studies did not mention attaining ethical clearance from an entity higher than the institution or organization they directly worked with. Seven studies mentioned or acknowledged their funding source [5, 8, 9, 40, 58, 69, 71].

Demographics

Five of the eleven studies noted inclusion criteria [5, 8, 68-70]. Inclusion criteria centered on the age of potential participants and the time spent on the street. Of the studies, the lowest inclusion age was six years, and the highest age was 18 years old [68]. Minimum time living/working on the street to be eligible for study participation was three months [5, 68, 69]. One study noted exclusion criteria which addressed the time on the street and the minimum age for participation [68].

Recruitment Methods

Most of the studies used non-probability methods to recruit participants [7, 8, 40, 58, 70, 71]. One study used cluster sampling [68]. Two studies were unclear about their recruitment process [9, 69]. Three of the studies recruited children using someone who knew, or had prior interaction with the street children [7, 9, 71]. Convenience and snowball sampling were also reported recruitment methods [5, 40, 70, 71].

Data Collection and Analysis

All of the studies collected data through interviews or focus group discussions (FGDs) [5-9, 40, 58, 68-71]. Three of the eleven studies used both interviews and FGDs [8, 70, 71]. Five of the studies used a survey [6, 8, 40, 58, 68] and four studies used observation techniques to collect data [5, 7, 40, 71]. Other methods of data collection included home visits or meeting with family, review of clinical records, participatory exercises, or consultative meetings with people/organization who worked with street children (reference figure 4) [9, 69, 71]. Only three studies mentioned any pre-testing of their data collection tools before formal administration [58, 68, 69].

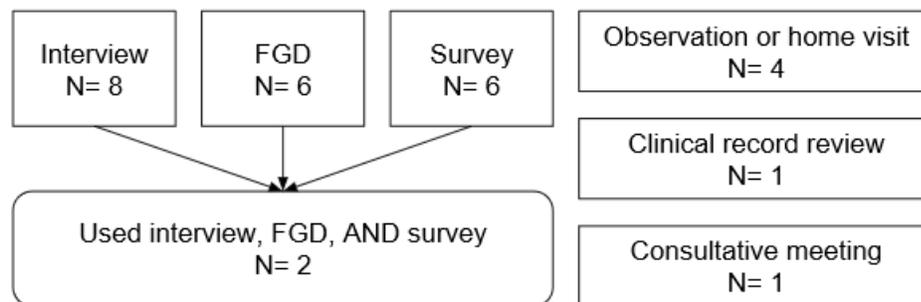


Figure 4: Types of data collection methods.

Since most of the data collected were qualitative, qualitative analysis (extraction of themes and motifs) was the main form of data examination. However, only five of the eleven

studies explicitly stated that qualitative data were analyzed by examination of themes and patterns [7, 68-71]. Of the seven studies that used quantitative methods, three used an inferential test statistic (such as a chi square) [8, 68, 69].

Illness and Injury

The top three illnesses reported between studies among street children were injuries, fever, and respiratory illnesses. Injuries or accidents were the most mentioned illness between all the studies [7-9, 40, 58, 68-70]. The reported prevalence of either injury or accident ranged from 16-77% among sampled populations of street children [40, 69]. Injuries and accidents were often simply described as “common” [7-9]. Fever was the second most reported health condition among studies [5, 9, 40, 58, 68, 70]. Prevalence ranged from 19- 69%, but most cited a percentage above 50% [40, 58, 68, 69]. Seven of the eleven studies noted respiratory illness as an issue [6, 8, 9, 40, 68-70] with a reported prevalence ranging from 17-45% [40, 69].

Other commonly mentioned illnesses included aches or pains [5, 9, 58, 68, 69], diarrhea or GI diseases [6, 40, 53, 68, 69], and genital, reproductive or STI illnesses [6-8, 40, 71]. Skin diseases, loss of hearing, mental illness, substance use, exposure, malaria, typhoid, hepatitis, dental problems, ear infections, lack of hygiene, violence, and trauma were also problems children faced [5-9, 40, 53, 58, 68, 69, 71].

Health Facilities Utilized

All eleven studies noted that children sought care at hospitals, clinics, or some other professional medical institution [5-9, 40, 53, 58, 68, 69, 71]. While hospitals were the preferred choice for treatment [68], opting to go to a hospital was usually influenced by the severity of illness or by someone prompting them to go [69-71]. Between 34-77% of street children reported going to a hospital for care [40, 68]. While children preferred going to a hospital or clinic for

care [5, 7-9, 40, 58, 68, 71], the main source of medicine came from a vendor, local shop, or pharmacy [5, 8, 9, 68, 69].

Up to 25% of children attempted to sleep off or do nothing about their illness [9, 68, 69]. Between 8-56% of children reported seeking care from a traditional or spiritual healer [68, 69].

Barriers and Facilitators

Cost was the main barrier to accessing health services [5-7, 9, 68-71]. Children would delay care until they knew they could afford treatment [9, 71] or skip going to a health facility altogether if they could not afford health services. One study noted 60% of boys and 53% of girls did not go to the hospital strictly due to cost [69]. Another study, cited that children would settle for lesser quality care based on their financial situation [5]. No system of credit was available to help street children pay for services [5].

Buying medicine was reported as a cheaper, time saving method of care [69]. Buying medicine from a drug store was more comfortable to some [5]. Drug stores and pharmacies also had more convenient hours of operation than hospitals [5].

Children also mentioned that ability to receive services without a prior appointment or walk in services would be helpful [5]. Street children expressed a need for staff to readily accept patients even during late evenings or nights when the health facilities were less crowded [5]. Also, long waiting times deterred children from seeking care because it interfered with their working hours [7, 10, 69].

In terms of quality, one study reported that street children distrusted the quality of traditional healers [5]. However, another study reported that some children believed traditional healers could dispel the evil (thus getting rid of the illness) [53].

Follow up care (missing appointments, losing discharge papers, etc.) was a barrier to continuing medical treatment [9].

Experiences of Stigma

Experiences of stigma were common. Street children reported not going to hospital because of unfriendly or disrespectful staff [8, 9, 68, 69]. Besides disrespect, children said they may be scolded or beaten for soiling the bed, vomiting, or generally asking for any amenities [9]. Fear of being rejected by hospital staff, or not being taken seriously was also a concern [7].

One study also noted that there was stigma with discussing sexual problems with adults, but not with other peers [71].

Peer and Family Supports

Family and friends were important in seeking healthcare [5, 7, 58, 71]. One study found that 27% of street children were helped by friends and 8% were helped by a relative when faced with health issues [58]. Another study stratified by gender, reporting 28% of boys and 14% of girls received help from family and that 40% of boys and 23% of girls received help from friends [40]. Street children reported that peers would help financially or directly care for their friends [58, 71]. Relatives provided support by accompanying children to healthcare appointments, giving them health advice, or assisting with long term care [7, 40].

Perceived and Unperceived Needs

Street children's needs coincided with the barriers they faced. For instance, it was advised that services be free or given at a reduced cost [9, 69]. Two studies reinforced the idea that children needed a nonjudgmental environment when treated for illness or when seeking advice [7, 71]. It was also suggested that street children not be treated as a high risk group, but instead integrated into other programs targeting children of similar ages [71]. Several studies mentioned specifically that preventive care services were needed [5, 53, 71].

Difficulty navigating the healthcare system, knowing where to access specific services or understanding hospital procedures, was an issue [7, 9]. However, one study suggested that street children had few problems with physical access to healthcare facilities as they lived in places where healthcare services were easy to get to [5].

2.4 Discussion

The studies included in the systematic review provide a breadth of information about how street children access healthcare. Most studies were of a cross-sectional design, had a population consisting mostly of boys, and relied primarily on qualitative data. While quantitative data existed, it was often a supplement to clarifying qualitative results and provided little to no new information. We found little information on street children's access to mental healthcare services in low and middle income countries. The little information may reflect the fact that mental care services are lacking in LMICs [72, 73]. While we attempted to make comparisons between street children and controls (community children), none of the studies included a comparison group. This made it difficult to get a relative sense of street children's challenges. Further, while some countries do not have national research ethics committees or have committees that are only recently formed [74, 75], studies should be explicit in reporting ethical approval attained domestically or internationally. Future studies should also be careful to specify all the analyses done including descriptive statistics for demographics.

The illnesses street children reported were related to unsanitary environments which as reflective of their living situation. Many of the illnesses street children suffered were preventable.

In terms of healthcare access, street children are primarily limited by cost. Their financial situation often dictated where they went for treatment. Further, experiences of stigma

made some places more preferable than others. From the results, it appeared street children had difficulty finding healthcare providers who were sensitive to their situation and were willing to properly treat them. This may explain street children's strong preference to not treat, self-treat, or find treatment options or advice through family or peers. Generally, it appeared that purchasing medicine from a pharmacy or drug store was associated with self-treatment as this option was economical and avoided possible confrontation with hostile healthcare workers.

The iron triangle of healthcare access provides a general overview of how healthcare seeking decisions are made [76]. By going deeper and into the iron triangle and framing healthcare access in terms of availability, accessibility, affordability, accommodation, and acceptability, researchers may better understand the critical factors to improving street children's access to healthcare [77].

