‘I know those people will be approachable and not mistreat us’: a qualitative study of inspectors and private drug sellers on peer supervision in rural Uganda

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Abstract

Background

Peer supervision improves health care delivery by health workers. However, in rural Uganda, self-supervision is what is prescribed for licensed private drug sellers by statutory guidelines. Evidence shows that self-supervision encourages inappropriate treatment of children less than five years of age by private drug sellers. This study constructed a model for an appropriate peer supervisor to augment the self-supervision currently practiced by drug sellers at district level in rural Uganda.

Methods

In this qualitative study, six Key informant interviews were held with inspectors while ten focus group discussions were conducted with one hundred and thirty drug sellers. Data analysis was informed by the Kathy Charmaz constructive approach to grounded theory. Atlas ti.7 software package was used for data management.

Results

A model with four dimensions defining an appropriate peer supervisor was developed. The dimensions included; incentives, clearly defined roles, mediation and role model peer supervisor. While all dimensions were regarded as being important, all participants interviewed agreed that incentives for peer supervisors were the most crucial. Overall, an appropriate peer supervisor was described as being exemplary to other drug sellers, operated within a defined framework, well facilitated to do their role and a good go-between drug sellers and government inspectors.

Conclusion

Four central contributions advance literature by the model developed by our study. First, the model fills a supervision gap for rural private drug sellers. Second, it highlights the need for terms of reference for peer supervisors. Third, it describes who an appropriate peer supervisor should be. Lastly, it elucidates the kind of resources needed for peer supervision.

Background

Globally, effectiveness of health systems has been in part, associated with adequate clinical supervision of human resources for health[1]. Different scholars suggest that effective support supervision in the delivery of basic health services may be defined as a way of guiding, helping and teaching health providers in a manner that fosters two-way communication between supervisors and supervisees at the work place[2, 3]. Besides communication being two-way, many supervisees feel that support supervision has had an effect on their work when there is constructive feedback [4–6].
In sub-Saharan Africa, Uganda inclusive, while supervision of public health facilities is clearly defined [2], supervision of rural private health care providers predominantly comprised of drug shops is left to licensed drug sellers whose ultimate objective is to make profit[7]. This has been associated with unsatisfactory quality of care offered to patients in general and in some contexts, has been linked to inappropriate treatment of febrile children less than five years by drug sellers[8, 9]. In other instances, self-supervision which is characterised by drug sellers not consulting others a lot if at all they do, has been associated with charging high prices for drugs since dispensation of drugs is based on the patient’s choice[10]. One cardinal challenge with self-supervision is that its effectiveness has not been documented and therefore may be unsuitable to adopt in a dynamic sub-sector such as one involving drug sellers in Uganda.

As such, different models of supervision have been developed over time[11]. However, whereas earlier models of supervision targeted the supervisee as a recipient of knowledge and instruction from the supervisor, later models recognised the need to include supervisors and institutions charged with supervision in the overall framework. To this effect, Holloway and colleagues developed a systems approach to supervision (SAS) model whose relevance to this research work was premised on the relationship between the supervisor and supervisee as the main determinants of appropriate supervision [12]. Relatedly, another integrative model developed by Bernard and Goodyear consisting of three phases (intervention, conceptualization and personalization) and three supervisor roles (teacher, counsellor, and consultant) has been widely used in supervision studies[13]. However, these models have been developed in high-income countries whose applicability to low income countries has been criticised for failing to demonstrate appropriateness.

Given the increasing role of drug sellers in providing health care in rural settings and the documented evidence of quality support supervision, the peer supervision model- a type of supervision where people of similar hierarchical status or who perceive themselves as equal encourage and enhance learning and development between each other[14].Having proved successful in different settings, it was envisaged that peer supervision would improve treatment of children with pneumonia symptoms, uncomplicated malaria and non-bloody diarrhoea among drug sellers [15–17].

**Aim of the study**

This study aimed at constructing a model of an appropriate peer supervisor for private drug sellers at district level in rural Uganda based on views of drug sellers and their inspectors.

