Effectiveness of 'Community Health Workers' Program' for Reducing Infant Mortality Rate in Informal Settlement in Kinondoni District, Dar Es Salaam, Tanzania.

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Abstract

There needs to be more evidence on the significant connection between Community Health Workers (CHW) Programs and infant mortality rate in urban informal settings. Community Health Service Delivery's prime focus is reducing the infant mortality rate in all areas, rural or urban. This study aimed to determine whether providing community health care helps lower the infant mortality rate in Tanzania's informal communities in the Kinondoni neighbourhood of Dar es Salaam. This study used a mixed-method design that blended qualitative and qualitative tools in in-depth, semi-structured face-to-face interviews through questionnaires. The research study used simple random sampling to sample 66 CHWs — purposive random sampling to reach 44 healthcare personnel, 10 CBOs/NGOs, and 36 local authorities. A snowballing technique was used to sample new mothers and pregnant women. In-depth, semi-structured face-to-face interviews were undertaken with local government officials, neonatal and pregnant Mothers, healthcare facility employees, CBOs, and NGOs, and questionnaires were distributed to CHWs. Quantitative data was collected and analysed using descriptive and inferential statistics. Qualitative data was analysed thematically with explanations in narrative form. The results showed that CHWs played a significant role in reducing the infant mortality rate. Inadequate institutional, social, and financial support, lack of recognition for health professionals, attrition, and retention were some challenges CHWs faced. CHWs program used a variety of strategies, including home visits, CHW training, and training for expectant and new mothers. This study recommends that the government of Tanzania should invest in improving CHWs' programs, set adequate training, establish proper supervision to work closely with health administrators and enumerate CHWs with a national

standard amount. Lastly, CHWs and health management teams should work closely to provide insight for monitoring and evaluating CHWs' performance to achieve healthcare delivery goals.

Background of the Study

Community Health Service Delivery has gained traction as a means of health promotion, prevention, and protection. It involves helping individuals and families to take active and dynamic action towards identifying their health problems and taking appropriate action to solve them (Schwatka et al., 2019). Its prime intention is to improve access to primary health care and advocate for empowerment in all areas within a country, be it formal or informal settlements urban or rural populations. However, while community health service delivery systems are considered vital in promoting quality of life, more information must be provided about their effectiveness in reducing child mortality.

Community Health Workers (CHWs) have played a significant role in reducing infant mortality rate. For example, evidence from a study in rural South Africa shows that CHWs can increase the immunisations of newborns, providing health care education, i.e., breastfeeding, proper care and sanitation practices (Roux et al., 2020), in Arizona CHWs educated families about the importance of vaccinations and assisting them in accessing immunisation services (Wightman et al., 2022). CHWs can actively contribute to reducing morbidity and related mortality in newborns. Similarly, in Kenya, identifying potential warnings and timely CHWs referral are preventive measures for complications and reduce mortality rates (Nzioki et al., 2017).

Community Health Workers are constrained by a variety of challenges which affect their service delivery. Ozano et al. (2018) revealed that CHWs get minimal leadership and support from local government, irregular training, inadequate resources, and a lack of professional identity. Oleribe et al. (2019) found that inadequate personnel, low budget, and ineffective leadership hindered CHWs' performance (Assefa et al., 2019). In Tanzania, (Nuhu et al., 2020) identified challenges such as a lack of resources, ineffective monitoring and evaluation, and insufficient consultations affecting the work of CHWs. In Tanzania, the effectiveness of community health service delivery has not been thoroughly explored and scientifically investigated by researchers in an urban informal setting.

This study is intended to examine the effectiveness of CHW program in reducing the infant mortality rate. The study assessed the extent to which implementation of Community Health Workers programs has reduced the infant mortality rate challenges faced by CHWs, strategies used by CHWs. Also, the study assessed the effect of Community Health Service Delivery in reducing the infant mortality rate in Kinondoni district, Dar es Salaam.