Using these framework in the context of this systematic review we found:

- **Accessibility:** Physical accessibility was not a significant barrier.
- **Availability:** There are services and organizations that have the potential to effectively serve street children.
- **Affordability:** Cost was one of the largest barrier to accessing high quality care or preferred care.
- **Accommodation:** While current services such as pharmacies and drug vendors are user friendly, other higher level care facilities lack proper services for street children.
- **Acceptability:** Street children generally prefer going to a hospital for treatment, but stigma and ill treatment deterred children from seeking care there.

Future investigations may want to employ a prospective study design to better understand how specific individuals change their health seeking behavior with increasing age and experience on the street. In addition, although street children are usually boys, studies may want to

specifically explore street girls' experiences seeking healthcare as they may face unique challenges due to their gender. For instance, in countries where women have limited freedom, women may be reluctant or shy to discuss reproductive and sexual health problems in the absence of a female health provider [4]. We also suggest deeper investigation into one aspect of the healthcare access frame work such as availability or accommodation (reference figure 5).



Figure 5: A combination of the iron triangle and Levesque's healthcare access framework.

Children are the future of our communities. Although street children face difficult situations and are often excluded from society, they have the potential to be productive and important agents of change. Society's ability to be sensitive to these children's challenges and willingness to find their potential will help enact changes to ease the healthcare seeking experiences of street children in low- middle- income countries.

2.5 Limitations

Our systematic review was limited to studies published in English. The grey literature search was done through ProQuest Dissertations and Theses and through the Google Search

Engine. It is possible that these two search methods missed grey literature other search engines may have found.

Further, studies excluded at the abstract phase may have contained healthcare information not captured in the abstract. Finally, while there appears to be lots of information about healthcare access, there appears to be very little when specifying street children's access in LMICs. Our search criteria may have not been sufficient enough to capture the full idea of access. The concept of healthcare is broad and includes specific components such as cost, physical access, availability of services, etc. To ensure we captured the whole idea healthcare access, we did not include specific terms in our search criteria. Instead, articles were screened based on the subjective meaning of healthcare.

2.6 Funding

Funding for this review was provided by a pilot grant from the Sanford School of Public Policy. Funding was also provided by Duke Global Health Institute in the form of research assistant support. The funding body had no role in the design, conduct, or development of this systematic review. There were no known conflicts of interest.

Chapter 3: Street Children’s Knowledge, Attitudes, and Health Seeking Practices in Cambodia

3.1 Survey Design and Overview

The goal of the study was to quantify the knowledge and attitudes related to preventative healthcare as well as health seeking practices among street children in Cambodia. A cross-sectional, verbally administered survey was used to collect responses from 34 street children and 41 community based children from three communes in Battambang, Cambodia between May 2015 and August 2015. Ethical approval for this study was obtained from the National Ethics Committee for Health Research (Cambodia’s research review board) and Duke University’s Institutional Review Board for Research with Human Subjects.

3.2 Setting

Battambang city is located in the northwestern region of Cambodia (reference figure 6). It is the second largest city within Cambodia. The city serves a link connecting Thailand and Cambodia’s other major cities such as Phnom Penh and Siem Reap. According to the 2011 Cambodian Street Children Profile, a report detailing the demographics and needs of street children using a 24-hr rapid assessment survey and in-depth questionnaire, the street children in Battambang’s region have similar characteristics to the majority of the other major cities in Cambodia [4]. Thus, Battambang’s size, role as a connecting city for migrants, and general representativeness the street child population made it an appropriate place to better understand street children’s healthcare seeking experiences. In addition, the researchers also had positive, pre-existing relationships with local organizations and individuals that facilitated the research process.



Figure 6: Map of Cambodia [18].

3.3 Survey Methods

Eligibility

Street children were eligible to participate in the survey if they were between 10 and 18 years old and had lived on the street for a minimum of two continuous weeks. Community based children were eligible if they were between 10 and 18 years old. Street children were defined as children who spent the majority of time on the street doing a job (e.g. begging, selling goods, and collecting recyclables).

Both girls and boys were recruited for the survey. Siblings were not excluded from the study (i.e. multiple siblings who wanted to participate in the study could do so). Screening for study eligibility was done in the Khmer language¹ by a local research assistant.

¹ The national language of Cambodia.

Sampling and Recruitment

Time location and purposive sampling were used to recruit children. Children were recruited from three of Battambang's ten communes (reference figure 7).

These communes were chosen based on the potential presence of street children and the availability of collaborators to assist in recruitment. Approximately equal numbers of community and street based children were sampled from each district to minimize clustering effects. Each location was sampled a maximum of two times to avoid repeated participation of the same child.

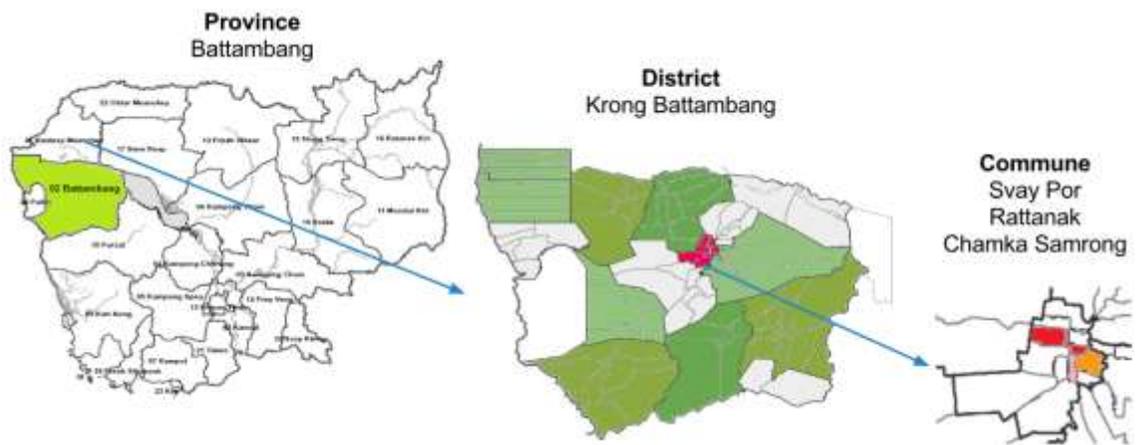


Figure 7: Map of sample locations. (Map adapted [78].)

Children were recruited based on our key informant's knowledge and experiences of places street children frequent. These places included an abandoned train station, a slum, a park, Kampong Kroby (a village), a pagoda, an abandoned airport, a dump, and the streets. Community based children were recruited from a list provided by the Commune Committee for Women and Children (CCWC)² covering the same areas street children were recruited from.

² CCWC: <http://www.unicef.org/cambodia/5.LGCR.pdf>

Street and community children were classified according to their employment.

Community children were children who studied and did not work, and who slept at home (rather than on the street.) with family.

Consent and Assent

For community based children, parental consent was obtained. For street based children, parental consent was not obtained due to anticipated loose or nonexistent ties with family.

The informed consent (for parents) and assent (for children) was administered by a local research assistant in Khmer. The consent and assent narrative were developed and approved by National Ethics Committee for Health Research and Duke University's Institutional Review Board for Research with Human Subjects. Materials were written in English, translated into Khmer, and back translated into English to ensure accuracy. Figure 8 details the process of consent, assent, and eligibility screening.

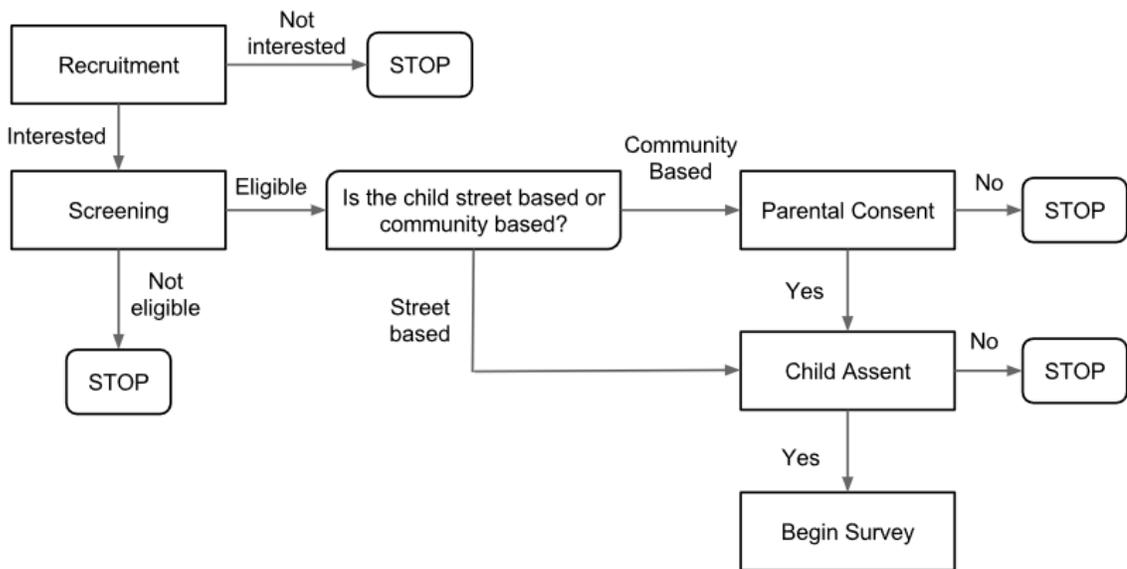


Figure 8: Flow chart mapping the consent, assent, and eligibility process.

