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[Qualitative Protocol]

Community views on mass drug administration for soil-transmitted helminths: a qualitative evidence synthesis

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ABSTRACT

Objectives

This is a protocol for a Cochrane Review (qualitative). The objectives are as follows:

1. To synthesize qualitative research evidence about community experience with, and perception of, mass drug administration (MDA) programmes for soil-transmitted helminths (STHs).
2. To assess how findings confirm, extend, enrich, or conflict with those previously identified for MDA programmes for lymphatic filariasis.

BACKGROUND

Description of the topic

Transmission, burden, and treatment

Soil-transmitted helminth (STH) infections are amongst the most common infectious diseases worldwide, with an estimated 24% of the world's population currently infected (WHO 2023). STHs include roundworm, whipworm, and hookworm. STH infections are transmitted by the ingestion of eggs, which are produced by adult worms in the human intestine, and contaminate soil through faeces (WHO 2023). The eggs in faecally-contaminated soils may be ingested through eating unwashed food or playing, and may also contaminate drinking water sources. For hookworm, the eggs can also hatch and mature into a form that can directly penetrate the skin, providing an additional route for transmission, which typically occurs when walking barefoot (CDC 2020). Since transmission is based on the faecal-oral route, these infections commonly occur in areas of poor sanitation, particularly in sub-Saharan Africa, the Americas, China, and East Asia (WHO 2023). One of the major impacts of infection is nutrition; STHs accumulate in the human host intestine and feed on host tissues, which can result in a loss of blood and iron, lead to malabsorption of nutrients, and sometimes cause loss of appetite (WHO 2023).

With the increased intensity of infection, worms can cause abdominal pain and diarrhoea; impairment of the nutritional status of the host can cause weakness and impaired growth and development (WHO 2023). An estimate of disability-adjusted life-years (DALYs) from hookworm infection in 2010 was 3.2 million, which accounts for more than half of the DALYs associated with STH infections (Pullan 2014). It is established that STH infections have a high burden on vulnerable populations, such as children and women living in low-resource settings (WHO 2017).

All STHs are treated by the same chemotherapeutic drugs, albendazole and mebendazole (WHO 2017). A systematic review and meta-analysis of 31 trials of these drugs, described in the WHO 2017 guidelines *Preventive chemotherapy to control soil-transmitted helminth infection in at-risk population groups*, demonstrates a large egg-reduction rate (ERR) associated with regular administration (WHO 2017). Due to the non-specific symptomology of STH infection, and the high global prevalence, the WHO endorses a preventive chemotherapy strategy to control STH infection without individual diagnosis, which is termed mass drug administration (MDA (WHO 2017)).

How the intervention might work

MDA programmes involve the yearly or twice-yearly treatment of all at-risk people living in endemic areas, without individual diagnosis. For STH, this includes children (aged 12 months to 16 years), women of reproductive age, and adults in occupations at high-risk for STH infection, such as tea-pickers or miners. Existing MDA strategies for STH include programmes for children at pre-school age, school-based programmes, and community-wide programmes. Ideally, MDA programmes would be complemented by parallel hygiene education campaigns and improvements in sanitation infrastructure, although this can be difficult to implement in resource-poor settings (WHO 2023).

The aim of MDA programmes is to interrupt the transmission of infection. In areas with moderate to low prevalence of infection, MDA can achieve this within a period of several years, as long as coverage and adherence are maintained above 80% (Anderson 2014; Truscott 2016). As a result, an emphasis is placed on the importance of communities adhering to the medication programme, which will be influenced by the perception of the drug, the experience of the programme, and the delivery approach used. Formally, adherence is defined as the extent to which a person's actions correspond with what is recommended by the healthcare provider, and assumes an agreement between these two parties (Dobbels 2005; NICE 2009). Achieving adherence requires a collaborative approach between the person and the healthcare provider (Roter 1998). Non-adherence can be driven by a variety of circumstances, such as poorly explained recommendations for taking the medication, e.g. the person finds it too complicated; the person experiences negative effects of the medication or negative experiences with healthcare personnel; and personal and cultural beliefs (Horne 2005; Ley 1997; Spiro 2001). It is important to note that most of the available literature reports compliance rather than adherence, which refers to the extent to which an individual conforms to expectations. This is increasingly understood as a problematic term as it does not account for the person's perspective (Chakrabarti 2014). Achieving adherence in target populations is particularly important, considering plans to scale-up MDA programmes to include all ages (WHO 2023).