**Drug Shop Regulation In Uganda**

Generally, two types of private pharmacies exist in Uganda. That is, type I and type II. Type I pharmacies are operated by a registered pharmacist and can sell both prescription and over the counter drugs. On the other hand, type II pharmacies commonly referred to as drug shops are the majority of the two types of
pharmacies and are mainly found in rural areas serving a population generally not reached by public health facilities. Type II pharmacies are allowed to stock and sell class C drugs. In Uganda, pharmaceutical regulation is a mandate of the Ministry of Health delegated to the National Drug Authority (NDA).

The NDA works together with the DHO and DDI to inspect drug shops at district level. Under the office of the DHO is a committee which includes the DDI, the assistant district health officer in charge of the environment, district health visitor as well as the records officer. According to the guidelines for inspection of drug shops, the person in charge of inspection should be qualified at bare minimum as a pharmacy technician. A pharmacy technician is one who has attained a diploma in pharmacy, has worked under supervision of a pharmacist for at least one year and has been trained to dispense drugs. The main regulatory functions of the district drug inspector as stipulated in the recruitment guidelines for health workers in local government include; ensure that essential, safe, efficacious and cost-effective drugs are made available to the entire population, make a continuous review of the needs, knowledge and resources of essential drugs, provide systematic public information and professional training and retraining of health workers. The district drug inspector is also mandated to intensify research in all types of drugs including traditional medicines, ensure compliance of health workers with the international regulations on drugs including the conventions on narcotic drugs and psychotropic substances, inspection of suitability of premises for drug shop premises, making sure only qualified staff operate in drug shops, tracking of illegal drug sellers and ensure that expired drugs are not mixed with usable stock[18]. The DDI is mandated to carry out inspection on a monthly basis.

**Methods**

**Study setting and participants**

This study was conducted in two rural districts namely Luuka and Buyende in East-Central Uganda. Both districts had a combined population of 638,300 persons in 2012 [19]. Personal attributes that could be used to trace the people involved in this study were not disclosed in order to minimize the potential of being identified. A total of six inspectors (four at district and two at national level) were purposively sampled for key informant interviews. Inspectors interviewed at district level included; District Health Officers (DHOs) and District Drug Inspectors (DDIs). On the other hand, one hundred and thirty licensed drug sellers were purposively chosen for focus group discussions.

**Selection Of Informants**

Purposive sampling was used to recruit licensed drug sellers in the two study districts in East-Central Uganda. Key informants were approached by the lead investigator (AB), while drug sellers were invited for focus group discussions by the DDI with permission from the DHO. The choice of sampling technique
was based on the fact that researchers wanted to achieve diversity based on gender, academic qualification and region of operation[20].

Relatedly, inspectors stipulated by statutory regulations were selected as key informants for this study as these were the most appropriate cadre to answer the research question[21–23]. Purposive sampling stopped when saturation was reached. That is to say, when no new information arose from subsequent interviews[24]. In one of the study districts, drug sellers had an association with a duly elected chairperson and leadership structure which was absent in the other district. The drug shop association worked with the district drug inspector to ensure that unlicensed drug sellers registered and got an operating license with ease. In both districts, the DDIs derive their inspection mandate from the DHO. Also, in both districts, drug sellers engage in self-supervision after they have been licensed by NDA as stipulated by national policy guidelines[7].

**Data Collection**

A discussion guide was developed based on research of how to conduct feasibility studies [25]. FGDs with drug sellers lasted between 50 to 110 minutes while KII lasted between 45 to 60 minutes. All interviews were audio recorded and transcribed verbatim using Atlas ti.7 software. Respondents were asked whether they felt peer supervision would be a good method of supervising drug shops, whether it would be embraced as an alternative to self-supervision and whether it could be used to augment inspection. In addition, participants were asked what resources they felt should be given to peer supervisors to make the process successful.

**Data analysis**

Collected data was coded and analysed using a constructivist grounded theory method as laid down by Charmaz over a two months period[21]. During initial coding, incidents from transcripts of the first two FGDs were coded and compared. The incidents were then collapsed into categories in the initial analysis[22, 26]. Coding was done according to the meaning of the incidents and relevance to the study to form meaningful concepts[21, 26]. The aim of initial coding was to fracture data to make constant incident to incident comparison while observing for any emerging data patterns. Three levels of coding were used in the process; initial, focused and theoretical coding[27]. This process was repeated in an iterative manner with more codes and categories being developed from subsequent interviews if and when they were non-existent from already developed categories. This iterative procedure was also applied during the final stages of analysis using inductive and deductive thinking and reasoning[28].