Survey Content

Survey content was based on our overall research goal—to understand street children’s health seeking behavior. The survey covered places children chose to seek care, their attitudes about the places they sought care, experiences of stigma, common health care prevention measures and knowledge (like washing hands, bathing, etc.). Phone ownership was also assessed to explore the possibility of a phone based health intervention. Questions on stigma and some health practice questions were included explore their relationship with accessing care. Questions on stigma and symptoms prompting care were modified from the Positive Outcomes for Orphans study (POFO).³ Questions about substance use (alcohol, tobacco, and glue) were modified from the Mobilizing Youth for Tobacco-related Initiative (MYTRI) survey.⁴ The full survey can be found in appendix C.

The survey was piloted with 15 community children. No major changes in theme or content were made after piloting. The data from the pilot was discarded and was not used in the analysis or stored in any manner for prospective use.

Data Collection

Data was collected from May 2015 to August 2015. The survey was implemented by a local research assistant (RA). The RA read the questions to the child and entered the child’s responses directly on a Samsung Galaxy tablet via the digital survey application, Qualtrics.⁵ On average, survey took about 20 minutes to complete. After collecting data for the day, the data was uploaded from the tablet to Duke’s Qualtrics server for secure storage.

³ POFO: <https://globalhealth.duke.edu/projects/pofo-positive-outcomes-orphans-0>

⁴ Project MYTRI: <http://link.springer.com/article/10.1007/s11121-008-0113-x#/page-1>

⁵ Qualtrics: <http://www.qualtrics.com/>

Compensation

Candy and hygiene packets consisting of soap, shampoo, a towel, a toothbrush, and toothpaste were given as compensation for participation. The value of the packet was about \$5 USD.

Analysis

Chi square and Fisher's exact tests were run to compare responses between community and street based children. Descriptive analysis of the data was conducted. Averages, percentages, and counts were presented. For open ended questions, similar responses were grouped and then, the final tabulation for the question responses was completed. A p-value of less than or equal to 0.05 was considered statistically significant.

3.4 Survey Results

Demographics

A total of 41 community children and 34 street children from three of Battambang's 10 communes were interviewed from May 2015 to August 2015. Gender, age, ownership of an ID Poor card, were similar between community and street children. In both populations, the boy to girl ratio was approximately 60:40. The average age for females was 13 years old and for males was 14 years old. The majority of both community and street children had some primary education (78.1% community, 93.6% street). Community children had more education compared to street children as shown by the level of education completed (reference table 2). This difference was not statistically significant. Of the street children sampled, most had spent one or more years on the street. A summary of the demographic statistics for community and street children can be found in table 2.

Community children frequently reported having a mother, father, sister, or brother as part of their family. Sister and brother were the most commonly reported family members (75.6% sister, 75.6% brother). Street children also indicated having a mother, father, sister, or brother as part of their family. Sister and mother were indicated the most (79.4% sister, 70.5% mother). Eighty eight percent of street children reported that they slept with family at night as opposed to having no family ties or sleeping on the street by themselves.

Table 2: Demographics

	Community N= 41	Street N= 34	p-value
Gender			
Boys	26 (63.4%)	20 (58.8%)	0.165
Girls	15 (36.6%)	14 (42.2%)	
Age mean (sd)			
Boys	14.2 (2.25)	14.3 (2.36)	0.397
Girls	13.8 (1.88)	13.0 (1.36)	0.190
Commune			
Chamka Samrong	4 (9.8%)	8 (23.5%)	0.303
Rattanak	18 (43.9%)	12 (34.3%)	
Svay Por	19 (46.3%)	14 (41.2%)	
ID Poor			
Yes	31 (75.6%)	21 (61.8%)	0.416
Yes, but I lost it	0 (0.0%)	1 (2.9%)	
No	7 (17.1%)	7 (20.6%)	
Can't remember	3 (7.3%)	5 (14.7%)	
Ever School			
Yes	41 (100%)	32 (94.1%)	0.202
No	0 (0.0%)	2 (5.8%)	
Education Completed			
Some primary	32 (78.1%)	30 (93.6%)	0.280
Primary	1 (2.4%)	1 (3.1%)	
Some secondary	6 (14.6%)	2 (6.3%)	
Secondary	1 (2.4%)	0 (0.0%)	
Upper secondary	1 (2.4%)	0 (0.0%)	

Health Seeking Practices

Most community and street children indicated they fell ill 2-3 times in the past year. Going to a hospital was the top choice for seeking treatment when sick for community and street children (35.9% community, 33.3% street). Pharmacies, private clinics, and public clinics were

other answers community children gave as their preferred healthcare source. Community children reported pharmacies, house calls (home visits), or NGOs as other top sources of care.

When asked if there was someone who usually accompanied them to seek treatment, both community (95.1%) and street children (82.4%) said someone went with them. The majority of community children (97.5%) and the majority of street children (84.6%), said they were accompanied by a family member. When asked to specify the family member who accompanied them, mother was the top response for both community and street children. Both community and street children sought health advice from a family member when sick (94.9% community, 82.1% street) (reference table 3).

When asked about symptoms that would prompt seeking care right away, having a fever (89.5%), being depressed (79.5%), and being wounded (53.59%) were the most frequently chosen responses for community children. For street children, having a fever (93.3%), becoming sicker (53.3%), and being depressed (50.0%) were top responses for symptoms that would prompt seeking care immediately.

In regards to ID Poor card ownership, there were no statistically significant differences in the way ID Poor card holders and non-holders responded to questions regarding education attainment, care preference (top choice and second top choice), and perceived stigma. However, for the question regarding symptoms prompting immediate care, “having blood in your stool” there was a statically significant difference in response rates between ID Poor card holders.

Table 3: Health Seeking Practices

	Community N= 41	Street N= 34	p-value
Difficulty seeking treatment			
Hard	8 (20.5%)	3 (10.0%)	0.466
Somewhat hard	17 (43.6%)	13 (43.3%)	
Somewhat easy	14 (35.9%)	14 (46.7%)	
Easy	0 (0.0%)	0 (0.0%)	

Top choice for receiving care			
Drop in center	0 (0.0%)	2 (6.7%)	0.093*
Hospital	14 (35.9%)	10 (33.3%)	
Mobile clinic	0 (0.0%)	0 (0.0%)	
NGO	1 (2.6%)	3 (10.0%)	
Pharmacy	11 (28.2%)	9 (30.0%)	
Public clinic	3 (7.7%)	0 (0.0%)	
Private clinic	7 (18.0%)	2 (6.7%)	
Traditional healer	0 (0.0%)	0 (0.0%)	
I do not go anywhere	0 (0.0%)	0 (0.0%)	
Home visit (house call)	1 (2.6%)	4 (13.3%)	
Other	2 (5.0%)	0 (0.0%)	
Reason for choosing top place for healthcare			
I am sure I will get assistance	8 (19.5%)	3 (8.8%)	0.589
It is close	2 (4.9%)	0 (0.0%)	
The treatment is cheap	7 (17.1%)	7 (20.6%)	
I feel comfortable going there	3 (7.3%)	1 (2.9%)	
I heard good things about it	8 (19.5%)	2 (5.9%)	
My caretaker decided	17 (42.5%)	12 (35.3%)	
Category of person who accompanies child seeking care			
Friend	0 (0.0%)	2 (7.7%)	0.021*
Family	39 (97.5%)	22 (84.6%)	
NGO worker	0 (0.0%)	2 (7.7%)	
Social worker	0 (0.0%)	0 (0.0%)	
Other	1 (2.5%)	0 (0.0%)	
Specific person who accompanies child			
Parent	25 (59.5%)	20 (74.1%)	0.568
Sibling	7 (16.7%)	5 (18.5%)	
Grandparent	8 (19.0%)	2 (7.4%)	
Cousin	1 (2.4%)	0 (0.0%)	
Neighbor	1 (2.4%)	0 (0.0%)	

Experiences of Stigma

Community and street children both reported perceived stigma. More community children thought a provider would not be helpful in treating them (80.5%) compared to street children (67.6%). However, street children more frequently thought a provider would refuse to help them with their illness (community 31.7%, street 50.0%). Both community and street

children felt it was hard to tell a provider about a problem/illness (community 58.5%, street 55.9%), or worried about what a provider would think (community 48.8%, street 44.2%) when seeking care (reference table 4).