Statement of the problem

In Tanzania, like other parts of the world, Community Health Services delivery is considered as the fastest-growing field of practice in the health sector. Yet, the Tanzanian government and other health stakeholders still need to improve its uptake. While Tanzania has the highest density of primary health care facilities in Africa equitable access and quality of care remain a challenge. Inadequate human resources have proven to be a factor that contributes to this challenge (Ramsey et al., 2013).

To address this problem, the government of Tanzania formalised CHW cadres, including the approval of the community-based health programme (CBHP) policy in 2014, which standardised the fragmented CHWs' activities across the country (Ngilangwa & Mgomella, 2018).

Growing evidence suggests that CHWs have played a significant role in reducing the child mortality rate in Tanzania. However, this evidence is from rural settings (Ramsey et al., 2013; Kante et al., (2019). There have been limited studies to prove that there is a significant connection between the CHW programme and reducing mortality rate in urban informal settings. The current infant mortality rate for Tanzania in 2023 is still high, standing at 34.168 deaths per 1000 live births (WHO, 2023).

Due to this scenario, it was ascertained that a study should be conducted to assess the contribution of CHWs in reducing infant mortality in urban informal settings in Kinondoni, Dar es Salaam, Tanzania. Since Kinondoni, the suggested geographical area of the study has the most significant number of people and informal settlements, the characteristics of the informal settings in Kinondoni district settings (low income, densely populated, under-served and mostly excluded in developmental initiatives) and having the highest number of informal settlements, it became an appropriate population study area. (Tanzania census, 2012).

Materials and Methods

This mixed method study was conducted for six months in informal settlements in Kinondoni district in Dares Salaam, Tanzania. The study targeted 180 respondents and key informants, and it used a simple random sampling technique to sample out 66 CHWs. It then used purposive sampling to purposively target 44 healthcare personnel (nurses and clinicians), 10 CBOS/NGOs and 36 local authorities in Kinondoni district. The snowball technique was used to sample pregnant and new mothers due to the nature of the informal settlements. The study was conducted in Manzese, Tandale, Kigogo, Mburahati, and some parts of Kawe, Msasani, Magomeni, and Kinondoni Mkwajuni informal settlements from June 2022 to November 2022.

This study used both primary and secondary methods of data collection. Primary data was collected using closed-ended questionnaires and semi-structured interviews. Quantitative data Analysis was done through descriptive and inferential statistics. A statistical package for social sciences software version 25 was used in analysing the data. Qualitative data Analysis was done through the thematic analysis technique. Besides, the researcher used a mixed approach with concurrent description so that quantitative and qualitative data were explained on the same page and concurrence or differences were identified in the data.

The study assessed the extent to which implementation of CHW's programs has reduced the infant mortality rate, the challenges CHWs face, and the strategies CHWs use to reduce the infant mortality rate in the informal settlement of Kinondoni district, Dar es Salaam. Their responses were measured on a five-point Likert Scale (Likert Scale - 1=Strongly Disagree, 2=Disagree, 3=Uncertain, 4=Agree, and 5=Strongly Agree). Inferential statistics were used to analyse the gender, age and education level of respondents against infant mortality rate through T-test and ANOVA. Chi-Square was used to analyse the duration of stay, and duration served as CHW and recruitment method to determine their effect on Infant Mortality Rate.

Results

A slight gender disparity of 4.6%, the majority being females, among CHWs in Kinondoni District, Dar es Salaam, Tanzania has been identified. The majority of the CHWs (46.2%) who participated in the study were middle-aged adults, and they required basic education (high school education-60%) to execute their mandate. A majority (50.8%) of CHWs were recruited as volunteers. A majority (36.9%) of the respondents had a working experience of between 11 and 15 years.