In the process of code generation, identification and labelling of key words with intention to assign meaning to data occurred. The labelling enabled researchers of the study to make comparisons between the developed and developing codes by way of constant comparison which aided in forming sub-themes and themes. Initial analysis of the developed codes led to theoretical sampling-following leads in the data by sampling new participants who provided relevant information. This was to ensure that any
subsequently collected data saturated categories that were being developed necessary for theory development[29]. This was followed by focused coding which identified core categories by building basic data into abstract concepts until theoretical data saturation was achieved[27]. Simultaneously, we increased theoretical sensitivity by re-reading literature about supervision in general and peer supervision in particular. Other ways of improving theoretical sensitivity included initial data coding, category building and reflection through memoiring. Final synthesis of categories derived from coding and analysis was done through theoretical coding in order to create the new context appropriate model for a peer supervisor [30, 31]. Transcripts from the six key informants were transcribed and arising themes infused in construction of the model. Table 1 illustrates the coding process.
| Open codes                                                                 | Focused codes                                      | Theoretical codes        |
|----------------------------------------------------------------------------|----------------------------------------------------|--------------------------|
| Check diagnosis, treatment, check education level, room space, storage space, license, should work with DDI, should work with parish coordinators, should work with sub-county chairperson, have powers to suspend, respect others, not ask for money, should carry ID | • Instructing and monitoring                       | Clearly defined roles    |
| • Organisation structure                                                   | • Professional ethics and standards                |                          |
| Peer will teach you new things, may not supervise competing drug sellers, challenge advice, eliminate laziness, educate through workshops, deal away with segregation, selection by peers, selection by ballot papers, selection by raising hands, organise training, workshops, training every three months | • Case conceptualization                           | Role model              |
| • Cultural world view                                                      | • Learning goals and styles                        |                          |
| • Participatory peer selection                                              | • Theoretical orientation                          |                          |
| Peer given cash right away, remuneration range between one to ten thousand shillings, remuneration based on distance moved, pay via mobile money, appreciation not bribes, needs allowance, transport for supervision, needs bicycle, needs motorcycle, transport refund | • Remuneration                                     | Incentives               |
| • Transport                                                                |                                                    |                          |
| Open codes | Focused codes | Theoretical codes |
|------------|---------------|-------------------|
| Stops drug sellers from fleeing, averts fear, averts fraudsters, reduces harshness, treats us in a more friendly manner, phone call precedes visit, people person, advice precedes punishment | • Desensitisation | Mediation |
| | • Interpersonal style | |
| | • Counseling skill | |

**Results**

Construction of the final appropriate peer supervision model involved iterative processes which included analysis and synthesis of raw data. This overarching appropriate peer supervision model is accentuated by four sub-dimensions namely a) Incentives b) clearly defined roles c) mediation d) role model. The different sizes of the developed dimensions arising as a result of the different components therein highlight the varying time and resources that will be required for each dimension to accentuate appropriate peer supervision. The biggest dimension will require the most time and resources (Fig. 1). Nevertheless, all dimensions will synergise one another in an iterative manner with no single dimension being sufficient on its own but rather all four working in tandem to define an appropriate peer supervisor. Figure 1 is the constructed model for an appropriate peer supervisor for private drug sellers at district level in rural Uganda.

**Role model**

Role modelling seemed to be the most talked about dimension of peer supervision. Drug sellers said that a good peer supervisor was one who was more educated than the rest and as such, will be able to conceptualise complicated cases through his professional experience and give advice. The drug sellers preferred that advice be passed on in form of counselling rather than the traditional harshness associated with government inspectors. Relatedly, the drug sellers felt that since peer supervisors would be chosen from among them, they would understand challenges faced and therefore be a little more lenient during supervision which would yield better outcomes than locking up drug shops as has been during inspection visits.

“You can even tell them the challenges you encounter during your operations and they can advise you on what to do or help you make corrections where possible” (P20: FGD5, comprehensive nurses, district without drug shop association)

As far as the inspectors were concerned, there was a general perception that if there was a way of identifying a role model from amongst drug sellers who would mobilise fellow drug sellers, this would ease the licensing process. Drug inspectors become harsh when they find unlicensed drug sellers
prescribing and dispensing drugs. In the event that it was not possible to choose from the existing drug sellers, the inspectors suggested choosing people from the district local government structure. The inspectors suggested having sub-county and parish mobilisers in the event that it was not feasible to have appropriate peer supervisors selected from drug sellers.