Table 4: Experiences of Stigma

When seeking treatment from a health care center, a doctor, or trained medical professional, did you ever...	Community N=39	Street N=30	p-value
... feel it was hard to tell the provider about your problem or illness?			0.879
Yes	24 (58.5%)	19 (55.9%)	
No	15 (38.5%)	11 (36.7%)	
... worry about what the provider would think?			0.941
Yes	20 (48.8%)	15 (44.2%)	
No	18 (46.2%)	14 (46.7%)	
... worry that getting help would make things worse?			1
Yes	20 (51.3%)	15 (50.0%)	
No	18 (46.2%)	14 (46.7%)	
... think the provider would not be helpful?			0.403
Yes	33 (80.5%)	23 (67.6%)	
No	6 (15.4%)	7 (23.3%)	
... think the provider would refuse you help?			0.053
Yes	13 (31.7%)	17 (50.0%)	
No	26 (66.7%)	13 (43.4%)	

Knowledge of Preventative Care

When children were asked how important their health was to them, 90.2% of community children said their health was important to them, compared to 69.7% of street children. The difference was statistically significant (p=0.044).

Nearly all children were knowledgeable about healthy behaviors and preventative care practices. Both community and street children indicated, greater than 90% of the time, that eating a proper meal, taking a shower or bath, washing hands, brushing teeth, getting sleep, and getting vaccinated were important to maintaining good health (reference figure 9). All community and

street children reported that smoking, sniffing glue, and drinking alcohol were not good for maintaining good health.

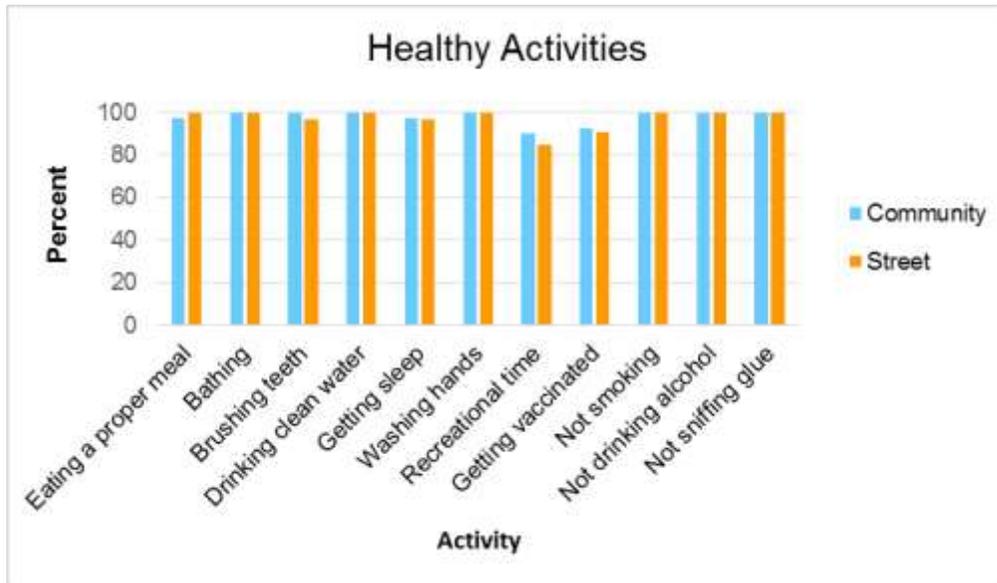


Figure 9: Children’s thoughts on what activities were good for your health.

Tobacco

All but two children said that it was not OK to try tobacco. More street children thought people used tobacco because they wanted to smoke or try smoking compared to community children (18.5% community, 37.5% street). Other reasons street children thought people smoked tobacco included because other people smoked, because of family problems, and trying tobacco once and becoming addicted. Community children’s other reasons for why people used tobacco also included because other people smoked, wanting to try or simply wanting to smoke, and being sad or stressed.

A greater number of community children thought that it was not possible or very hard for people who currently smoked to stop smoking (community 83.3%, street 38.5%). Street children more frequently responded that it was either hard, but possible to (26.9%) stop smoking or that was not too hard (26.9%) to stop smoking on a four point Likert scale. Community (90.2%) and

street children (93.8%) both believed that being near someone who smoked could make you sick. Specifically, children reported you may get an infection, get a headache, or become dizzy.

Alcohol

Street children, more frequently than community children, said that it was OK to buy an alcoholic drink at the age of 21 or older (community 39.0%, street 54.6%). Community children most frequently reported that buying an alcoholic drink between the ages of 16-20 was acceptable. Community children answered that the main reason for others to drink alcohol was because it was fun (20.0%), compared to street children who said the main reason for drinking was because others drank (25.9%). Other commonly cited reasons for drinking by community and street children included wanting to drink or get drunk, having family problems, or being stressed or sad.

Glue

All community children and all but one street children said it was not OK to try to sniff glue. Community and street children reported that the main reason for sniffing glue was because others also sniffed glue (community 33.3%, street 32.0%). Liking the taste, being sad or to feel better, and lack of parental supervision were the reasons community children commonly reported for reasons to sniff glue. On the other hand, street children said lack of parental supervision, family problems, and hunger were given as other reasons to sniff glue. Both community and street children acknowledged that sniffing glue was harmful to their health and would make them sick (community 80.5%, street 87.9%).

Phone Ownership

Seventy eight percent of community children and 75% of street children did not own a mobile phone. The most commonly cited reason for not owning a phone was cost (62.5% community, 84.0% street).

Nine community children and eight street children reported owning a phone. Most of these children owned their phone for a duration of less than one year (66.7% community, 75.0% street). Community children used the call (20.5%) and text (18.2%) feature the most on their phones, while street children used the call (21.6%) and music (21.6%) features the most. When asked if it would be useful to receive health messages via phone, all children said it would be very useful. Details on phone use can be found in appendix D.

3.5 Strengths and Limitations

Purposive and snowball sampling techniques may have biased the street and community child samples making it less representative of the country's street child population. Low sample size limited the ability to detect differences between community and street children. Also, we did not assess or ask about NGO or government activities that may have influenced children's responses about preventive care knowledge. Finally, concepts that rely on cultural contexts (such as depression) may not have been fully understood in its intended meaning.

Despite the limitations, there were several strengths of the survey. Firstly, the survey was pretested before formal administration to ensure reliability. Some questions were derived from previously validated studies. Use of a tablet to directly enter data eliminated errors that may have occurred through transferring data from a paper based survey. Finally, the survey is one of the few studies that provides a control group (community children) to compare street children's health seeking experiences [5-9, 40, 53, 58, 68, 69, 71].

3.6 Conclusion

Community and street based children appear to have similar experiences when accessing healthcare. There were few statistically significant results when comparing community and street children's responses. Both community and street children preferred getting medicine or receiving

treatment from a hospital or pharmacy. These places were preferred due to lower cost and guaranteed availability of assistance. Children also reported that family usually went with them to seek treatment. Both community and street children experienced perceived stigma. Community and street children also had good knowledge of healthy hygiene and preventative health practices. The majority of children did not own a mobile phone.

3.7 Discussion

The survey found that community and street children were similar in the health services they prefer, had similar attitudes about their health service utilization, and generally had the same knowledge of preventative health practices. Community and street children both preferred going to a hospital for care. However, preferring to obtain care at hospital contrasted with one report showing that of the poorest people in Cambodia, most actually sought healthcare at a drug shop [79]. While caretaker decision was the main reason for selecting the preferred choice of care (for both community and street children), cost and quality (assurance of receiving assistance) were the other main reasons influencing children's preference. Factors of cost and quality follow the general trend that these factors are significant in determining where one seeks healthcare [5, 69, 80, 81]. To put this into context, Cambodia has a high burdens out-of-pocket payment [18, 79, 80] and has one of the highest rates of catastrophic healthcare spending worldwide [80, 82]. (The average cost to visit a public healthcare facility was estimated to be \$5.69 USD (22,755 riels) and approximately 5.6% of household income is spent on medical expenses [79].)

According to literature on street children's health seeking behavior, street children may delay care until they could afford treatment or until the illness was very serious [5, 9, 71, 80]. The survey found both community and street mentioned fever and depression as symptoms that would prompt immediate care. In regards to the frequent reporting of depression, depression may

have various meaning across different cultures [83]. For instance, the signs and/symptoms of depression (such as changes in appetite or social withdrawal) may not be ubiquitous across countries or cultures [84]. Thus, the conceptual equivalent of depression may not have translated in full from English to Khmer. However, if it is true that symptoms of depression prompt immediate care seeking behavior, it may indicate the need for the Cambodian Ministry of Health to allocate more resources or effort to mental healthcare as current mental health services are lacking [85, 86].

The survey highlighted several factors that may facilitate seeking healthcare treatment. When asked if the children were accompanied by someone, both community and street children indicated that a family member, usually the mother, went with them to seek healthcare when they were sick. Community and street children also reported that the commonly sought health advice from a family member when sick. According to a 24 hour rapid assessment aimed at describing the demographics of street children in Cambodia, the majority of Battambang's street child population, and either a mother, father, or both parents living [4]. Further, the results of the survey are consistent with street children's healthcare access literature, that indicates parents are important supports in facilitating seeking healthcare [5, 7, 58, 71]. Thus, it can be hypothesized that having an adult presence may ease the process of finding appropriate treatment and facilitate the actual attainment of medical care. In addition, an adult present at the time of receiving treatment from a health facility may reduce the amount of perceived or enacted stigma for both community and street children.

