

Review of methodologies for counting street-connected children

Dr Sarah J.E. Barry

Chancellor's Fellow and Lecturer in Statistics

Department of Mathematics and Statistics

University of Strathclyde, Glasgow, UK

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1. Introduction

This report reviews the methodologies that have been used for counting street-connected children around the world. The author has reviewed a number of academic papers and reports by organisations involved in supporting street-connected children and critiqued the methods used. It should be noted that this is not a systematic review – considerable effort has gone into obtaining all of the relevant papers in the area, but some may have been missed.

The main methods that were found were census, observational headcount, respondent-driven sampling and capture-recapture methods. Each method is introduced, some examples given of its use and a summary of the approach given. The report concludes with a general discussion and some conclusions/recommendations.

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2. General issues

There are some general issues with inconsistencies in the definitions of street-connected children across the studies carried out to estimate their numbers. Firstly, studies are not consistent in the age ranges included. StreetInvest define a child as any person under the age of 18 years (1), and this corresponds to the definition used by UNCRF, but various of the studies described in this report use different age ranges, eg. 13-17 (2) or under 19 years (3). This impacts on the estimated counts, since clearly the latter will count more children than the former in the same area, purely by allowing more children of different ages to be counted.

Secondly, there are multiple terms used to describe this population of children and these correspond to a variety of definitions of their relation to the street. In the 1970s UNICEF defined children 'of the street' as being those who are homeless and sleep on the street, while children 'on the street' work on the street but return home at night (4) and these tend to be the most commonly used definitions (5). The broadest definitions are 'street-connected' children, which includes both children of and on the street (4); 'children and adolescents in street situations,' identifying children for whom any aspect of their life may be affected by the street, such as living, working or loitering on the street (6); and 'street children' as defined by StreetInvest (1): 'any child whose life is controlled by the street.' Some of the studies below term the population 'street children' but have much narrower definitions, such as the studies in Bamako and Accra, which include only those children who sleep on the street without any adult protection and exclude those who live in street families or beg during the day and return to an institution at night (7); while others do not have a specific definition, eg. (3) and (8). Clearly these differing definitions are likely to result in very different estimates of the size of the population and so it is vital that a consistent definition is used in future studies in this area.

In this report the broadly defined term 'street-connected' children will generally be used, except when describing a study in which a different term has been defined.

3. Methods

3.1. Census and observational headcount

3.1.1. Introduction

Census and observational headcount methods aim to count all of the street-connected children in a particular area. The two methods are presented together because in practice there is crossover in how they are carried out and they have similar limitations.

Census methods are commonly used to count the number of people in a country's population. They are usually carried out using surveys and collect demographic information on the individuals. Their intention is to count all members of a population, which clearly can pose challenges when working with elusive populations such as street-connected children. Nevertheless, they have been used to enumerate this population, as detailed below.

Observational headcounts involve no direct interaction with the children being counted and are based purely on observation (9). Observers visit locales known to be frequented by street-connected children, and count the number of visible children in a street situation. The aim is that this provides a full count of street-connected children in an area and does not have any of the ethical issues connected with other methods of counting that generally involve surveying or interviewing children, generally without any way of offering any help or support. It should also remove biases related to children being reluctant to divulge information, or giving different names for different samples.

As described by StreetInvest (9), the methodology that they developed involves carrying out three counts, by different teams of observers. The first two are essentially practice counts. The children in each area are counted by two different teams in the first and the teams swap over for the second count. These counts are followed by comparisons and debates of the results, in order to inform the third count, which is the final and definitive count. The members of the teams should be familiar with the population and the area and rigorously trained, and the definition of who is to be counted must be specific and clear to all observers.