MDA programmes are complex health interventions that can be delivered in many ways (Table 1). They can be entirely driven by the local population, which initiates the programme without any external support (Type I). The community may choose to recruit external expertise to help with the delivery (Type II), seek external financial support (Type III), or both (Type IV). These approaches use a bottom-up approach, whereby the communities that the programmes are intended to benefit have the majority contribution or governance (Whitehead 2002). Alternatively, external agencies may design and initiate programmes within a community, which can be done with some input from local people (Type VI), or none at all (Type V). These models use a top-down approach, in which the majority contribution and governance belong to the external agency, rather than the people who are intended to benefit (Whitehead 2002). A final form of delivery uses a collaborative approach, giving equal partnership to external agencies and communities (Type VII). Community involvement may generate respect, trust, and sustainable support for the programme (Leise 2010). However, these approaches may be less practical to implement on a large scale and may require continued support from external actors (Annamalai 2016). Top-down approaches may not be designed to identify issues with the programme at the community level, which could result in lower participation. Socioeconomic factors, such as infrastructure, local economies, and governance may also limit the success of implementing bottom-up designed programmes, and require external support (Annamalai 2016).

How might this review inform or supplement what is already known in this area?

A Cochrane review by Taylor-Robinson 2019 found that MDA programmes targeting STHs had little to no effects on nutrition, haemoglobin, school attendance, and school performance; although they had mainly low or very low confidence in the evidence, and the conclusion was widely criticised (Andrews 2017). The debate around the efficacy of MDA is ongoing. However, the main argument for the continuation of MDA programmes

for STHs is that they remain more cost-effective than test and treat methods, and there are no important harms associated with treating uninfected children (Anderson 2015; Andrews 2017). One benefit of qualitative research is the ability to identify the range of harms and experiences of interventions. Our review is intended as a stand-alone qualitative evidence synthesis, and is not linked to the Cochrane review by Taylor-Robinson 2019.

Most literature about MDA programmes focusses on compliance rates, and the associated programme-level barriers and facilitators to achieving compliance (Krentel 2013; Maddren 2023; Oswald 2020; Roll 2022; Shuford 2016; Silumbwe 2017). Here, we intend to explore community views and experiences of MDA programmes for STH, to develop a more encompassing and holistic understanding of the relationship between the programme and the individuals (thereby, focusing on adherence rather than compliance, as explored in the How the intervention might work section). We hope to present community voices and explore individuals' decision to interact with the programme, and their experience after they make that decision. We intend to investigate the financial, social, and personal impacts associated with their decision, which may further inform decision-making regarding the appropriateness of this intervention, and how non-adherence may be addressed.

A qualitative Cochrane review by Taylor 2022 explored community experiences of MDA programmes for lymphatic filariasis, and in doing so, identified some community members' concerns. Communities reported being afraid of potential adverse effects, stigmatisation of non-compliance, and suspicion of programme rationale. We will draw on the findings of this review to inform our analysis, and we will aim to explore the extent to which these findings translate to MDA programmes for STH. Similarities in rationale, delivery, and sociopolitical context may mean that the perspectives are broadly similar. However, we acknowledge that there may be important differences, which we hope to capture.

Why is it important to do this review?