Unlike countries where mobile phone ownership is common despite socioeconomic status, it appears that mobile phone interventions directly targeting this population may not be feasible in Cambodia. However, mobile phone interventions delivered to the phones of family members or focused on easing social workers' tasks may be ways indirectly aid this population.

In conclusion, this study was one of the few studies to quantitatively examine street children's knowledge, attitudes, and health seeking practices, and include a control group (community children). Community and street children appeared to have similar health seeking experiences and knowledge of preventative care. Family and peer networks may be leveraged to better target the street child population in future interventions.

4. Overall Conclusions and Future Directions

The aim of this thesis was to understand street children's healthcare seeking experiences in low and middle income countries. The major findings of were the following:

- Street children prefer to go to hospitals when they can afford to do so, but often self treat or go to pharmacies or drug vendors to purchase medication as a first point of treatment.
- The research also highlighted the fact that street children have a large amount of perceived or enacted stigma.
- Family and peer networks served as support during times of illness.

Street children are a vulnerable population who are at a critical stage in their life. The events and experiences these children endure will shape their future life events as an adult. Accessing healthcare services are a significant part of being able maintain good health to physically function and to fully and positively contribute to society.

Therefore, we suggest future studies focus their efforts in low and middle income countries where healthcare access may be limited by economic strain and low healthcare resources. By concentrating on street children in LMICs and probing deeper into a single aspect of the healthcare access framework (affordability, physical access, accommodation, acceptability, and availability) NGOs, government organizations, or other healthcare service entities may be able to gain a clearer picture of street children's healthcare seeking process. With a better understanding of street children's health seeking behavior, resources can be allocated more efficiently and effectively. Future investigations of street children's health seeking behavior should not forget to account for or evaluate the political climate and the impact of ongoing programs that offer basic care or healthcare services to street children as these may contribute to how children rationalize health seeking decisions.

Finally, it is strongly recommended that studies include a control group (such as community children) to get a clear understanding if and/or how street children's experiences seeking healthcare differ from community children. If community and street children have similar experiences seeking healthcare, then it may mean that services or programs targeting community children may also be appropriate for street children.

In addition to studying street children's experiences seeking healthcare in detail, it is just as important to consider the greater context in which street children live their lives. More specifically, defining exactly who the street children are (on or of the street), being sensitive to the country's culture and social norms (including society's view of street children), and understanding the subculture of street children, can give the detailed information on street children's healthcare access a richer more complete meaning.

In conclusion, more research is needed to fully understand street children's health seeking experiences in low and middle income countries. However, policy makers and other community leaders can start by advocating for these children's right to obtain healthcare.

Appendix A

PubMed	Embase	Web of Science	Scopus	CINAHL	PsycINFO	ProQuest Dissertations and Theses	Google Search Engine
1) Homeless youth OR homeless OR street	1) Homelessness OR homeless OR street	1) Homeless OR street	1) Homeless OR street	1) homeless persons OR homeless OR street	1) homeless OR street	1) homeless OR street	Street youth Homeless youth Developing country OR world Medicine OR health OR clinic .pdf
2) Child OR children OR youth OR youths OR adolescent OR adolescents OR teen OR teens OR teenager teenagers OR teenaged	2) Adolescent OR child OR children OR pediatric OR adolescent OR teenager OR teenagers OR teenaged OR teen OR teens OR youth OR youths	2) Child OR children OR youth OR youths OR adolescent OR adolescents OR teen OR teens OR teenager OR teenagers OR teenaged	2) Child OR children OR youth OR youths OR adolescent OR adolescents OR teen OR teens OR teenager OR teenagers OR teenaged	2) adolescent OR adolescents OR child OR children OR teen OR teens OR teenager OR teenagers OR teenaged OR youth OR youths	2) adolescent OR adolescents OR child OR children OR teen OR teens OR teenager OR teenagers OR teenaged OR youth OR youths	2) adolescent OR adolescents OR child OR children OR teen OR teens OR teenager OR teenagers OR teenaged OR youth OR youths	
3) Africa OR Central America	3) Afghanistan OR African OR Algeria	3) Afghanistan OR Africa OR African	3) Afghanistan OR African OR Algeria	3) OR Afghanistan OR Africa OR African	3) Afghanistan OR Africa OR African	3) Afghanistan OR Africa OR African	

OR Afghanistan	OR Angola	OR Algeria	OR Angola	OR Algeria	OR Algeria	OR Algeria	
OR Armenia	OR Armenia	OR Angola	OR Armenia	OR Angola	OR Angola	OR Angola	
OR Bangladesh	OR Bangladesh	OR Armenia	OR Bangladesh	OR Armenia	OR Armenia	OR Armenia	
OR Bhutan	OR Benin	OR Bangladesh	OR Benin	OR Bangladesh	OR Bangladesh	OR Bangladesh	
OR Bolivia	OR Bhutan	OR Benin	OR Bhutan	OR Benin	OR Benin	OR Benin	
OR Cambodia	OR Bolivia	OR Bhutan	OR Bolivia	OR Bhutan	OR Bhutan	OR Bhutan	
OR Comoros	OR Botswana	OR Bolivia	OR Botswana	OR Bolivia	OR Bolivia	OR Bolivia	
OR Georgia	OR Burkina Faso	OR Botswana	OR Burkina Faso	OR Botswana	OR Botswana	OR Botswana	
(Republic)	OR Burundi	OR Burkina Faso	OR Burundi	OR Burkina Faso	OR Burkina Faso	OR Burkina Faso	
OR Guyana	OR Cabo Verde	OR Burundi	OR Cabo Verde	OR Burundi	OR Burundi	OR Burundi	
OR Haiti	OR Cambodia	OR Cabo Verde	OR Cambodia	OR Cabo Verde	OR Cabo Verde	OR Cabo Verde	
OR India	OR Cameroon	OR Cambodia	OR Cameroon	OR Cambodia	OR Cambodia	OR Cambodia	
OR Indonesia	OR Cape Verde	OR Cameroon	OR Cape Verde	OR Cameroon	OR Cameroon	OR Cameroon	
OR Micronesia	OR Central	OR Cape Verde	OR Central	OR Cape Verde	OR Cape Verde	OR Cape Verde	
OR Democratic	African Republic	OR Central	African Republic	OR Central	OR Central	OR Central	
People's	OR Central	African Republic	OR Chad	African Republic	African Republic	African Republic	
Republic of	America	OR Chad	OR Comoros	OR Chad	OR Chad	OR Chad	
Korea	OR Chad	OR Comoros	OR Congo	OR Comoros	Congo	OR Comoros	
OR Kosovo	OR Comoros	OR Congo	OR Cote D'Ivoire	OR Congo	OR Comoros	OR Congo	
OR Kyrgyzstan	OR Congo	OR Cote	OR Djibouti	OR Congo	OR Cote D'Ivoire	OR Cote D'Ivoire	
OR Laos	OR Cote	D'Ivoire	OR East Timor	OR Cote D'Ivoire	OR Djibouti	OR Djibouti	
OR Madagascar	D'Ivoire	OR Djibouti	OR Egypt	OR Djibouti	OR East Timor	OR East Timor	
OR Moldova	OR Djibouti	OR East Timor	OR El Salvador	OR East Timor	OR Egypt	OR Egypt	
OR Mongolia	OR East Timor	OR Egypt	OR Equatorial	OR Egypt	OR El Salvador	OR El Salvador	
OR Myanmar	Vietnam	OR El Salvador	Guinea	OR El Salvador	OR Equatorial	OR Equatorial	
OR Nepal	OR Egypt	OR Equatorial	OR Eritrea	OR Equatorial	Guinea	Guinea	
OR Pakistan	OR El Salvador	Guinea	OR Ethiopia	Guinea	OR Eritrea	OR Eritrea	
OR Papua New	OR Equatorial	OR Eritrea	OR Gabon	OR Eritrea	OR Ethiopia	OR Ethiopia	
Guinea	Guinea	OR Ethiopia	OR Gambia	OR Ethiopia	OR Gabon	OR Gabon	
OR Paraguay	OR Eritrea	OR Gabon	OR Gaza	OR Gabon	OR Gambia	OR Gambia	
OR Philippines	OR Ethiopia	OR Gambia	OR Georgia	OR Gambia	OR Gaza	OR Gaza	

