Assessing the demand for community health workers' social support: a qualitative perspective of mothers in rural Rwanda

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Abstract

Introduction: better utilization of community health workers (CHWs) is considered a key strategy that can improve access to health care services in low resource settings. Community acceptance of the supports that CHWs provide is important to enable CHWs deliver their services and for these services to have long-term benefits. The objective of this study was to examine mothers' perceptions and demand for CHWs services in two rural districts in Rwanda.

Methods: this was a qualitative study and data were collected using 6 focus group interviews. The groups comprised a total of 64 mothers aged 19-42 years who had delivered within the last year preceding the study. Thematic analysis of the group interviews resulted in three major themes related to social support a) informational b) emotional and c) tangible support.

Results: informational support (advice on nutrition, antenatal care, delivery care) was by far the most valued support by mothers. Mothers expressed a need for more emotional support from CHWs (for example counselling partners about pregnancy and childbirth) and tangible support (helping mothers to solve practical problems).

Conclusion: mothers attach great value to CHWs services but gaps in types of services provided were noted. The findings point to the multiple roles that CHWs may have to play to meet the demands of community members. More studies on the interactions of CHWs with mothers, in particular longitudinal studies are needed to improve the understanding and planning of CHWs interventions.

Introduction

The potential to advance and sustain the well-being of populations in most lower and middle income countries (LMIC) is threatened by the current global human resources crisis [**1**]. Community participation through the utilization of community health workers (CHWs) is considered a key strategy that can

leverage Human Resources for Health (HRH) in these settings [2, 3]. CHWs are a diverse category of health workers who commonly work in communities outside of fixed health facilities with people in their homes, neighbourhoods, communities, and other nonclinical spaces [3]. CHWs act as a bridge to the health care system, and hence they can help to provide widely efficacious interventions to populations that rarely benefit from health care advances. In particular, CHWs are instrumental in connecting pregnant women with health services such as antenatal care (ANC) [4] and thereby promoting and establishing good health before childbirth and the early postnatal period-the periods of highest risk [5]. Evidence suggests that such home visiting programs, if meaningful, can have long-term benefits particularly for low-income families [6]. However, too often there is less demand for CHWs particularly if their services are considered inappropriate or even ineffective [7] and low use of CHWs is a commonly expressed concern in the literature [8]. Given that the effectiveness of CHWs depends on their relationship with communities [7] it becomes critical that more research examines perceptions and utilization of CHWs services from the perspective of users. This study examines mothers' perceptions and demand for CHWs services in two rural districts in Rwanda. While CHWs are generally trusted and gain much recognition from communities, a number of factors both internal and external to the CHWs' programs may influence their service delivery [9]. Their age, education, gender, ethnicity, socio-economic factors and domestic responsibilities affect the way they are perceived by community members and their ability to carry out their tasks effectively [10]. Moreover, while being a CHW is often linked to a feeling of status, increased self-knowledge and improved effectiveness [11], there is concern that CHWs may experience "burn-out", leading to a feeling of reduced personal achievement in the caregiver role, loss of concern for empathy towards a client and withdrawal from the helping relationship [12]. In such instances, CHWs may take longer between visits, or forget altogether with either situation possibly leading to adverse health effects for their clients [13].

In addition, broader factors, including poor infrastructure and weak health systems can limit their effectiveness [14]. Often the catchment areas that they serve are too large, making it difficult for them to find the time or means to visit all the households [11, 15, 16]. When working within weak health systems they often lack supplies to support their tasks [17, 18]. These complex challenges imply that CHWs may not consistently provide services likely to have substantial health impacts and the quality of services they provide is sometimes poor [19, 20]. While studies report an increasing demand for CHWs services [21] there is evidence to suggest that community members do not automatically accept CHWs [7]. The levels of use of services depend on a wide range of social, psychological, and physical factors [22]. Low levels of education and health knowledge in the population may pose a challenge to the use and acceptability of services [23]. And while one key role of CHWs is to educate their communities, studies have reported that these messages often do not reach those most in need [7]. In other cases, recipients may place greater importance on curative services, as opposed to the health education services that most CHWs seem to provide [24]. Furthermore, some services may be considered ineffectual or even culturally offensive and hence recipients may not seek out CHWs advice [7]. Studies have found that families may have an interest in adopting healthy eating patterns, for example, but lack financial resources [7, 21]. When support from the community is weak, CHWs face an uphill battle in gaining the respect of the community and delivering services [16]. The objective of this study is to investigate the perceptions of CHW services by identifying services most valued by mothers during pregnancy, and what additional services they desire. To structure the findings, the present study adopts a social support framework in the analysis of data as it is considered particularly suited to the assessment and intervention during pregnancy [25]. Cohen and colleagues [26] define social support as 'the social resources that persons perceive to be available or that are actually provided to them by non-professionals in the context of formal support groups and informal helping groups' [26]. This framework has been applied in various disciplines including psychology; to assess the psychosocial correlates of birth outcomes and postpartum depression [27], and most recently to study the association of unwanted pregnancy and social support with depressive symptoms in pregnancy [28].