Understanding community perspectives and experiences of large, multinational interventions is central to achieving global epistemic justice (Chimakonam 2017). This means that gaining information from a variety of communities and individuals is essential to creating a fully-informed narrative to use in decision-making. Our review will present community voices and experiences to enable decision-makers to understand the personal and societal impact of MDA programmes, and to inform their delivery. The review by Taylor 2022 demonstrated some fundamental concerns regarding MDA, which arose at the community level. Since there is an overlap in programme design between the MDA for lymphatic filariasis and STH, it is important to investigate community views on MDA for STH. We intend to analyse the data and see if the findings refute, enrich, or extend the findings of the previous review, which will enable a more nuanced understanding of MDA programmes generally, and ascertain the limits of transferability. These findings will be particularly important as the WHO intends to further scale up MDAs for STHs in the coming years, and knowledge of effective and consumer-centred implementation will be particularly important.

OBJECTIVES

1. To synthesize qualitative research evidence about community experience with, and perception of, mass drug administration (MDA) programmes for soil-transmitted helminths (STHs).
2. To assess how findings confirm, extend, enrich, or conflict with those previously identified for MDA programmes for lymphatic filariasis.

METHODS

Criteria for considering studies for this review

Types of studies

Inclusion criteria

We will include all qualitative research (including ethnographies, phenomenologies, qualitative process evaluations, and case studies). We define qualitative research as studies that collect data using qualitative methods, such as ethnographic observations, in-depth interviews, focus group discussions, and open-ended survey questions. Appropriate analysis methods include, but are not limited to, thematic analysis, narrative analysis, framework analysis, and grounded theory (Thomas 2008).

We will include mixed-methods studies where it is possible to extract qualitative data. We will include both published and unpublished studies.

Exclusion criteria

We will exclude studies that include qualitative data collection methods but report and analyse all data quantitatively.

Topics of interest

Inclusion criteria

Phenomenon of interest: community experiences, perceptions, or attitudes towards mass drug administration (MDA) programmes for soil-transmitted helminths (STHs)

Setting: any setting that provides MDA for STHs

Perspectives: all participants of MDA programmes (e.g. communities that have either received MDA in the past, or are currently receiving MDA for the treatment of STH), regardless of disease status, individual participation, or other demographic information. Village or religious leaders of communities receiving MDA for STH will be included. We will also include lay healthcare workers (HCW; those without formal training or qualifications, including community health workers and drug distributors, as defined by Lewin 2010), and formally qualified healthcare workers, if they are clearly separated from the perspectives of the general consumer population.

Intervention: delivery of MDA, which for this review, is defined as the administration of an anti-STH drug to the entire at-risk population (regardless of symptoms or infection), on a regular basis. Drugs used are typically albendazole (400 mg) and mebendazole (500 mg), distributed either yearly or twice-yearly.

Exclusion criteria

The literature on MDA policies and their implementation is extensive. This review is not concerned with understanding policies by those who implement them; therefore, we will not summarize the views of those affiliated with the programme design, or with programme governance. When community or lay (or both) HCW voices cannot be separated from programme staff, we will exclude the study. We will exclude studies in which MDA programmes have

been implemented, or in which participants have received MDA for other diseases, such as lymphatic filariasis. We will only include studies that predominantly target STH.

Search methods for identification of studies

We developed the search strategy in consultation with Cochrane Infectious Diseases Group (CIDG) Information Specialist, Vittoria Lutje. We did not use a specific qualitative research filter, since none of them cover all the terms needed for our research (some filters only use the MeSH terms for 'Qualitative research' or 'Interviews' (Wagner 2019)). Instead, we used a mix of MeSH terms and text words to describe the concepts we intend to use.

Electronic searches

We will attempt to identify all relevant studies, regardless of publication status (i.e. published, unpublished, in press, or in progress). We will search the following databases using the search terms and strategy described in Appendix 1.

- Cochrane Infectious Diseases Group Specialized Register;
- Cochrane Central Register of Controlled Trials (CENTRAL), published in the Cochrane Library;
- MEDLINE OVID;
- Embase OVID;
- WHO Global Index Medicus;
- CAB Abstracts (Web of Science);
- Science Citation Index - Expanded (Web of Science);
- ASSIA (Applied Social Sciences Index and Abstracts; Proquest).

We will also search the WHO International Clinical Trials Registry Platform, and ClinicalTrials.gov, to identify ongoing trials.