CHW program influence, challenges and strategies used to mitigate infant mortality rate show that implementation of CHW programs significantly affected infant mortality in Kinondoni district, Dar es Salaam. Quality improvement programs were considered by the majority of the respondents, 47(32.3%), to help in mitigating the infant mortality rate. Similarly, data collected through interviews with key informants revealed that CHW programs played a significant role in infant mortality mitigation. One of the participants said;

> My wife and I were educated on the importance of hospital delivery, a well-balanced diet for my wife and the baby after delivery and the importance of me supporting my wife and being both emotionally and physically present during and after her pregnancy. Moreover, yes, it helped in making decisions regarding my wife's and child's health because, before that, we knew nothing about exclusive breastfeeding, but from interaction with CHWs in our area, we opted. We saw it was possible, and we had great results (P.05).

The majority of the respondents, 92 (63.1%), alluded that the main challenges faced by CHWs in executing their mandate were attrition, retention and lack of social, financial and

technical support. Data collected through interviews with key informants revealed several challenges faced by CHWs in mitigating infant mortality. One of the participants said;

First of all, there need to be more understanding from the clients. Secondly, Foul language from the clients. They need to be financially capable; the clients and CHW sometimes fare from one place to another, which is a problem. For example, CHW may refer a client to a much-resourced facility, but the clients fail to go because they need more money for transport. Lastly, there is poverty around the area (livelihood" (P.1010).

The majority of the respondents, 74 (50.8%), agreed that providing counselling helped mitigate the infant mortality rate. Data collected through interviews with key informants revealed several strategies used by CHWs in mitigating infant mortality. One of the participants said;

Provision of basic counselling provided by CHWs to households prevents infant mortality rate in Kinondoni District as it promotes clarity of information… There is much wrong information going around, and basic counselling helps, especially for mothers who are HIV positive. It gives them the courage to start clinics and opt for hospital delivery because they will receive much better service at hospitals (P. 09).

Table 1
Analyses of the chi-square test

		Infant mortality rate increase			Pearson Chi-square		
		Yes	No	Total	Chi-square	df	P-value
Duration of Stay	1-5 years	0.0% (0)	100.0% (1)	100.0% (1)	3.758^a	4	0.440
	6-10years	60.0% (3)	40.0% (2)	100.0 (5)			
	11-15 years	14.3% (1)	85.7% (6)	100.0% (7)			
	16-20 years	37.0% (10)	63.0% (17)	100.0% (27)			
	21 and above years	28.0% (7)	72.0% (18)	100.0% (25)			
Duration as CHW	1-5 years	28.6%	71.4%	100.0%	2.879^a	3	0.411
	6-10 years	40.0%	60.0%	100.0%			
	11-15 years	25.0%	75.0%	100.0%			
	16-20 years	60.0%	40.0%	100.0%			
Recruitment Method	Appointed by the community	19.4%	80.6%	100.0%	6.018^a	2	0.049
	Volunteer	42.4%	57.6%	100.0%			

| Elected | 100.0% | 100.0% |

Analysis by the duration of stay by the respondents shows that a degree of freedom (4) and the computed Chi-square value =3.758, the P-value = 0.440, is more significant than the Alpha level 0.05. Therefore, there is no statistically significance relationship between duration of stay and infant mortality rate. This was experienced across all the time indicated. The study, therefore, fails to reject the Null hypothesis. In the analysis by the Duration as CHW, where the degree of freedom (3), Chi-square value (2.879) and P-value =0. 0.411 is more than the Alpha level = 0.05. Therefore, it was revealed that there is no statistically significance relationship between the duration served as a community health worker and Infant mortality rate. From the presentation on the Recruitment Method, at (df = 2) and computed Chi-square =2.879, the P-value= 0.049 is less than the Alpha value= 0.05. This signifies that the method used in recruiting community health workers has a statistically significant relationship with the Infant mortality rate. This was indicated by the appointment by the community, volunteering or through election.