OR Samoa	OR Federated States Of Micronesia	OR Gaza	OR Georgia	OR Gaza	OR Georgia	OR Georgia	
OR Melanesia		OR Georgia	OR Ghana	OR Georgia	OR Ghana	OR Ghana	
OR Sri Lanka		OR Ghana	OR Guatemala	OR Georgia	OR Guatemala	OR Guatemala	
OR Syria	OR Gabon	OR Guatemala	OR Guinea	OR Ghana	OR Guinea	OR Guinea	
OR Tajikistan	OR Gambia	OR Guinea	OR Guinee-Bissau	OR Guatemala	OR Guinee-Bissau	OR Guinee-Bissau	
OR East Timor	OR Gaza	OR Guinee-Bissau	OR Guyana	OR Guinea	OR Guyana	OR Guyana	
OR Ukraine	OR Georgia		OR Haiti	OR Guinee-Bissau	OR Haiti	OR Haiti	
OR Uzbekistan	OR Georgia (Republic)	OR Guyana	OR Honduras	OR Guyana	OR Honduras	OR Honduras	
OR Vanuatu		OR Haiti	OR India	OR Haiti	OR India	OR India	
OR Vietnam	OR Ghana	OR Honduras	OR Indonesia	OR Honduras	OR Indonesia	OR Indonesia	
OR Yemen	OR Guatemala	OR India	OR Ivory Coast	OR Honduras	OR Indonesia	OR Indonesia	
Georgia	OR Guinea	OR Indonesia	OR Kenya	OR India	OR Ivory Coast	OR Ivory Coast	
OR Korea	OR Guinee Bissau	OR Ivory Coast	OR Kiribati	OR Indonesia	OR Kenya	OR Kenya	
African		OR Kenya	OR Korea	OR Ivory Coast	OR Kiribati	OR Kiribati	
OR Algeria	OR Guyana	OR Kiribati	OR Kosovo	OR Kenya	OR Korea	OR Korea	
OR Angola	OR Haiti	OR Korea	OR Kyrgyz	OR Kiribati	OR Kosovo	OR Kosovo	
OR Benin	OR Honduras	OR Kosovo	OR Kyrgyzstan	OR Korea	OR Kyrgyz	OR Kyrgyz	
OR Botswana	OR India	OR Kyrgyz	OR Laos	OR Korea	OR Kyrgyzstan	OR Kyrgyzstan	
OR Burkina Faso	OR Indonesia	OR Kyrgyzstan	OR Lesotho	OR Kosovo	OR Laos	OR Laos	
OR Burundi	OR Ivory Coast	OR Laos	OR Liberia	OR Kyrgyz	OR Lesotho	OR Laos	
OR Cameroon	OR Kenya	OR Lesotho	OR Libya	OR Kyrgyzstan	OR Liberia	OR Lesotho	
OR Cape Verde	OR Kiribati	OR Liberia	OR Madagascar	OR Laos	OR Libya	OR Liberia	
OR Central African Republic	OR Korea	OR Libya	OR Malawi	OR Laos	OR Madagascar	OR Libya	
OR Chad	OR Kosovo	OR Madagascar	OR Mali	OR Lesotho	OR Malawi	OR Madagascar	
OR Cote D'Ivoire	OR Kyrgyz	OR Malawi	OR Mauritania	OR Liberia	OR Mali	OR Malawi	
OR Ivory Coast	OR Kyrgyzstan	OR Mali	OR Mauritius	OR Libya	OR Mauritania	OR Mali	
OR Congo	OR Laos	OR Mauritania	OR Mayotte	OR Madagascar	OR Mauritius	OR Mauritania	
	OR Lesotho	OR Mauritius	OR Melanesia	OR Malawi	OR Mayotte	OR Mauritius	
	OR Liberia	OR Mayotte	OR Micronesia	OR Mali	OR Melanesia	OR Mayotte	
	OR Libya	OR Micronesia	OR Moldova	OR Mauritania	OR Micronesia	OR Melanesia	
	OR Madagascar	OR Moldova		OR Mauritius	OR Moldova	OR Micronesia	

OR Zaire	OR Malawi	OR Mongolia	OR Mongolia	OR Mayotte	OR Mongolia	OR Moldova	
OR Djibouti	OR Mali	OR Morocco	OR Morocco	OR Melanesia	OR Morocco	OR Mongolia	
OR Egypt	OR Mauritania	OR Mozambique	OR Mozambique	OR Micronesia	OR Mozambique	OR Morocco	
OR Equatorial Guinea	OR Mauritius	OR Myanmar	OR Myanmar	OR Micronesia	OR Myanmar	OR Mozambique	
OR Ethiopia	OR Mayotte	OR Namibia	OR Namibia	OR Moldova	OR Namibia	OR Myanmar	
OR Eritrea	OR Melanesia	OR Nepal	OR Nepal	OR Mongolia	OR Nepal	OR Namibia	
OR Gabon	OR Moldova	OR Nicaragua	OR Nicaragua	OR Morocco	OR Nicaragua	OR Nepal	
OR Gambia	OR Mongolia	OR Niger	OR Niger	OR Mozambique	OR Niger	OR Nicaragua	
OR Ghana	OR Morocco	OR Nigeria	OR Nigeria	OR Myanmar	OR Nigeria	OR Niger	
OR Guinea	OR Mozambique	OR Pakistan	OR Pakistan	OR Namibia	OR Pakistan	OR Nigeria	
OR Guinee- Bissau	OR Myanmar	OR Papua New Guinea	OR Papua New Guinea	OR Nepal	OR Papua New Guinea	OR Pakistan	
OR Kenya	OR Namibia	OR Paraguay	OR Paraguay	OR Nicaragua	OR Paraguay	OR Papua New Guinea	
OR Lesotho	OR Nepal	OR Philippines	OR Philippines	OR Niger	OR Philippines	OR Paraguay	
OR Liberia	OR Nicaragua	OR Reunion	OR Reunion	OR Nigeria	OR Reunion	OR Philippines	
OR Libya	OR Niger	OR Rwanda	OR Rwanda	OR Pakistan	OR Rwanda	OR Reunion	
OR Malawi	OR Nigeria	OR Sahara	OR Sahara	OR Papua New Guinea	OR Sahara	OR Rwanda	
OR Mali	OR North Korea	OR Saint Helena	OR Saint Helena	OR Paraguay	OR Saint Helena	OR Sahara	
OR Mauritania	OR Pakistan	OR Samoa	OR Samoa	OR Philippines	OR Samoa	OR Saint Helena	
OR Mauritius	OR Papua New Guinea	OR Sao Tome	OR Sao Tome	OR Reunion	OR Sao Tome	OR Samoa	
OR Mayotte	OR Paraguay	OR Senegal	OR Senegal	OR Rwanda	OR Senegal	OR Sao Tome	
OR Morocco	OR Philippines	OR Seychelles	OR Seychelles	OR Sahara	OR Seychelles	OR Senegal	
OR Mozambique	OR Reunion	OR Sierra Leone	OR Sierra Leone	OR Saint Helena	OR Sierra Leone	OR Seychelles	
OR Namibia	OR Rwanda	OR Solomon Islands	OR Solomon Islands	OR Samoa	OR Solomon Islands	OR Sierra Leone	
OR Niger	OR Sahara	OR Somalia	OR Somalia	OR Sao Tome	OR Somalia Islands	OR Solomon Islands	
OR Nigeria	OR Saint Helena	OR South Africa	OR South Africa	OR Senegal	OR South Africa	OR Somalia	
OR Reunion	OR Samoa	OR Sri Lanka	OR Sri Lanka	OR Seychelles	OR Sri Lanka	OR South Africa	
OR Rwanda	OR Samoan Islands	OR Sudan	OR Sudan	OR Sierra Leone	OR Sri Lanka	OR South Africa	
OR Sahara	OR Sao Tome	OR Swaziland	OR Swaziland	OR Solomon Islands	OR Sudan	OR Sri Lanka	
	OR Senegal	OR Syria	OR Syria	OR Somalia	OR Swaziland	OR Sudan	
					OR Syria	OR Swaziland	

developing country OR developing world OR Imic OR (low AND middle AND income) OR low resource OR resource poor OR third world OR underdeveloped OR underdeveloped OR under-resourced	developing country OR developing world OR Imic OR low resource OR (low AND middle AND income) OR resource poor OR third world OR underdeveloped OR under resourced OR underdeveloped	developing country OR developing world OR Imic OR low resource OR (low AND middle AND income) OR resource poor OR third world OR underdeveloped OR under-developed OR under-resourced	developing country OR developing world OR Imic OR low resource OR (low AND middle AND income) OR resource poor OR third world OR underdeveloped OR under-developed OR under-resourced	developing country OR developing world OR Imic OR low resource OR (low AND middle AND income) OR resource poor OR third world OR underdeveloped OR under-developed OR under-resourced	developing country OR developing world OR Imic OR low resource OR (low AND middle AND income) OR resource poor OR third world OR underdeveloped OR under-developed OR under-resourced	developing country OR developing world OR Imic OR low resource OR (low AND middle AND income) OR resource poor OR third world OR underdeveloped OR under-developed OR under-resourced	
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Appendix B

Table 5: Data Extraction Template

Name of article	
Date of form completed	
Include or Exclude	
Reason for Exclusion	
Methods	
Aim of Intervention	
Aim of Study	
Study design	
Methods of recruitment	
Inclusion criteria for study participation	
Exclusion criteria for study participation	
Ethical approval	
Funding	
Statistical methods and their appropriateness (if relevant)	
Consumer involvement	
Assessment of bias for RCTs and CBAs	
Random sequence generation	
Random sequence generation—Support for judgement	
Allocation concealment	
Allocation concealment—Support for judgement	
Blinding of participants and personnel	
Blinding out outcome assessment	
Incomplete outcome data	
Selective reporting	
Selective reporting—Support for judgement	
Other sources of bias	
Participants	
Description	
Geographic location	
Setting	
Number	
Age	
Gender	
Ethnicity	
Principal health problem(s) (if relevant)	
Other health problem(s)	
Stage of problem/illness (if relevant)	
Treatment received/receiving	
Other social/demographic details	

Interventions	
Details of intervention	
Details of control/usual our routine care	
Details of co-intervention(s) in all groups	
Delivery of Intervention	
Details of providers	
Intervention quality (if relevant)	
Fidelity/integrity	
Outcomes	
Principal and secondary outcome measures	
Methods of assessing outcome measures	
Validity and reliability of outcome measures	
Methods of follow-up for non-responders	
Timing of outcome assessment	
Adverse events	
Your notes here	
Results	
Our Information	
Barriers	
Facilitators	
Illnesses described	
Health facilities utilized	
Experience (stigma)	
Health care needs	
Validity Criteria	
Was the choice of participants explicit and comprehensive?	
Was data collection sufficiently comprehensive and detailed?	
Were the data analyzed appropriately and the findings analyzed adequately?	
Study Results	
What are the results of the study?	
Does the study offer helpful theoretical conclusions?	
Does the study help me understand the context of street children's health care needs?	
Does the study help me to understand street children's barriers and facilitators to healthcare access?	