3.1.2. Use in counting street-connected children

The US Census Bureau carried out two enumerations of homeless individuals, including children, in cities in the USA in 1990 and 2000. They essentially carried out a census, with the enumerators in 1990 visiting homeless shelters and known street locations where homeless people were known to congregate, and those in 2000 counting only individuals staying in shelters (10). The 1990 count was criticised for inconsistency in approaches to counting and transient individuals being missed (11). In 2000 the number of children (both accompanied and unaccompanied) residing in shelters across the USA was estimated but the report warned that extreme caution should be used in interpreting this number, since those residing outside of shelters were missing and these are likely to constitute a considerable proportion of the total population.

A survey of homeless individuals, including children, in New Haven, Connecticut, USA in 2003 involved surveying individuals in a wide range of situations, including homeless and

domestic violence shelters and service agencies, streets, hospitals and other treatment facilities, schools and community groups (10). Some identifying information (eg. several letters of the first and last names) was recorded to avoid duplication. The annual prevalence of homeless children in the city was calculated using a combination of the number of children included in the survey and the length of time for which they had been homeless. The authors acknowledge that it is likely that unaccompanied homeless children were undercounted (10). It is also likely that other, harder-to-reach individuals were missed.

Headcounts were reportedly carried out in Accra and Tema in Ghana and in the Eastern Congo in 2008 (1). The first national observational headcount was carried out in Sierra Leone in 2011 (12). Children were counted if they were considered a 'street child,' defined as 'any child whose life is controlled by the streets.' Any child considered to be 18 years or younger in such a situation was included. Towns were divided into walkable areas, which were each covered by groups of observers. Three counts were taken, with teams swapping areas for the first and second counts, and the third used as the definitive count. The counts were carried out during the rainy season, which made them particularly challenging and the observers had difficulties in accessing some areas due to police restrictions.

A similar headcount was carried out in the cities of Addis Ababa and Adama/Nazareth in Ethiopia in 2011, using the same definition of a street child as the Sierra Leone study, and including individuals aged 22 years or younger (1). In both studies, the children were classified by gender, age group and the type of activity they were involved in when observed.

In 2013 a headcount was carried out in Kumasi, Ghana, with the particular aim of enabling the support and empowerment of street girls (13). Four zones of the city were included and the three counts took place over a period of nine days, with the usual verifications of the first two counts. The counts were started on days when children were not in school, since these were when there were more children on the streets. When children were in school, the counts were much lower. The defined age range for inclusion was 18 years and under. Unlike most of the others studies detailed in this report, more girls than boys were counted, which may have been due to local conditions, or resulting from observational bias due to the aim of the study focussing on girls.

3.1.3. Summary

Though the observational headcount method is postulated as being a true count of the population, as the census is, both suffer from the limitation that they will undercount the harder-to-reach members of the population. Since the headcount method counts only visible children, their inclusion in the count depends on the observers being in all of the places in which there are street-connected children, and the children being visible in those areas. Particular groups are likely to be missed, such as sex workers spending the night with clients, and observers being unable to access certain areas will result in the children in those areas not being counted.

The other main limitation with the observational headcount approach is that observers are likely to include and exclude individuals incorrectly due to being mistaken about their

characteristics. For example, observers must make a judgment about the age of a child, to decide whether to include them in the count. Their estimate of a child's age is likely to be affected by factors such as malnutrition and the impacts of living on the street (1).

The observational headcount approach is appealing in that it gives 'hard' numbers. If it is carried out across an entire country, as in Sierra Leone, it is likely to give consistent estimates of street-connected children across different areas, notwithstanding that the numbers are likely to be too low due to hidden members of the population not being counted. It does not intrude in children's lives and is not affected by the mistrust of many street-connected children to researchers and other adults. However, it still results in a sample and not in a definitive count of the population. There will always be a missing sector of the population that cannot be enumerated and there will be inaccuracies in whom is included.

In conclusion, observational headcount may be a useful methodology for enumerating street-connected children, but is likely to be inaccurate and to undercount elusive members of the population. It could be usefully used in conjunction with other approaches, such as the ones discussed below.