“Possibly, if we can come up with strategies of identifying people from amongst them [drug sellers] to act as mobilisers, that can encourage them to license and bring them to us so that we have a free atmosphere. We have sub county structures. Parish mobilisers can play a big role if we work together to improve the services of drug sellers.” (KII, district without drug shop association)

Confidentiality was another attribute drug sellers felt was very important for one to be considered a good peer supervisor. This is because besides providing clinical services, the goal of selling drugs is to make profit. This introduces an element of competition among fellow drug sellers. The drug sellers mentioned that they preferred a peer supervisor who maintained the highest level of confidentiality and was not the kind to divulge too many personal details. The drug sellers felt that if the peer supervisor was to disclose too many business secrets, this would jeopardise the trade resulting in clients preferring some drug sellers over the others. Some issues raised by drug sellers included misdiagnosing patients and offering faulty treatment.

“Also I might not supervise the colleague whom we don't get along with because he takes my clients away” (P24: FGD3, nursing assistants, district without drug shop association)

In a bid to identify a peer supervisor who maintains confidentiality, drug sellers said they were very comfortable identifying such a person themselves through a transparent and democratic process. They felt that they knew each other and that they knew who was and who was not capable of maintaining confidentiality and supervising appropriately. This democratic process would also ensure that the system does not impose a tyrant on them who would make the running of business very hard. When asked how they preferred to choose the peer supervisor, some drug sellers preferred the ballot method while others preferred either raising their hands in support or lining at the back of the preferred candidate. Drug sellers also said that they preferred peer supervisors going for further training facilitated by the government and receiving a monthly allowance if time and opportunity allowed.

“I think on the issue of the peer we should be choosing that person ourselves. secondly; if there is any opportunity such as an organization or the government providing them with some money, let them go and study and be at higher level than us concerning establishment of a drug shop. Let them also be given an opportunity of receiving salary every month after all, they will be working amongst us” (P16: FGD1, nursing assistants, district without drug shop association)

Drug sellers also felt that besides adhering to high standards of confidentiality, a good peer supervisor was one who will have a balanced cultural world view. In the course of our verbal interaction with the drug sellers, they mentioned that conflict amongst them was natural and it would be good if they got a peer supervisor who would not take any sides if conflict arose. They mentioned that conflict arises from
relationships as well as through business competition. They felt that it would be good if the peer supervisor remained neutral and stuck to his supervisory role and did not interfere with other social problems.

“Another view madam is that I may not be getting along well with another drug seller especially my neighbour because we might be sharing the same woman. Or, the patients prefer my medication to his. So, the peer supervisor should deal away with segregation.” (P22: FGD3, nursing assistants, district without drug shop association)

Drug sellers also felt that an appropriate peer supervisor is one who would advocate for more workshops and seminars which would help everyone get more knowledge about common childhood illnesses thus improving treatment through advanced learning. They also said that a good peer supervisor would be one who promotes hard work in business since that supervisor would do their job more routinely.

“We talked of workshops and seminars for those peer supervisors but even we the drug sellers also need to be trained in such seminars such that we are updated of any new developments.”

(P15: FGD4, nursing assistants, district with drug shop association)

Clearly defined roles

This category was talked about with clarity by drug sellers because of the experience they had with government inspection which has many actors and is largely unstructured. To the drug sellers, an appropriate peer supervisor is one who will have predictable timing and routine of supervision. Drug sellers also felt that a good peer supervisor is one who will have appropriate supervision tools. Such tools will include a supervision check list. The drug sellers said that peer supervisors will need to have clearly defined tasks such as checking on education levels of drug sellers, operating room space, storage area for drugs, presence of toilet and hand washing facilities. Not being so intrusive to the extent of reaching drug sellers’ bedrooms in search for illicit drugs was another concern that was raised. In all, they mentioned that a peer supervisor would be a good first line supervisor before other layers of supervision take precedence if they exhibited professional ethics and standards.