Rwanda's Community Health Program

Following the 1994 genocide Rwanda implemented a nationwide CHW program to support the country's community health program. The country has made much progress since then in improving its health indicators, partly due to major health sector reforms, and the use of CHWs to deliver services [**29**]. The CHW program consists of about 45,000 community health workers (CHWs) who deliver a number of defined community health interventions [**30**]. Despite these efforts, there are some challenges to the program; first, some CHWs do not know how to read and write; as the minimum education level for CHWs to enrol in community health activities is primary school, this is relatively low compared to the expected level of knowledge and output from each CHW. This gap may translate to a lack of confidence in convincing beneficiaries to adopt preferred behaviour [**31**]. Second, CHWs are volunteers but are motivated through community performance based financing (CPBF) organized through CHW cooperatives. But workload required of CHWs is often high, and for most CHWs, these incentives provide little or no financial gain. Third, the environment (distance) in which they operate could make it difficult for CHWs to conduct home visits. Various studies report on the role of CHWs in Rwanda [**32**, **33**] both from the perspective of CHWs and beneficiaries [**31**]. But these studies fail to examine or report on what services and supports are most valued by mothers and what additional services they demand. Previous studies identify this as a major gap in the literature on maternal health and suggest more research from the perspectives of mothers themselves [**34**].

Methods

Study design: this was a qualitative study where data were collected using 6 focus group interviews to investigate the demand for CHW services by identifying services most valued by mothers, and what additional services they desire. CHW supervisors assisted in contacting CHWs who then identified the potential participants. This study was part of a larger retrospective study which included CHWs and pregnant mothers and is reported elsewhere [**11**]. The aim of the larger study was to evaluate the implementation of mHealth (mobile health) for community health workers in districts that were implementing mHealth with CHWs.

Study setting: the study was conducted in two districts in Rwanda - Huye and Nyaruguru- both in the Southern province. Out of 30 districts, Huye ranks sixteen with a high percentage of extreme poverty [**35**] while Nyaruguru district ranks fourth by percentage of population identified as poor or extremely poor people [**36**]. Having a large percentage of the total population, especially in rural areas where the rate of poverty is high, increases the demand for care [**37**].

Study population: this study targeted mothers from Huye and Nyaruguru districts who had delivered within the last 12 months at the time of the study and had a CHWs support during that period.

Data collection: a question guide was developed based on the literature and participants were asked to describe their experiences with CHWs during their pregnancy including the sort of support they received. The questions included: How supportive were CHWs when you were pregnant? Probes: Conducting home visits, frequency of home visits or calling an ambulance. What information does a CHW give related to pregnancy and childbirth? Participants were also asked: What services do you value the most from CHWs? What else do you want the CHWs to do in addition to what they do now? In addition, basic socio-demographic information including age, wealth status, marital status, educational level, parity, number of times CHWs visited, and how they rated their CHW was collected. The FGDs were conducted by a moderator who was fluent in English and the local language Kinyarwanda. The interviews were conducted at a health facility in the respective districts and lasted approximately 45 minutes. The study utilized a theoretical sampling method and hence once 6 focus groups were conducted "no new or relevant data seemed to emerge" [**38**]. All sessions were audio recorded.

Data analysis: data were analysed inductively, implying that themes identified were strongly linked to the data themselves [**39**]. The process began with looking for patterns of meanings and issues that were of potential interest to the data. Themes were analysed at a semantic level, and hence within the explicit or surface meanings of the data [**40**]. The analytic process therefore involved progression from

description, where data were ordered to show patterns in semantic content and summarized, to interpretation where there was an attempt to theorize the significance of the patterns, their broader meanings and implications [**39**]. Using the social support framework the findings are categorized into three main themes: informational, emotional and tangible [**41**].

Ethical considerations: prior to the study informed verbal consent was obtained from prenatal women with the option to opt out at any point during the study. While consent forms were not used, transcripts from the FGDs establish agreement and consent to proceed with the data collection. None of the mothers approached for the study declined to participate. Ethical approval was obtained from the research ethics committee of University College Dublin in Ireland and authorization to conduct the study locally was granted through the University of Rwanda and district hospitals.

Results

The results are reported using the following sub-sections; Socio-demographics of participants, role and tasks of CHWs, services most valued by mothers, additional services that the mothers desire, and gaps identified in CHWs' work

Socio-demographics of participants

A total of 64 mothers aged 19-42 years participated in the study. **Table 1** shows that most mothers, 59 (92.2%) were married or living with a partner. Most, 58 (90.5%) had a primary education and 8 (12.5%) had no schooling. The majority 62 (96.9%) reported having an active CHW during pregnancy and 27 (42.1%) received a visit from a CHW 6 times or more **Table 2**.