3.2. Respondent-driven sampling (RDS)

3.2.1. Introduction

Respondent-driven sampling (RDS) has been used in a number of hard-to-reach populations, such as injecting drug users, sex workers and men who have sex with men (14). The methodology involves selecting a reasonably small number of 'seed' children, and asking them to recruit other children from their social network. Children are rewarded both for being interviewed and for recruiting other children – a dual incentive structure.

The method is particularly useful for describing the characteristics of an elusive population. The RDS framework assumes that the sample will be an unbiased estimate of the population (in terms of its characteristics), because the seed children's preferences will weaken from one wave of children to the next and this should also mean that the choice of seed children does not matter (14). Unlike previous chain-referral sampling methods, information is collected about the children's social networks by asking them their relationships to one another, and therefore researchers can estimate the proportion of children in each population group (7). The number that each child can recruit can be limited to reduce the impact of children with large social networks and the major benefit of the RDS approach is that it can reach those children who otherwise have no contact with services and are the hardest to reach (14).

However, it is not able to estimate the size of the population, since there is no way of knowing what proportion of the population have been reached in any study using RDS or the numbers of children that have not been recruited to the study and remain hidden. Furthermore, there are a number of assumptions that need to hold for the sample to be representative of the population; mainly that the method can recruit from all subgroups of the population, whereas in reality there can be difficulties in accessing isolated individuals or population sub-groups; and that every individual in a recruiting child's social network

have equal probability of being recruited, which is unlikely in practice, since a child will recruit children who are easiest to access. There can also be difficulties in defining the required population to recruiting children, to ensure that they approach the right individuals (14).

3.2.2. Use in counting street-connected children

Two studies are presented here as an illustration of how RDS may be used, since it is not a method that has utility in estimating the population size of street-connected children.

The first known use of RDS for street-connected children was a 2004 study which sampled 'street children' (defined as 'a person younger than 18 years of age, living separated from parents or other tutors, who slept on the streets the previous night') in Bamako, Mali and in Accra, Ghana (7). A concurrent capture-recapture sampling was carried out in Bamako, as detailed in Section 3.3.2. A similar approach was taken in Kono, Sierra Leone in 2005 to characterise the children working in diamond-related activities (15).

In Bamako, 10 seed children were recruited by local NGOs and given a maximum number of fellow street-connected children to recruit (7). Children were given a packet of biscuits for being interviewed and there were successively larger food-based rewards for recruiting between 1 and 6 other children. The study recruited 4 waves of children and while some children recruited none, others recruited up to the maximum number. There were various logistical issues in accessing the seed children and also in the clarity of the definition of children to recruit, with many being outside the definition (eg. street beggars and children from the local Koran school). Children also tended to recruit solely within their own group, eg. the same gender and same ethnic group. It is unlikely that there were sufficient waves of recruitment in this study to remove this bias.

In Albania in 2007, RDS was used to sample children aged 10-17 years working (any form of earning money, food or other items, including begging) on the streets in the city of Tirana (16). The initial sample was of 10 seed children identified through NGOs and incentives included a small hand-held video game and food. The children were asked to recruit least 3 others and were questioned about the size of their social network, which was used to downweight those with larger networks and upweight those with smaller ones in the analysis. There was a maximum of 13 waves of recruited children.

The results of both studies were presented as the proportions of children within the sample having each particular characteristic (eg. age group, gender, etc.). The study in Albania also presented corresponding estimates of the proportion of the population in each demographic group.

3.2.3. Summary

There are ethical issues around giving children rewards to recruit other children and potential coercion of children to take part. The dual incentive approach can result in children being recruited to the study who are not genuinely connected to the street, since they want the reward (7). It can also be difficult for this method to reach children who are 'loners' and do not connect to any social networks nor are part of any group. Though in theory RDS should provide a representative sample and the choice of seed children should

not matter (14), in practice children tend to recruit primarily from their own group and only recruit from other groups when there were no more children from their own one (7), known as homophily, highlighting the importance of the choice of seed children and the limitation of this method when using a relatively small number of them. However, the analysis can explore the links between the recruiting and recruited children and the extent of their social networks, and thus adjust for homophily (16). The recruitment chain (number of waves) should be long enough that the waves become independent of the initial seeds, thus reducing or removing any biases associated with the choice of seed children and ensuring that hidden members of the population have a non-zero probability of being sampled (17).