“Some have a policy of coming up to where we sleep in search of drugs and for me I think that has to change. They should know their boundaries and only work within those limits. Just in case they find anything wrong within those limits, then I can seek for an apology.” (P15: FGD4, nursing assistants, district with drug shop association)

In having clearly defined roles, drug inspectors also felt that peer supervisors ought to work within a clearly defined organisational structure. This was stressed by one key informant as he said that when drug sellers are under one organisation, they are easy to regulate and following them up is easy. He intimated that the original thinking behind initiation of drug shops in the country was to act as a temporary stop gap measure for government inadequacies. However, the key informant was dismayed at
how drug sellers through their organisations had become so powerful to the extent that they had dragged
the NDA to courts of law. He said that every attempt at trying to streamline drug sellers is treated with a
lot of suspicion. He lamented that the drug sellers had gone to great lengths to undermine policy by
forming associations even where they were non-existent previously.

“*I think it is a good initiative. Because in our systems, these [drug sellers] were supposed to be temporary
stop gaps but I can see they are entrenched. They are down there serving the poor and hard to reach. You
have heard of how they [government] tried to faze them out but you have heard the noise they have
made. I think even those who had no association have organized them.*” (KII, regulator, NDA)

Incentives

This dimension comprised three properties namely transport, remuneration and a combination of
transport and remuneration. Drug sellers and inspectors recognised the need to offer appropriate
incentives if the supervision process was to be smooth. While some drug sellers felt that giving either
money or a bicycle was enough for smooth peer supervision, others felt that an amalgamation of money
and a bicycle were the most appropriate incentives for time spent during supervision. The drug sellers
suggested that government should buy the bicycles and the money should be given as a transport refund.

“*They should be given at least a bicycle and allowance to facilitate their supervision.*” (P24: FGD3,
nursing assistants, district without drug shop association)

On the other hand, inspectors also felt that putting in place an incentive was a good initiative for peer
supervision. The inspectors said that the incentives would best be executed at the level of drug shop
associations if well managed. This would benefit both the drug sellers and the peer supervisors. They
emphasized the fact that the incentives should be passed on through the drug shop association because
the association was formed at district level. As such, the drug shop association would be controlled by
district authorities and not be a parallel structure.

“*May be at district level, these associations would work when they are better organized. Some of them
were saying these people are just getting money. But I think if they are well organized and people know
the benefits [of incentives], they can work out.*” (KII, regulator, NDA)

Mediation

The dimension of mediation was divided into three namely: de-sensitisation, interpersonal style and
counselling skills.

Drug sellers in the focus group discussions felt that an effective peer-supervisor was one who would be
able to diminish negative tendencies associated with fear of government inspectors in what was termed
as de-sensitisation. This is because during inspection, government inspectors ensure that errant drug
sellers are arrested and their drugs are confiscated. In addition, they are insulted and ashamed in front of patients. Whereas this is more common amongst the unregistered drug sellers, the registered drug sellers tend to take no chances when government inspection is on-going. For this reason, participants in the focus group discussions felt that they would prefer someone who will be recognised as a first line supervisor before the more superior supervisors intervene. These assertions are highlighted in the quote below.

“I know those people [peer supervisor] will be approachable and not mistreat us. What they will do is to make a report and tell us where we have done well. They will not be as harsh as those people [inspectors]. That is why those people [peer supervisors] should be chosen from amongst us.” (P17: FGD 2, Nursing assistants, district without drug shop association)

As far as interpersonal style of the peer supervisor was concerned, participants in the focus group discussions said that since their businesses were running on very little capital, they would prefer someone who understands the challenges of raising such capital and the losses incurred when drugs are confiscated. As such, for one to be considered an appropriate peer supervisor, that person will need to be sociable, of good character and able to help when there is an overwhelming number of patients. The following quote captures what was said.

“That's why we mentioned that they should train the peer supervisor to have social manners and be able to assist when they get to your drug shop and find many clients.” (P28: FGD2, nursing assistants, district with drug shop association)

Having good counselling skills was another attribute mentioned for one to be considered an appropriate peer supervisor by drug sellers in the focus group discussions. The drug sellers told the lead investigator of the study (AB) that in the event they were caught doing the wrong thing, they preferred being advised and warned before being punished as is the norm with government inspectors.