We will limit our searches from 2001 onwards, since this is the year that the World Health Assembly endorsed a resolution for the control of STH, which included the upscaling of MDA programmes; we will search for studies in any language.

Searching other resources

The Cochrane Qualitative and Implementation Methods Group recommends supplementary searching activities, due to the limited availability of qualitative research. To achieve this, we will scan reference lists and perform citation searches of the included studies, and existing reviews identified in the Background.

We will contact experts in the field to ask if they know of any important published and unpublished data.

Grey literature

We will search OpenGrey to identify grey literature (www.opengrey.eu). Unpublished studies may be of lower quality and reliability than published studies. However, we will quality appraise all grey literature results.

Selection of studies

We will import all search results into Covidence, and remove any duplicates (Covidence). Two review authors (TF and RK/SS) will independently screen the retrieved search results against the inclusion criteria. This two-step process will include first screening titles/abstracts, then full-text reports. A third review author (MT) will resolve any disagreements, if necessary. We will summarize this process in a PRISMA flow diagram, detailing the numbers of studies included and excluded at each step (Page 2021). We will note the reasons for excluding full-text studies, and present this information in a characteristics of excluded studies table.

Language translation

We will translate all studies in non-English languages into English.

Sampling of studies

If we retrieve a large volume of included studies, we may consider purposeful sampling of studies based on 'thickness', in order to focus on the most conceptually useful data. Thickness is defined by guidance from Ponterotto 2006, which briefly defines 'thick' data as that which: describes and interprets social actions within the appropriate context; captures the thoughts, emotions, and web of social interaction amongst observed participants; assigns motivations and intentions for the said social actions; describes data in such a way that the reader can imagine experiencing the event themselves; and nourishes 'thick interpretation'.

We will consider the same features as Taylor 2022 when assessing the richness of papers: “(1) the extent to which the authors transformed or analysed their findings (beyond lists of barriers and facilitators), (2) insight into participants' perspectives was demonstrated, (3) richness and complexity had been portrayed (variation explained, meanings illuminated), and (4) theoretical or conceptual development”.

Data extraction and management

Two review authors will independently extract data (TF and RK/SS) on study characteristics, using a predefined data extraction form. This will include the following information.

- Study design: author, aim, participants, and qualitative data collection and analysis methods
- Study context: country, urban or rural setting, STH endemicity, drug regimen, rounds of MDA received at the time of the study, who delivered the drugs, how the drugs were delivered, the location to where drugs were delivered (e.g. school-based MDA), use of health education, sensitization, and adherence monitoring. We will use this information to categorize each study, using the seven delivery methods outlined in Whitehead 2002. Where information is unavailable, we will seek other documents related to MDA policies in the country at the time, to try to input some basic characteristics of the programme, and note which characteristics are secondarily derived from other sources. To find this information, we will screen citations of the target study, then perform a Google search for other documents that referred to these programmes.

Assessing the methodological limitations of included studies

We will assess the methodological limitations, using a standardized set of criteria to impart some objective distance and to ensure consistency. We will choose a modified version of the tool developed by the EPPI-Centre at University College London (UK) for its clear and straightforward approach, and its use in a similar qualitative evidence synthesis investigating MDA programmes for filariasis (Appendix 2; Taylor 2022). This tool assesses the following

criteria: rigour in sampling, rigour in data collection, rigour in analysis, grounding of data, and breadth and depth of study findings. Each criterion offers several prompts to aid the user in making a judgement. For each category, studies will receive a score of (1) Yes, a fairly thorough attempt was made; (2) Yes, several steps were taken; (3) Yes, a few steps were taken; or (4) not stated/could not determine. Two review authors (TF and RK/SS) will independently conduct a methodological limitations' assessment of each paper before comparing findings and reaching a consensus.

We will not exclude studies based on our assessment of methodological limitations. However, we will use this information to assess our confidence in the review findings.