In conclusion, RDS is a useful method for identifying the characteristics of street-connected children, and the proportions of the population within particular demographic groups, but is not particularly useful for estimating the size of the population. It can provide a representative sample of the population provided sufficient waves of children are recruited.

3.3. Capture-recapture methods

3.3.1. Introduction

Capture-recapture methods were developed for estimating the size of wildlife populations, being first applied to fish in 1917, and the first known use in human health was in 1949 in a study estimating birth and death rates (18). The capture-recapture approach has since been widely used in epidemiology to estimate the sizes of elusive populations, such as injecting drug users (19), HIV amongst sex workers (20), people who have been trafficked, civilian casualties of war (21) and homeless people with mental illness (22), amongst many others (23). The method can also be used to adjust for the undercount in the census by incorporating other lists (18). A number of other terms for capture-recapture have been used in studies involving human populations, such as dual-system methods and dual-record system methods, and when more than two lists are used, terms such as multiple recapture, multiple-system and multiple-record systems methods have been used (18).

The approach initially used in studies of wildlife populations involved capturing and tagging or marking members of a difficult to count population, then releasing them and doing a subsequent capture at a later point. The estimated size of the population is then the total number in the first sample multiplied by the total number in the second sample divided by the number in both samples (ie. the individuals in the second sample who had been tagged or marked in the first sample). The methods have since been extended and can now be applied to more than two lists using a log-linear statistical modelling framework (18). Importantly, the methodology allows calculation of a confidence interval around the estimated population size, giving an assessment of the precision of the estimate (24).

The assumptions underlying the methodology are as follows (18):

1. The population is closed, ie. it does not change during the sampling period;
2. Individuals can be matched between samples;
3. On each of the sampling occasions, each individual has the same chance of being sampled (ie. being recorded in the first sample does not affect the chance of appearing in a subsequent sample);

4. The samples are independent (this follows from assumption 4).

In general, the population of street-connected children is highly mobile and so assumption 1 may be assumed not to hold (14). However, most studies estimating the size of the population can and should be designed so that the assumption does hold, eg. by carrying out two samples with a week or two of each other, or using official lists that were compiled in the same time period.

The reality in human populations is that it is generally not ethical to tag or mark people, particularly vulnerable members of the population such as street-connected children. Clearly other methods must be used to ensure that assumption 2 holds, and the studies detailed below used approaches such as collecting multiple items of identifying information from each child in each sample to attempt to adequately match those appearing in both. Some studies have used novel approaches such as showing a different cartoon or picture to individuals and asking them on the second sampling to recall if they have been shown a picture before and if so to describe what it was (2).

Assumption 3 and therefore 4 are most likely not to hold in the case of comparisons of official or government lists (18), since if children have been registered by one part of the system they are likely to also have been found by another part. However, in the case of sampling and resampling, as the studies here have done, the assumptions are more likely to hold since each child in the area being sampled should have a similar probability of being found by the interviewers.

Generally, then, the assumptions of the capture-recapture method should hold in studies estimating the numbers of street-connected children, provided careful thought goes into when the sampling is carried out and how the matching between samples is done.

3.3.2. Use in estimating counts of street-connected children

Despite the long history of capture-recapture methods in epidemiology and in counting a wide range of elusive populations, they have only relatively recently been introduced in studies estimating the numbers of street-connected children and few studies have used the methodology. All of the studies using this approach that could be found are detailed here.