“For me I think that if they [peer supervisors] get me with something am not supposed to do, say a drug, they have to first warn me and if I repeat the same thing again, they can report me” (P15: FGD4, nursing assistants, district with drug shop association)

**Discussion**

This study aimed at constructing a model of an appropriate peer supervisor for private drug sellers at district level in rural Uganda based on views of drug sellers and their inspectors. Effort was put in to understand how the model fitted within the already existing models of supervision. This aim was against a plethora of published evidence on the continued inappropriate treatment of paediatric febrile illnesses associated with the existing method of self-supervision in Uganda. Findings reveal a complex nexus of individual, institutional, drug seller and means of carrying out supervision. The dimensions that emerged from theory building interlaced for appropriate supervision. There is need for government to pilot peer
supervision among rural drug sellers to purge the existing supervision gap. Themes from the data are discussed in the section below

**Role model**

As depicted in figure 1, role modelling seemed to be the most talked about dimension of peer supervision. This theme means that drug sellers felt that they needed someone who was above their average practice standards and yet was one of them. They preferred someone who easily relates with the context in which they operate. This kind of relationship between the supervisor and supervisee has been noted as very important in both the SAS and Bernard's discrimination models as precursors for appropriate supervision [11].

However, Bernard's discrimination model does not elaborate in detail the supervision relationship which makes it hard to compare with results of this study. There is growing support for the need to improve supervisor-supervisee relationships because this improves internal support supervision quality rather than supervision frequency which is emphasized by many government agencies involved in supervision at unit level like drug shops in low income countries[^32, 33]. As far as rural drug sellers are concerned, this can best be achieved when the supervision relationship between the supervisor and drug seller is cordial.

The theme also implies that currently, government inspection which is the closest in terms of supervision besides self-supervision is detached from the experience of drug sellers and as such, there is a strained relationship between government inspectors and drug sellers. This may have arisen due to the fact that currently, inspection rather than supervision is what occurs even if the process is referred to as the latter by many drug sellers. The inspection process is characterised by fault finding and is aimed at arresting and apprehending offenders rather than counselling with intent to improve practise.

These results are congruent with findings from other research which shows that supervisors are regarded as pivotal by supervisees [^34, 35]. This happens most especially when information from supervisees needs to be synthesized and passed on to top level management in a manner that sustains a favourable operational climate. The manner in which the information is passed on must favour both the supervisees and the organisation under which they operate. This also helps shape the extent to which supervisees can be innovative and or rewarded. In sum, drug sellers preferred someone who relates with them and was familiar with what they do.

**Clearly defined roles**

In this theme, drug sellers implied that during supervision, they expected clarity during the supervision process. They wanted a clearly defined list of expectations from the supervisors and one for drug sellers. This is based on the current situation where for instance, inspectors have certain expectations from drug sellers which are largely prescribed by the law and do not expect drug sellers to have any expectations.
The notion of expectations being uni-lateral is not in agreement with Bernard’s discrimination model which is more prescriptive when it comes to defining roles. In the model, supervisors adjust accord to the needs of the supervisees. Hence, the supervision style for novices is different from expert supervisees. In our study however, we could not apply Bernard’s discrimination model because drug sellers from the two districts had already been trained by CHAI and were assumed to be at the same level in terms of appropriate treatment of febrile children aged five years or less. More applicable was the SAS model where drug sellers wanted the roles of the peer supervisor to be less explicit and not to exceed formative and summative evaluation functions.

The common assumption is that once a drug shop has been licensed, the seller operating the licensed drug shop should engage in the right practise. This notion of self-supervision with no superior and authoritative level of supervision obliterates feedback which is the whole mark of supervision. Research shows that when supervision is structured, the process offers an opportunity for feedback, self-assessment, and peer assessment [36, 37]. This can only happen when there are clear terms of engagement handed to supervisors by the organisation responsible for supervision as well as a clear definition of who does supervision, how and when it occurs [38, 39]. From our study, there was no structure responsible for supervision of drug shops other than relegating the supervision function to the duly licensed drug sellers. This makes the whole process untrustworthy, unprofessional and prone to abuse.