Data management, analysis, and synthesis

We will use framework synthesis methods for the analysis and synthesis of evidence (Carroll 2013). The 'best fit' framework we plan to use is the coding framework developed by Taylor 2022 (Table 2), which will be applied to understand how larger dynamics impact the individual act of medicine intake. Using methods developed by Booth 2015, we will conduct a deductive phase, during which we accommodate data within the existing model, followed by an inductive phase, during which we will explore data not accommodated by the framework.

We will use the five stages of best fit framework synthesis to analyse and synthesise our findings (Booth 2015). The stages include familiarisation, identifying a thematic framework, indexing, charting, mapping, and interpretation.

Familiarizing with the data: two review authors (TF and SS) will independently read relevant background literature and the full-text studies included in the review to become familiar with, and immersed in the data. They will note their initial thoughts.

Identifying a framework: due to the similarity between the MDA programmes for lymphatic filariasis and STH, we plan to use the framework developed by Taylor 2022.

Indexing: two review authors (TF and SS) will re-read the studies and apply the framework, moving between the data and the developing themes. As we progress through the studies, new findings and insights will lead to the development of new codes and coding, taking a more inductive approach. This will include both first- and second-order data; first-order data are the original quotations, and second-order data are the study authors' interpretations. We will attempt to retain accounts that differ from the emerging understanding of the situation. Review authors will discuss codes on a study-by-study basis to reach consensus on the appropriateness and terminology of each code. The result of this process will be the development of the coding framework, which we will refine and amend as new codes emerge.

Charting and mapping: working together, two review authors (TF and SS) will group codes into potential themes, gathering all data relevant to each theme. The review authors will interpret the meaning behind the data, and think about the relationships between codes, themes, and hierarchies of themes. The wider team (TF, SS, RK, MT) will meet regularly to reflect on emerging themes as a group.

To assess how findings for filariasis MDA translate to those for STH, we will draw on methodology from Rohwer 2021 to test theoretical saturation in qualitative research. This will involve describing how findings in this review confirm, extend, enrich, or refute the previous qualitative evidence synthesis. While we anticipate some overlap in findings, due to factors described in the background, this review does not intend to favour confirmatory findings, but to present a more nuanced and richer understanding of MDA programmes, by exploring the differences between target diseases.

Reviewing themes: review authors will ensure that the pattern of data within themes is coherent, and that there is a clear distinction between themes and subthemes. This will involve merging, breaking, and removing themes with too little, too much, or disparate information, including subthemes that we grade as low certainty-evidence for the coherence component of the CERQual assessment (Lewin 2018). We will review the included studies a second time to capture any data missed, for newly emerging themes.

Producing the report: one review author (TF) will produce a narrative of findings for each theme, integrating vivid illustrative quotes; this will be shared with the wider team for feedback. We will also produce a conceptual model to illustrate the findings.

We will attempt to analyse findings specific to any geographical settings or contexts, such as settings also receiving MDA for other co-endemic diseases, poverty levels, programme type (pre-school programmes, school-based programmes, whole community programmes) and programme design (such as form of delivery, drug regimen, and rounds of MDA received at the time of the study).

Assessing our confidence in review findings

Two review authors (TF, MT) will use the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative Research) approach to assess confidence in each finding (subtheme (Lewin 2018)). The findings will be shared and discussed with the wider review team. CERQual assesses confidence in the evidence based on the following four key components:

- Methodological limitations of included studies: the extent to which there were concerns about the design or conduct of the primary studies that contributed evidence to an individual review finding.
- Coherence of the review finding: how clear and cogent the fit was between data from the primary studies and a review finding that synthesized those data. By cogent, we meant well-supported or compelling.
- Adequacy of the data contributing to a review finding: the degree of richness and the quantity of data supporting a review finding.
- Relevance of included studies to the review question: how the body of evidence from the primary studies supports a review finding. This information is applicable to the context (perspective or population, phenomenon of interest, setting) specified in the review question.

After assessing each of the four components, we will judge our overall confidence in the evidence supporting the review finding. We will judge confidence as high, moderate, low, or very low. All findings will start as high confidence and be downgraded if there are important concerns regarding any of the CERQual components.