The inferential results indicated that the duration of stay and the duration served by community health workers are not statistically significant in predicting the infant mortality rate. It, therefore, implies that the infant mortality rate is not affected by the duration of stay and duration served by the community health workers; hence, the infant mortality rate is affected by other factors. Also, results showed that the recruitment method - Appointed by the community, Volunteer and Elected - is significant in predicting infant mortality rate. This implies that appointed by the community, volunteers, and elected CHWs significantly impact the infant mortality rate.

Discussion of the Findings

The study assessed the extent to which implementation of CHW's programs has reduced the infant mortality rate in the informal settlement in Kinondoni district, Dar es Salaam. The study revealed that implementation of CHW programs played a significant effect in mitigating infant mortality in Kinondoni district, Dar es Salaam. The study also assessed the implementation of operational clarity programs, roles and responsibilities, training and quality improvement programs, and effective management styles enhanced infant mortality mitigation. The findings are consistent with a study by Perry et al. (2014). The study also explained the effectiveness of CHWs by stating that, in settings where most births occur in the home, CHWs can provide critical services that save lives. These CHW interventions can reduce newborn mortality by 60% (KI 03; Personal Communication, 21st November 2022).

The study examined the challenges faced by CHWs in reducing the infant mortality rate in Kinondoni district informal settlements, Dar es Salaam and revealed that attrition, retention, distance, poor referral system and lack of social and technical support as well as ineffective quality improvement were main challenges facing CHWs in mitigating infant mortality. Findings corroborate the findings of a study by Namazzi et al. (2017), which established that the significant challenges facing CHWs included a lack of means of transport, a lack of protective items, and inadequate quality of care at health facilities to meet the increasing demand. Perry et al. (2014) also identified a lack of career growth opportunities and a need for adequate financing, supervision and logistical support for supplies, medicines, and equipment.

The study investigated the strategies used by CHWs to reduce the infant mortality rate in the informal settlement of Kinondoni district, Dar es Salaam. It revealed that training of neonatal and pregnant mothers, conducting household visits, providing counselling services and providing health promotion and education to the community. These findings align with Aboubaker et al.

(2014), who identified training and supporting CHWs, home visits, and counselling as appropriate prevention and promotion strategies for reducing infant mortality rates.

The chi-square results indicated that the duration of stay and the duration served by community health workers are not statistically significant in predicting infant mortality rate. It, therefore, implies that the infant mortality rate is not affected by the duration of stay and duration served by the community health workers; hence, the infant mortality rate is affected by other factors. Also, results showed that the recruitment method (Appointed by the community, Volunteer and Elected) is significant in predicting infant mortality rate. This implies that appointed by the community, volunteers, and elected CHWs significantly impact the infant mortality rate.

Conclusion

The implementation of the CHWs program has played a significant role in reducing the infant mortality rate in the study area. Challenges CHWs face include poverty of their clients, inadequate social, technical and financial support, recognition by health workers, attrition and retention, inadequate allocation of resources, case overload and transportation for referrals cases. Training neonatal and pregnant mothers, conducting household visits, providing counselling services and providing health promotion and education to the community are the strategies used by the CHWs program and have helped by building capacities at individual, family, and community levels.

Recommendations

This study recommends the following;

1. This study recommends the government, health service providers and agencies to invest more efforts and resources in improving the CHWs program for effective implementation of healthcare services to serve the public's interest.
2. The national government should establish proper supervision to work closely with health administrators, particularly in motivating CHWs. Most of their work is based on volunteerism, and they serve many households in the area, yet more needs to be paid to them (30,000 to 50,000 thousand Tanzanian shillings); as a result, quality healthcare services will be achieved.
3. The government of Tanzania should set adequate training for CHWs and provide the best system for follow-ups on this training. This will aid in skills boosting among the health workers for standardised health delivery.
4. The CHWs and the health management team should work closely to provide insight for monitoring and evaluating the CHWs' performance to achieve healthcare delivery goals.

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