In reportedly the first published study to use capture-recapture methods to count street-connected children, Gurgel and colleagues estimated the numbers of 'street children' (not specifically defined, but identified as being unaccompanied, idle without a clear reason for being on the street or working) in a city in Brazil (3) in the early 2000s. A very similar approach was taken in a later study in two different cities in Brazil (8) in 2004/5. In both studies two street surveys were compared with an official list of street children held by local government agencies. One of the street surveys was carried out during the week and the other at the weekend, to ensure that children were not missed if they were in school during the week. The interviewers were present in areas where children had previously been encountered on the street, for example by social workers. The surveys in the later study (8) were carried out within the same week to ensure that the population was relatively stable. Matching across surveys and lists was done using name, nickname, age, sex and parents' names. In both studies there was little overlap between the two surveys and the official

lists, resulting in an estimated population that was much higher than either of the surveys or the official lists.

In Bamako in Mali, a study was carried out in 2004 to estimate the number of 'street children' (defined as 'a person younger than 18 years of age, living separated from parents or other tutors, who slept on the streets the previous night') in the city (7). This was carried out in conjunction with a study using respondent-driven sampling in the same city, described in Section 3.2.2 and which was mainly used to describe the characteristics of street children. On two separate nights, within a period of 11 days, researchers visited all of the areas of the city where children were known to sleep. Each child's name, age, sex, place of origin, interview site and identification number was recorded on each list and on the second occasion children were asked if they had been interviewed before. Contrary to other studies around half of the children were included in both samples, giving an estimated population that was not substantially larger than the sample sizes. This may partly have been due to the specific definition of 'street children' and the fact that they were sampled at night, when they would usually retreat to their normal sleeping places. However, this is likely to have led to an undersampling of girls working as sex workers, who are more likely to spend nights with clients (7), ie. gender was a likely determinant of the propensity to be sampled.

In 2006, capture-recapture was employed in combination with RDS to sample children begging on the streets of Greater Dakar in Senegal in November 2006 (25). The age range was not specified. The first sample was taken by counting all of the children found begging in all areas of the city known for the presence of child beggars, as informed by local street educators and NGOs. The second sample was collected using RDS, in order to collect further information on the children's circumstances. Three initial children in each of four sites were recruited and asked to recruit three further child beggars, receiving a packet of cookies for being recruited and two tins of sardines for recruiting three others. Seven waves were carried out. Both samples were carried out during the day, since children are less likely to beg at night, and within two days of each other. In order to reduce bias, children recruited to the first sample were not told that there would be a second sampling. The researchers initially 'marked' children in the first sample by painting one nail with nail varnish, but this was found to be unacceptable to the children for religious reasons and so the researchers depended on their own memory and honest answers from the children for assessment of whether children were being resampled. The study found 1062 child beggars in the first sample and 1619 in the second, with an estimated 7549 children in total across the Greater Dakar region. Most children sampled were boys and from Koranic schools, suggesting that the sample may have underrepresented both girls and children not in religious schooling. However, the researchers were careful to ensure that the initial contacts in the second sample included different groups and those not attending Koranic schools.

In a 2015 study to enumerate the homeless population aged between 13 and 17 in Cambodia (2), administrative zones in 7 cities were purposively sampled, with children being counted using capture-recapture methods within those zones and asked questions about their schooling, health and home circumstances. Investigators used maps to define the areas in which they were most likely to find homeless children and a variety of criteria was used to define homelessness. Children were shown a cartoon and on the second sampling

were asked to recall if they had previously seen a cartoon and, if so, what it was. The times of day of sampling were not stated. Similarly to the aforementioned studies, there was little overlap between samples in most areas and so the estimated population was substantially larger than the samples.

3.3.3. Summary

Capture-recapture methods tend on the whole to find little overlap between samples. This suggests that other methods, such as census or observational headcount, may substantially underestimate the numbers of street-connected children due to their high levels of mobility and difficulty to reach.