We will take an explanatory approach in this review, with an emphasis on developing a cohesive conceptual model and theoretically generalizable findings.

Summary of qualitative findings table and evidence profile

We will present summaries of findings and our assessments of confidence in these findings.

Review author reflexivity

In qualitative research, we appreciate that the background and position of researchers will shape interpretation of results, and thus team positionality at the outset, through the process of analysis and synthesis. We state these broad positionality statements at the outset here.

TF has no personal experience with MDA programmes and does not hold any specific views.

SS was born and brought up in Nepal, and has seen many people suffer from tropical diseases. Nepal has implemented MDA for lymphatic filariasis. SS grew up watching advocacy programmes on the television urging people to partake in the MDA programmes for lymphatic filariasis, and remembers adults debating whether they should take the drugs being offered. She believes that MDA has the potential to prevent the spread of many diseases, but understands that it is important to consider people's perception of MDA for STH.

RK is a clinician, with experience of STH treatment of people at the primary care level. She has no past or current involvement in MDA programmes and does not hold any specific views.

MT has previously authored a similar review on the community perspectives of MDA programmes for filariasis. As a result, she holds the belief that whilst MDA programmes offer great benefit and relief to affected communities, unintended physical and social harms need to be acknowledged and considered in global discourse.

As per the methods used in Taylor 2022, two primary analysts (TF and SS) will independently conduct the analyses, and provide feedback on their findings and interpretations to the whole research team. This will include regular meetings with MT. As different researchers will approach the analysis from different perspectives, this collaborative effort should produce a richer, more nuanced understanding of a complex situation while generating opportunities to identify and contest any assumptions or beliefs held by individual review authors. To further increase reflexivity in our research design, we will explore and explain any findings that appear to contradict our understanding of the situation.

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Editorial and peer-reviewer contributions

The following people conducted the editorial process for this protocol.

- Sign-off Editor (final editorial decision): Professor Sandy Oliver; Professor Paul Garner
- Managing Editor (selected peer reviewers, collated peer-reviewer comments, provided editorial guidance to authors, edited the article): Dr Deirdre Walshe, CIDG;
- Copy Editor (copy editing and production): Victoria Pennick, Cochrane Central Production Service
- Peer-reviewers (provided comments and recommended an editorial decision):
  - Ntani Suh Nsutebu, Cameroon Young Pharmacists (consumer peer review)
  - Ruth Garside, University of Exeter (methods peer review)
  - Jo Platt, Central Editorial Information Specialist (search peer review)
  - Claudia Nieto-Sanchez, Socio-Ecological Health Research Unit, Department of Public Health, Institute of Tropical Medicine, Antwerpen, Belgium (clinical/content peer review).
  - One additional clinical/content peer reviewer also provided peer review comments, but chose not to be acknowledged.

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ADDITIONAL TABLES

Table 1. Types of delivery in mass drug administration (MDA) programmes

Form of delivery	Definition	Approach

Table 1. Types of delivery in mass drug administration (MDA) programmes *(Continued)*

Type I	"Programs in which individuals or groups/organizations indigenous to the community are served by a program (target community) initiate, without any external (to that community) support".	Bottom-up
Type II	"Programs in which individuals or community groups/organization groups/organizations indigenous to the community initiate and recruit external, technical (expertise) support".	Bottom-up
Type III	"Programs in which individuals or community based organizations (CBOs) pursue external fiscal support or funding".	Bottom-up
Type IV	"Programs in which individuals or CBOs indigenous to the target community initiate and recruit external technical and fiscal support".	Bottom-up
Type V	"Programs which are initiated by external *change agencies* (public or private organization, university, a corporation, a foundation, or some other philanthropic group, and so on) within a target community, but are done without any input from individual residents or organizations of that community, except as program recipients".	Top-down
Type VI	"Programs which are planned and initiated by external change agencies, and community members are eventually invited to participate on community advisory committees, or as lower level project staff, such as 'community outreach workers', or as volunteers".	Top-down
Type VII	"Programs which are planned and implemented as an equitable partnership by CBOs and an external change agent or technical organization".	Collaborative