Appendix C

Survey

1) PLEASE MARK IF COMMUNITY BASED OR STREET BASED CHILD.

- Community based
- Street based

Demographics

2) RECORD WHETHER THE CHILD IS A BOY OR A GIRL BY OBSERVATION.

- Boy
- Girl

3) Have you taken this survey before?

- Yes
- No
- I don't remember

4) How old are you?

ENTER AGE IN YEARS.

5) Do you usually sleep with family at night?

- Yes
- No

6) Where do you usually sleep at night?

- Bus station
- Empty building or house
- On the street
- Park
- Railway station
- Shelter
- Temple or mosque
- Home
- Other, specify _____

*Question appears if **street** based child was selected.*

7) How many weeks have you been (living/working) on the street?

- Less than 2 weeks
- 2 weeks to 1 month
- Greater than 1 month to 3 months
- 4 months to 11 months
- One year or more

8) Do you have an ID-Poor card?

- Yes
- Yes, but I lost it
- No
- I can't remember

9) Who is in your family?

DO NOT READ ANSWER CHOICES. RECORD ALL MENTIONED.

- Mother
- Father
- Brother
- Sister
- Step sister
- Step brother
- Grandmother
- Grandfather
- Aunt
- Uncle
- Step mother
- Step father
- Other, specify _____
- Other, specify _____
- Other, specify _____

10) Have you ever gone to school?

- Yes
- No

Question appears if yes was selected for ever gone to school.

11) Up to what class have you completed?

- Some primary
- Primary
- Some secondary
- Secondary
- Some upper secondary
- Upper secondary

12) Do you know how to read?

- Yes
- No

Question appears if yes was selected for know how to read.

13) Can you please read the following sentences for me? It's OK if you cannot read all the sentences. MARK EACH SENTENCE THAT IS READ CORRECTLY.

- Farming is hard work.
- The child is reading a book.
- Children work hard at school.

14) Do you know how to write?

- Yes, I can write well
- Yes, but not well
- Yes, but only my name
- No

15) Surveyor: is the child eligible for the study?

- Yes
- No

We're done! Thank you for taking our survey!

Health Service Utilization

Next, I am going to ask some questions about the health services you use. Ready?

16) Do you remember ever being sick?

- Yes
- No

If no selected, skip to how important is your health to you.

17) Within the past year, how many times did you get sick?

- 0
- 1
- 2-3
- 4 or more times

18) When you are sick, how easy is it for you to get health care treatment?

- Hard
- Somewhat hard
- Somewhat easy
- Easy

19) What place is your top choice for receiving treatment when you are sick?

IF CHILD CANNOT THINK OF ANY PLACE, THEN READ THE LIST OF CHOICES.

- Drop in center
- District Hospital
- Referral Hospital
- Mobile clinic
- NGO
- Pharmacy
- Public clinic
- Private clinic
- Traditional healer
- I do not go anywhere (prefer home remedies)
- Home visit, provider type: _____
- Other, specify _____
- Other, specify _____
- Other, specify _____

20) Why is the [*PREVIOUSLY SELECTED ANSWER*] your top choice for seeking treatment when you are sick?

DO NOT READ ANSWERS. RECORD ANSWERS USING CHOICES PROVIDED.

RECORD ALL MENTIONED.

- I am sure I will get assistance
- It is close
- The treatment is cheap
- I feel comfortable going there
- I know the provider there
- My friends have gone there
- I heard good things about it
- My caretaker decided
- Other, specify _____
- Other, specify _____
- Other, specify _____

Question appears if community based child was selected.

21) How do you usually get to the [*TOP CHOICE*] from your home?

- Walk
- Bus
- Bicycle
- Motor-bike
- Tuk tuk
- Taxi
- Moto-taxi
- Other, specify _____
- Other, specify _____
- Other, specify _____

Question appears if street based child was selected.

22) How do you usually get to the [*TOP CHOICE*] from where you usually sleep?

- Walk
- Bus
- Bicycle
- Motor-bike
- Tuk tuk
- Taxi
- Moto-taxi
- Other, specify _____
- Other, specify _____
- Other, specify _____

Question appears if community based child was selected.

23) How far away is the [*TOP CHOICE*] from your home?

- Less than 10 minutes
- 10 - 30 minutes
- More than 30 minutes

Question appears if street based child was selected.

24) How far away is the [TOP CHOICE] from where you usually sleep?

- Less than 10 minutes
- 10 - 30 minutes
- More than 30 minutes

25) What place is your second choice for receiving treatment when you are sick?

IF CHILD CANNOT THINK OF ANY PLACE, THEN READ THE LIST OF CHOICES.

- Drop in center
- District Hospital
- Referral Hospital
- Mobile clinic
- NGO
- Pharmacy
- Public clinic
- Private clinic
- Traditional healer
- I do not go anywhere (prefer home remedies)
- Home visit, provider type: _____
- I don't have a second choice
- Other, specify _____
- Other, specify _____
- Other, specify _____

Question appears if any choice except I don't have a second choice is selected.

26) Why is the [SECOND CHOICE] your second choice for seeking treatment when you are sick?

DO NOT READ ANSWER CHOICES. RECORD ANSWERS USING CHOICES PROVIDED.
RECORD ALL MENTIONED.

- I am sure I will get assistance
- It is close
- The treatment is cheap
- I feel comfortable going there
- I know the provider there
- My friends have gone there
- I heard good things about it
- My caretaker decided
- Other, specify _____
- Other, specify _____
- Other, specify _____

27) Is there someone who usually goes with you when you seek treatment at a health care center, from a doctor, or from trained medical professional?

- Yes
- No

Question appears if yes selected for someone who usually goes with you when seek treatment.

28) Who usually goes with you?

DO NOT READ ANSWERS CHOICES. RECORD ANSWERS USING CHOICES PROVIDED.

- Friend
- Family, specify _____
- NGO member
- Social worker
- Other, specify _____

29) When you are sick and need advice about your health, who do you ask?

DO NOT READ ANSWER CHOICES. RECORD ALL MENTIONED.

- Friends
- Family
- Pharmacist
- Employer
- Hospital worker
- Buddhist monk
- Social Worker
- Traditional healer
- Village chief
- I do not ask anyone
- Other, specify _____
- Other, specify _____
- Other, specify _____

If no selected, skip to symptoms question.

30) Of the people you mentioned, who do you go to the most for advice about your health when you are sick?

31) Next, I am going to read you some symptoms you may have when you are sick. Please tell me which symptoms would make you get help right away by saying "yes," "no," or "not sure." Ready?

	Yes	No	Not Sure
<i>Not being able to drink anything</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Being sick and becoming sicker</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Fever</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Difficulty breathing</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Having blood in your stool</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Not eating</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Not sleeping</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Wounded or bleeding</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>Being depressed</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question appears if any choice except I do not go anywhere is selected.

32) When seeking treatment from a health care center, a doctor, or trained medical professional did you ever...

READ EACH STATEMENT. THEN, RECORD ANSWER.

	Yes	No	Can't remember
<i>... feel it was hard to tell the provider about your problem or illness?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... worry about what the provider would think?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... think the provider would not be helpful?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... worry that getting help would make things worse?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... think the provider would refuse you help?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... worry that it would be too expensive?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... worry about bad things you heard about the place?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<i>... think the place was too far away?</i>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33) How important is your health to you?

- Not important
- Somewhat important
- Fairly important
- Important

Health Maintenance

Thanks for answering my questions. Now, I'm going to ask you about your health habits. Ready?

34) When you sleep, do you use a mosquito net?

- Never
- Sometimes
- Often
- Always

35) Do you have more than one set of clothes?

- Yes
- No

36) INTERVIEWER, OBSERVE IF CHILD IS WEARING SHOES. IF CHILD IS WEARING SHOES, MARK YES AND CONTINUE. Do you have a pair of shoes or sandals?