Use of this method depends on careful thought going into the design of studies, so that samples are done reasonably close together in time, and ideally at different times of the day and night so as to give all children in the population equal chance of being sampled, and that multiple different identifying items are collected in each sample to enable accurate matching of the same children in multiple samples. A potentially useful approach is to combine capture-recapture with RDS in order to include children that are hidden, such as in the study on begging children in Senegal (25), with the same caveat that sufficient waves should be recruited to ensure representativeness, as detailed in Section 3.2.3.

Hook and Regal (24) provide further recommendations regarding the use of capture-recapture methods in epidemiology. They emphasise that reports should identify the aim of the enumeration and how it will impact policy, and should clearly describe the samples included. Points particularly pertinent to estimation of the size of the population of street-connected children are that reports should comment on the likely accuracy of matching between samples and should always present estimates with confidence intervals to enable assessment of the precision of the estimate. If lists are used then reports should also comment on the likely relationship between the lists, ie. whether the assumptions of independence between sources is likely to hold. If it is likely that children with particular demographics (eg. younger, boys) are more likely to be sampled by one source than another, then estimates of the population size should be calculated with relevant subgroups (eg. younger/older, boys/girls) and summed to get the total population estimate (24).

The application of capture-recapture methods may be an effective method of estimating the numbers of street-connected children in areas where there are NGOs operating, for example, or effective governmental services with good recording systems. If the numbers on multiple lists can be compared then this may give sufficiently accurate estimates without sampling being necessary. It certainly should give a more accurate estimate of the population size than any single list and may be useful as a comparison to numbers obtained using sampling. This does not appear to have been done in the area of street-connected children but has been applied in other areas, such as estimating the numbers of injecting drug users (19).

There can, understandably, be some resistance to the use of capture-recapture methods due to the inappropriateness of the term 'capture' when relating to children and the history of the use of such methods with wildlife populations (4). One proposal could be to rename the methodology as 'sampling-resampling,' which is a much more benign term, when it is

used in the context of estimating the numbers of street-connected children. However, this may cause difficulties in publishing studies in academic journals and with recognition of the work carried out, since capture-recapture methods are widely understood and implemented and have a long history in epidemiology in a wide range of human populations, including children (26). Alternative terms for capture-recapture methods already in use, such as multiple systems estimation (27) and others previously mentioned, may be more appropriate.

In conclusion, capture-recapture is an efficient approach to use to estimate the numbers of street-connected children. Estimates should always be presented with accompanying confidence intervals to provide allow assessment of the precision of the estimated population sizes.

4. Discussion

The review by Pullum and colleagues (14) gives a good overview of alternative approaches that can be used to enumerate children outside of family care; such as establishment surveys, household and neighbourhood surveys, to estimate the numbers of children who have left the family home, spent time homeless (eg. (28) in the USA) or are being exploited for labour (eg. (15) in Liberia). Time-location sampling, which samples from a set of venues and times where and when street-connected children are known to congregate, is another method that can, similarly to respondent-driven sampling, provide useful information of the characteristics of street-connected children. However, these methods either give estimated numbers for specific subgroups of the population of street-connected children or the proportions within particular demographic groups and do not provide estimates of the total population of street-connected children, which is the focus of this report.

One of the main problems in the enumeration of street-connected children is the lack of a consistent definition. Few of the studies detailed in this report used the same definition, with inconsistencies both in the age range and the type of connection to the street. This makes aggregation of counts across different studies virtually impossible. Without a consistent definition used across studies there cannot be any global estimate of the size of the population. What this definition should be depends on the aim of the enumeration and the intended policy developments and interventions that organisations and governments wish to implement to improve the lives of this group of children. This is a point that needs extremely careful consideration, with input from multiple organisations in the arena. There seems little point in enumerating, for example, those children who are 'on the street' if all interventions and policy developments are likely to impact only those who are 'of the street.'