Abbreviations: CBO: community based organizations; MDA: mass drug administration
Adapted from Whitehead 2002

Table 2. A priori framework of codes

Theme	Sub-theme	Codes
1. People weigh up the benefits and harms before adhering	1.1. The perceived benefits relate to the relief of suffering, stigma, and costs of disease	Relief of suffering, Relief of stigma, Relief of costs, Family benefits, Community benefits, Personal benefits, Co-morbidity
	1.2. Adverse effects (AEs) are a frightening and unwelcome experience	Felt experience of AEs, Management of AEs
	1.3. News of adverse effects spreads rapidly and makes people fearful	Media, Rumour
	1.4. Deciding to adhere draws on personal and shared experiences and is complex	Economic impacts,

Table 2. A priori framework of codes *(Continued)*

		Tablet burden, Health priorities, Perception of risk, MDA as prevention/cure
2. Many people are suspicious of MDA programmes	2.1. Many people do not trust the programme and believe there is an ulterior motive	Colonial/historical legacies, Fear, Suspicion, Rumour, Mistrust
	2.2. Some have an unquestioning attitude towards government and a lack of agency, leading to unwavering faith in the programme	Trust in authority, Passive acceptance, Gratitude
3. Programmes expect compliance: this can result in coercive and blaming delivery	3.1. Health workers may become authoritarian to ensure compliance	Coercion, Punishment
	3.2. Community members may become coercive, and stigmatize non-compliance	Coercion, Punishment, Shame/stigma
	3.3. Outward compliance, private rejection	Facade
4. Distributor's status in the community is often low, and they are not well-equipped to answer the community's questions	4.1. CDDs have limited authority	Rejection of authority, Percieved competency, Social status
	4.2. People prefer CDDs that are well known to the community and have good behaviour	Trust in CDDs, Good behaviour
	4.3. People seek clarification and rationale but do not always receive it	Awareness of distribution, Distributor's knowledge, Information asymmetry, Traditional knowledge, Scientific knowledge

Abbreviations: AE: adverse event; CDD: community drug distributor; MDA: mass drug administration
Developed by Taylor 2022

APPENDICES

Appendix 1. MEDLINE search strategy

Ovid MEDLINE(R) ALL <1946 to March 03, 2023>

1 Soil-transmitted helmint*.mp.

2 (soil adj2 transmitted adj2 (helmint* or worm*)).mp.

3 Strongyloidea/ or Strongyloid*.mp. or Strongyloidiasis/

4 Hookworm Infections/

5 hookworm*.mp.

6 trichuris.mp.

7 Ascaris lumbricoides/ or ascaris.mp. or Ascaris/

8 Ascariasis/

9 Necator americanus/ or Necatoriasis/ or necator.mp. or Necator/

10 Ancylostomiasis/ or Ancylostoma/ or Hookworm Infections/ or ancylostom*.mp.

11 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10

12 mass drug administration.mp. or Mass Drug Administration/

13 mass administration.mp.

14 mass treatment.mp.

15 coordinated administration.mp.

16 mass distribution.mp.

17 coordinated distribution.mp.

18 MDA.mp.

19 12 or 13 or 14 or 15 or 16 or 17 or 18

20 11 and 19

21 Qualitative Research.mp. or Qualitative Research/

22 ("focus group*" or "grounded theory" or "narrative analys*" or "lived experience*" or "life experience*" or "theoretical sampl*" or purposive).mp.

23 (semi-structured or semistructured or "structured categor*" or "unstructured categor*" or "action research" or (audiorecord* or taperecorded* or videorecord* or videotap*) or (audio or tape or video*) or interview* or quasi-experiment* or "case stud*").mp.

24 Interview/ or interview*.mp.

25 (qualitative or ethno* or emic or etic or phenomenology* or hermeneutic*).mp.

26 (survey* and questionnaire*).mp.

27 Self Report/

28 Anthropology, Cultural/

29 (collaborat* or consultat* or experience or involve* or narrative* or opinion* or participat* or partner* or perspective* or story or stories).mp.