**Incentives**

As far as the drug sellers were concerned, that which drug sellers referred to as the government approach to supervision yet was actually inspection is more of a financial burden transferred to drug sellers. This is because drug sellers seemed to imply that inspectors demanded for a fuel refund every time they made a visit to drug shops. Ideally, the government is supposed to facilitate DDIs since drug sellers pay annual license fees and other statutory taxes. In light of this, studies show that support supervision requires motivation on the part of supervisors. This enables supervisors not to be passive, absent or adopt unwanted behaviour such as soliciting illicit funds from drug sellers [40, 41]. Drug sellers even suggested that even though other incentives such as tips were to be paid to supervisors, there should be a transparent system of doing so. Implied in this theme is that there are inadequate human and financial resources for inspection of drug sellers at district level which needs to be sorted out before an appropriate peer supervision is rolled out. As other studies have shown, it is important to have a good incentive structure clearly communicated by responsible authorities or organisations mandated with supervision[42]. This dimension of supervision is not talked about either by the SAS or Bernard’s discrimination model hence an extension to the existing models.

**Mediation**
An appropriate peer supervisor was described as one who had the capability of mediating decisions between drug sellers and government agencies. Such a peer supervisor would have the ability to stay decisions made by government agencies charged with supervision of drug sellers which would curtail the persistent hindrances involved in the daily running of drugs shops. Such decisions may include but are not limited to harassment, embarrassment and intimidation of drug sellers. This revelation was made based on the fact that inspection of drug shops in Uganda is carried out in a harsh manner. Therefore, introduction of a more structured supervision process for drug shops will go a long way in reducing harshness through mediation while improving the quality of care as has been mentioned in studies done elsewhere[1, 43].

Since the current method of self-supervision has not resulted into desired treatment outcomes especially for febrile children aged five years or less, it is envisaged that democratically selecting peer supervisors with good mediation skills will purge this glaring gap of supervision. This will be possible when the peer supervisors have good counselling skills described and supported by both the SAS and Bernard's discrimination model [11].

The basic assumption is that such a person would be an influential person trusted by government agencies and drug sellers. This person would be an ideal and efficient first line supervisor before other supervisors at a much senior level get involved. Decisions made by the peer supervisor should make sense to government agencies and drug sellers creating a good environment for offering services to the community while making profit from their business at the same time.

**Study limitations**

This study did not use therapy quality scales (TQS) to measure general and specific skills of inspection and peer supervision during data collection[44]. Instead, views from participants were explored using a constructivist grounded theory approach by Kathy Charmaz [21].

Therefore the accounts on peer supervision are characterized by subtle meaning of participants’ perceptions and should not be interpreted as actual measurements of appropriate peer supervision. Although we present findings from drug inspectors, strictly speaking, inspectors are mandated to uphold the law by looking out for errant drug sellers. In essence, we interviewed them because there was no other authority charged with supervising private drug sellers. As such, our work has several areas of concordance and deviance typical of exploratory qualitative studies[45].

**Conclusions**

Four central contributions advance literature by the model developed by our study. First, the model fills a supervision gap for rural private drug sellers. Second, it highlights the need for terms of reference for peer supervisors. Third, it describes who an appropriate peer supervisor should be. Lastly, it elucidates the kind of resources needed for peer supervision.
Abbreviations

| Abbreviation | Full Form                          |
|--------------|-----------------------------------|
| CHAI         | Clinton Health Access Initiative   |
| DDI          | District Drug Inspector            |
| DHO          | District Health Officer            |
| FGD          | Focus Group Discussion             |
| KII          | Key Informant Interview            |
| NDA          | National Drug Authority            |
| SAS          | Systems Approach to Supervision    |
| TQS          | Therapy Quality Scale              |

Declarations

Ethics approval and consent to participate

The Higher Degrees, Research and Ethics Committee (HDREC) of the school of public health, college of health sciences, Makerere University Kampala and the Uganda National council of Science and technology (SS4703) approved the study protocol. All drug sellers and inspectors provided written informed consent for themselves.

Consent for publication

Not applicable

Availability of data and materials

Datasets used during the study are available from the corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

AB, SP, HW, AM and PA conceptualised the study. AB conducted data collection. AB, MM, PA, FK and LG analysed and drafted all versions of the manuscript. All authors read and approved all versions of this manuscript.

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Endnotes

"Not applicable"

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**Figures**

![Diagram of an appropriate peer supervisor](image)

**Figure 1:** Model of an appropriate peer supervisor

Figure 1

Model of an appropriate peer supervisor