The size of the population of street-connected children is likely to fluctuate over time, depending on a variety of factors including weather and local economic situations. The children are mobile and their situations change depending on multiple factors. Therefore estimated counts should be specific about their time and place and the local conditions. Ideally counts should be performed on a regular basis, since they may become out of date fairly rapidly, regardless of the approach used.

Sampling should be done at a time of year when most street-connected children are likely to be visible. For example, if the count is being carried out on the street (as opposed to in homeless shelters), carrying it out in the rainy season can make it very challenging (12). Again, reports should specify the time and place in which the sampling has been carried out.

The main methods that have been critiqued in this report are census, observational headcounting, respondent-driven sampling (RDS) and capture-recapture (also known as multiple systems estimation, etc.). While it is tempting to believe that census and observational headcount count the whole population, in fact all of the methods result in a sample, with the non-visible members of the population being excluded from that sample. All of the methods are impacted by the transience of the population and seasonal changes.

Census and observational headcounting are resource intensive methods that may provide consistent numbers of visible street-connected children across different areas, but are both likely miss the harder-to-reach members of the population. Observational headcounting, since it is based purely on observation and involves no interaction with the children, is also likely to incur errors in who is included, particularly with regard to age.

RDS is a useful approach for describing the characteristics of a population of street-connected children, provided sufficient waves of children are recruited to ensure that the influence of children recruiting from their own group is minimised. However it has no utility in enumerating the population.

The capture-recapture approach is effective in estimating the size of the population of street-connected children and is the only method that adjusts the estimate for hidden or unobserved members of the population. RDS can be used in conjunction with capture-recapture in order to attain the samples and gain more information on the population characteristics, provided sufficient waves of children are recruited.

There are a number of aspects of the sampling process where care should be taken to ensure that the estimate is as accurate as possible. Careful thought should be given to when samples are collected. For example, sampling at different times of the day or night ensures that children in different situations are sampled. The two samples should always be collected close together in time, for example within the same week. Novel approaches to assessing whether an individual has been sampled before should be used, such as showing a picture or cartoon and asking the child to recall it on the second sampling.

The estimated count resulting from a capture-recapture process should be presented with corresponding estimates of precision, such as confidence intervals. In fact, giving a likely range for the number of street-connected children seems more useful than a point estimate, since it is known that the population is mobile and constantly changing. This also allows assessment of the precision of the estimate and whether further studies are necessary to give more accurate numbers.

Lists held by organisations such as NGOs and local/national government can be used to estimate the population size with capture-recapture methods, a potentially more efficient and sustainable approach if some effort is put into compiling them and keeping them up to date. If this was to be done then estimates could be calculated on a regular basis.

Where observational headcounts have been carried out, it would be useful to compare estimates from applying capture-recapture methods to locally held lists, if available. The more sources providing an estimate of the population size, the more reliable can be considered the numbers. If both approaches were to result in similar estimates, this would increase confidence in their values. Conversely, if the estimates were wildly different then it would be clear that more rigorous counting needed to be done. Alternatively, the headcount could be used as one of the samples in a capture-recapture, with a list held by an organisation as the second one.

Finally, a global count is unlikely to ever be accurate due to all of the factors discussed above. A global range could be more useful but, since policy is generally developed locally, it is worth considering whether there is really any utility to having a global number at all.

5. Conclusions

- A consistent definition of street-connected children (or other appropriate term) should be adopted by the community and used in studies to enumerate the population. This should include the age group.
- Observational headcounting is a resource intensive method that will provide consistent numbers of visible street-connected children across different areas, but is likely miss the harder-to-reach members of the population.
- Respondent-driven sampling is a useful approach for describing the characteristics of a population of street-connected children but has no utility in enumerating the population.
- Capture-recapture methods are effective in estimating the size of the population of street-connected children and accounting for hidden members of the population, and can be carried out using sampling and/or lists held by organisations such as NGOs.
- A estimated range around the number of street-connected children is likely to be more useful than a single value.
- Sampling should be carried out on a regular basis, due to the transient nature of the population.

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