30 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29

31 20 and 30

Appendix 2. EPPI-Centre quality assessment tool

1. Were steps taken to increase rigour in the sampling? Consider whether: • the sampling strategy was appropriate to the questions posed in the study (e.g. was the strategy well-reasoned and justified?); • attempts were made to obtain a diverse sample of the population in question (think about who might have been excluded; who may have had a different perspective to offer); • characteristics of the sample critical to the understanding of the study context and findings were presented (i.e. do we know who the participants were in terms of, for example, basic sociodemographics, characteristics relevant to the context of the study, etc.).	Yes, a fairly thorough attempt was made Yes, several steps were taken Yes, minimal/few steps were taken No, not at all/not stated/can't tell
2. Were steps taken to increase rigour in the data collected? Consider whether: • data collection tools were piloted/(and if quantitative) validated; • (if qualitative) data collection was comprehensive, flexible and/or sensitive enough to provide a complete and/or vivid and rich description of people's perspectives and experiences (e.g. did the researchers spend sufficient time at the site/with participants? Did they keep 'following up'? Was more than one method of data collection used?); • steps were taken to ensure that all participants were able and willing to contribute (e.g. processes for consent, language barriers, power relations between adults and children/young people).	Yes, a fairly thorough attempt was made Yes, several steps were taken Yes, minimal/few steps were taken No, not at all/not stated/can't tell
3. Were steps taken to increase rigour in the analysis of the data? Consider whether: • data analysis methods were systematic (e.g. was a method described/can a method be discerned?); • diversity in perspective was explored; • (if qualitative) the analysis was balanced in the extent to which it was guided by preconceptions or by the data; • the analysis sought to rule out alternative explanations for findings (in qualitative research, this could be done by, for example, searching for negative cases/exceptions, feeding back preliminary results to participants, asking a colleague to review the data, or reflexivity; in quantitative research, this may be done by, for example, significance testing).	Yes, a fairly thorough attempt was made Yes, several steps were taken Yes, minimal/few steps were taken No, not at all/not stated/can't tell
4. Were the findings of the study grounded in/supported by the data? Consider whether: • enough data are presented to show how the authors arrived at their findings; • the data presented fit the interpretation/support claims about patterns in data; *the data presented illuminate/illustrate the findings; • (for qualitative studies) quotes are numbered or otherwise identified, and the reader can see that they don't just come from one or two people.	Good grounding/support Fair grounding/support Limited grounding/support
5. Please rate the findings of the study in terms of their breadth and depth. Consider whether (NB: it may be helpful to consider 'breadth' as the extent of description and 'depth' as the extent to which data have been transformed/analysed): • a range of issues are covered; • the perspectives of participants are fully explored in terms of breadth (contrast of two or more perspectives) and depth (insight into a single perspective); • richness and complexity have been portrayed (e.g. variation explained, meanings illuminated); • there has been theoretical/conceptual development	Limited breadth or depth Good/fair breadth but very little depth Good/fair depth but very little breadth Good/fair breadth and depth
6. Overall, what weight would you assign to this study in terms of the reliability/trustworthiness of its findings? Guidance: think (mainly) about the answers you have given to questions 1 to 4 above.	Low Medium High

(Continued)

7. What weight would you assign to this study in terms of the usefulness of its findings for this review? Guidance: think (mainly) about the answers you have given to questions 5 and 6 above, and consider: • the match between the study aims and findings and the aims and purpose of the synthesis; • its conceptual depth/explanatory power.	Low Medium High

CONTRIBUTIONS OF AUTHORS

All authors contributed to the protocol design, including the Background and Methods, and approved the final protocol version for publication.

DECLARATIONS OF INTEREST

TF is a CIDG Research Associate; she was not involved in the editorial process. She has no known conflicts of interest to declare.

SS has no known conflicts of interest to declare.

RK is a CIDG Research Associate; she was not involved in the editorial process. She has no known conflicts of interest to declare.

MT is a CIDG Research Assistant; she was not involved in the editorial process. She has no known conflicts of interest to declare.

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