- Yes
- No

I am going to read you a list of activities. Which activities do you think keep you healthy? Please answer "yes", "no" or "don't know."

READ EACH STATEMENT. THEN, RECORD ANSWER.

37) Eating a proper meal...

- Yes
- No
- Don't know

38) Taking a bath or shower...

- Yes
- No
- Don't know

39) Brushing your teeth...

- Yes
- No
- Don't Know

40) How often do you clean your teeth?

- Never
- Several times per month
- Several times per week
- Everyday

41) Drinking clean water...

- Yes
- No
- Don't Know

42) Where do you usually get your drinking water?

- Bottled water
- Borehole with pump
- Pond
- River or stream
- Tank-truck vendor
- Well
- Water station/reservoir, piped
- Other, specify _____

43) Is your water usually boiled?

- Yes
- No
- I don't know

44) Getting sleep...

- Yes
- No
- Don't know

45) How many hours of sleep do you get each day?

- 0-3
- 4-5
- 6-8
- 9 or more

46) How many hours of sleep do you think you need each day?

- 0-3
- 4-5
- 6-8
- 9 or more
- I don't know

47) Washing your hands...

- Yes
- No
- Don't know

48) How often do you wash your hands?

- Never
- Several times per month
- Several times per week
- Everyday

49) Recreational time...

- Yes
- No
- Don't know

50) Getting vaccines...

IF THE CHILD DOESN'T KNOW WHAT A VACCINE IS, MARK "I don't know"

- Yes
- No
- Don't know

51) Smoking...

- Yes
- No
- Don't know

52) Drinking alcoholic drinks...

- Yes
- No
- Don't know

53) Sniffing glue...

- Yes
- No
- Don't know

We are almost done. I'm going to ask you a little more about what you think of tobacco use, drinking alcohol, and sniffing glue. Let's start with tobacco use.

54) Do you think it is OK to try tobacco products?

- Yes
- No
- Don't know

55) Why do you think people use tobacco?

DO NOT READ ANSWER CHOICES. RECORD ANSWER USING CHOICES PROVIDED. (IF THE CHILD SAYS "BECAUSE THEY ARE ADDICTED," TRY TO GET THEM TO ANSWER WHY PEOPLE START.)

- Because it is fun
- Because it makes a person look attractive
- Because other people use tobacco
- To relieve boredom
- To relieve pain
- I don't know
- Other, specify _____
- Other, specify _____
- Other, specify _____

56) Do you think people can stop smoking if they want to?

- No: It is very hard
- Maybe: It is hard, but possible
- Maybe: It is not too hard
- Yes: It is very easy

57) What do you think happens when you are near someone who smokes?

- I may get sick _____
- Nothing will happen
- I may get stronger
- Don't know

Now, I am going to ask about what you think about drinking alcohol.

58) At what age do you think it is OK to buy an alcoholic drink?

- Less than 10 years
- 11-15 years
- 16-20 years
- 21 years or over
- Never

59) Why do you think people drink alcohol?
DO NOT READ ANSWER CHOICES. RECORD ANSWER USING CHOICES PROVIDED.
(IF THE CHILD SAYS "BECAUSE THEY ARE ADDICTED," TRY TO GET THEM TO
ANSWER WHY PEOPLE START.)

- Because it is fun
- Because it makes a person look attractive
- Because other people drink alcohol
- To relieve boredom
- To relieve pain
- I don't know
- Other, specify _____
- Other, specify _____
- Other, specify _____

Next, I will be asking about your thoughts on sniffing glue.

60) How do you think sniffing glue affects your health?

- I may get sick _____
- Nothing will happen
- I may get stronger
- Don't know

61) Do you think it is OK to try sniffing glue?

- Yes
- No
- Don't know

62) Why do you think people sniff glue?

DO NOT READ ANSWER CHOICES. RECORD ANSWER USING CHOICES PROVIDED.
(IF THE CHILD SAYS "BECAUSE THEY ARE ADDICTED," TRY TO GET THEM TO
ANSWER WHY PEOPLE START.)

- Because it is fun
- Because it makes a person look attractive
- Because other people drink alcohol
- To relieve boredom
- To relieve pain
- I don't know
- Other, specify _____
- Other, specify _____
- Other, specify _____

Mobile Phone Ownership

This is the last section of our survey. It is about mobile phone ownership and use.

63) Do you own a mobile phone?

- Yes
- No

If no selected, skip to why not own mobile phone.

64) How many years have you owned a phone?

- Less than 1 year
- 1-2 years
- Longer than 2 years

65) What type of mobile phone do you currently own?

- Basic (can only make calls)
- Feature phone
- Android Smartphone
- iPhone
- Blackberry
- Not sure
- Other, specify _____

66) What features do you use on your phone?

- Call
- Text
- Camera
- Internet
- Email
- Music
- Games
- Social Media (Facebook, Twitter, etc.)
- Other, specify _____
- Other, specify _____
- Other, specify _____

67) In general, how much time do you spend on your phone per day?

- Less than 30 minutes
- 30 minutes - 1 hour
- 1-2 hours
- Greater than 2 hours

68) Do you share your phone with others?

- Yes
- No

Question appears if yes is selected for share phone with others.

69) Who do you share your phone with?

- Family
- Friends
- Other, specify _____
- Other, specify _____
- Other, specify _____

70) Do you use multiple SIM cards?

IF THE CHILD ASKS WHAT A SIM CARD IS PLEASE EXPLAIN: A SIM CARD IS THE SMALL PLASTIC PIECE INSIDE YOUR PHONE THAT STORES YOUR PHONE'S INFORMATION.

- Yes
- No
- Not sure

71) How often do you change your mobile phone number?

- Every few months
- Every year
- Every several years
- Not sure
- Never

72) Who pays your mobile phone charges?

- I do
- Family
- Friend
- Social worker
- Other: _____

Question appears if I do is selected for pays mobile phone charges.

73) How often are you able to pay your mobile phone charges?

- Never
- Sometimes
- Often
- Always

74) Would you it be useful if you could receive health messages on your phone?

- Not useful at all
- Not useful
- Somewhat useful
- Very useful

- 75) Would it be useful if you could use your phone to contact someone for your healthcare needs?
- Not useful at all
 - Not useful
 - Somewhat useful
 - Very useful

Question appears if no is selected for mobile phone ownership.

76) Why do you not own a mobile phone?

- I don't need one
- I cannot afford it
- I have no place to store it
- I don't know how to use one
- Other, specify _____
- Other, specify _____
- Other, specify _____

Question appears if no is selected for mobile phone ownership.

77) If you need to make a call, is there someone you can borrow a phone from?

- Yes
- No
- Not sure

Question appears if no is selected for mobile phone ownership.

78) Do you think you will own a cell phone in the near future?

- Yes
- No
- Not sure

Appendix D

Table 6: Phone Use

	Community	Street	p-value
Why do you not own a mobile phone?			
I don't need one	0 (0.0%)	0 (0.0%)	0.110
I cannot afford it	20 (62.5%)	21 (84.0%)	
I have no place to store it	0 (0%)	1 (4.0%)	
I don't know how to use one	4 (12.5%)	1 (4.0%)	
Other	8 (25.0%)	2 (8.0%)	
How many years have you owned a phone?			
Less than 1 year	6 (66.7%)	6 (75.0%)	1
1 to 2 years	2 (22.2%)	2 (25.0%)	
Longer than 2 years	1 (11.0%)	0 (0.0%)	
How often do you change your mobile phone number?			
Every few months	4 (44.4%)	3 (37.5%)	1
Every year	2 (22.0%)	1 (12.5%)	
Every several years	0 (0.0%)	0 (0.0%)	
Never	3 (33.3%)	4 (50.0%)	
Not sure	0 (0.0%)	0 (0.0%)	
What features do you use on your phone?			
Call	9 (20.5%)	8 (21.6%)	0.935
Text	8 (18.2%)	6 (16.2%)	
Camera	7 (15.9%)	6 (16.2%)	
Internet	2 (4.5%)	1 (2.7%)	
Email	0 (0.0%)	0 (0.0%)	
Music	7 (15.9%)	8 (21.6%)	
Games	7 (15.9%)	7 (18.9%)	
Social media (Facebook, Twitter, etc.)	4 (9.1%)	1 (2.7%)	
Other	0 (0.0%)	0 (0.0%)	
In general, how much time do you spend on your phone per day?			
Less than 30 minutes	5 (55.6%)	5 (55.6%)	1
30 minutes to 1 hour	3 (33.3%)	3 (37.5%)	
1 to 2 hours	0 (0.0%)	0 (0.0%)	
Greater than 2 hours	1 (11.1%)	0 (0.0%)	
Do you use multiple SIM cards?			
Yes	5 (55.6%)	3 (37.5%)	0.637
No	4 (44.4%)	5 (62.5%)	

	Not sure	0 (0.0%)	0 (0.0%)	
If you need to make a call, is there someone you can borrow a phone from?				
	Yes	26 (81.3%)	17 (68.0%)	0.249
	No	6 (18.75%)	8 (32.0%)	
	Not sure	0 (0.0%)	0 (0.0%)	

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