Role and tasks of CHWs

Participants identified several tasks that CHWs perform: *'They really help us from 2 to 6 month pregnancy she pays a visit and after giving birth they follow you up, we are satisfied about how they treat us we don't complain. They are always there even late in night you can call them and they will be there. Health workers care for us more than our mums even after delivery' (MUN 7).* This was also echoed in other focus groups; *'they are with us all the time and visit us usually' (KI2).* In particular CHWs provided advice on nutrition, family planning and hygiene; *'they visit, and give us some advices, -advices about nutrition, hygiene, and they take us to the health centre for any complication' (R2).* Most focus groups considered CHWs a crucial link between mothers and health centres and indeed the wider health system: *'They tell us to phone them if we have problems, we are happy because they can link us with the Ministry of Health' (KI1).* What is more, CHWs authorization was needed in certain instances to access some services: *'And when you have conflict with your husband which is always based on poverty, prostitution on both sides (man, women) it can be a problem for example when you have to go for the first prenatal care and the husband is required to be there. If not the health centre does not receive you unless you have a signed paper from the CHWs' (MUN1).*

Services most valued by mothers

CHWs services were generally highly valued with more than half 37 (57.8%) of the mothers rating services as Very good as shown in **Table 2**. These findings are supported by the qualitative interviews in which mothers regarded CHWs support during pregnancy as largely beneficial. Mothers valued the informational support from CHWs; *'I value that they are giving advices about when and how to take vitamins and about nutrition, I was anaemic and the CHW advised me on what food to take, I valued this' (KIMI 2).* Counselling on family planning was also valued; *'they are also giving us information on family planning and counselling about family planning' (MUN5).* Though not commonly cited across focus groups, some mothers sought psychosocial support from CHWs during difficult times: *'CHWs help. We seek advices about some behavior of anger and baby's complications' (MUN 4).* Emotional support was greatly valued: *'Best advice they give us is to avoid being angry' (RUSA5).* Tangible support was also greatly valued particularly in cases where the CHWs service bridged the distance to a health facility or when CHWs connected with a health facility to request for emergency services; *'CHWS- they follow babies after giving birth so we don't have to go to the health centre' (MUN7).* Others maintained

that; *'when they take us to the hospital once it's time to deliver, it helps us a lot' (MUN1).* In cases of emergencies; *'they intervene in case of difficulties with the pregnancy. They can call ambulance' (R1).* However others maintained: *'Distance is a problem you see, not all of us can get the ambulance when CHW calls, only for those who stay near the road' (MUN5).*

Gaps identified in CHWs work and additional services desired

Table 3 and **Table 4** present the themes that emerged and excerpts from the FGDs related to services that mothers receive, gaps identified in current services provided and additional services that mothers desire.

Informational support: mothers cited the need for more informational support, for example, nutritional advice that was timely; *'we would like to have advice about the baby's nutrition, advices also on when to start weaning babies. Some women do not know how to prepare nutritious food and CHWs need to show them' (KIMI1).* Others argued that: *'Some mothers wean babies before 4 months and health workers do not advice on this, they need to' (CO3).* Mothers also cited that; *'For new mothers CHWs should give more advice on how to breast feed and care for the baby' (RUSA5).* But in other cases the advice or health education provided was deemed ineffective; *'there are some good advices they give us about nutrition but we are poor enough to get it, so if they can sometimes provide that for us it could be better or empower us to get these things' (R5).* Similarly others agreed noting that: *'The big problem we have is poverty, CHWs give advice on nutrition but we have no means to get this food' (KIMI3).*

Emotional support: some participants felt the need for more emotional support during pregnancy and after delivery: *'If possible CHWs should be aware of marital conflicts because they just come for the baby and do not understand what the mother is facing the whole night when they come in the morning' (KI1).* The need for CHWs to advise not just mothers but husbands as well was voiced: *'They should give advice to the husband on how to treat mother and the new-born' (KI3)*

Tangible support: the need for more tangible support was a common theme across focus group participants who also identified gaps in the services that CHWs currently provide suggesting some areas that needed improvement; *'they do nothing only taking the baby's weight after delivery' (CO1).* Others seemed to suggest that CHWs were not performing their duties; *'CHWs no longer give postnatal cares as they used to. They should continue to keep visiting us even after delivery; they do not come after pregnancy like during pregnancy' (CO3),* and for some mothers: *'CHWs are not weighing children as they used to; the last time they weighed was two months ago' (CO4).* The need for CHWs to advocate for mothers was well articulated; ***'Mutuelle'*** (Mutual Health Insurance) *is a big problem, CHWs to advocate for new- borns who have no mutuelle to be able to be treated at the hospital' (RUSA3).* Furthermore, because CHWs serve as a liaison between mothers and the 'authorities' most believed that CHWs should advocate for them to get material support from the government so that they could improve lives: *'CHWs could give us or advocate for us so that we can have goats, rabbits, and other domestic animals as they also have them, and as they can easily access authorities this can give us some incomes so that we can be able to feed our kids' (MUN2).* Other mothers maintained that: *'For those who are homeless we need someone to stand for us and CHWs should assist mothers to form their own cooperative' (MUN2).* Then there are those who felt the importance of working closely with CHWs: *'We want the collaboration to be stronger between mothers and CHWs and they can help us to create a cooperative or an association' (MUN5).*

Discussion

This study has presented findings on the perceptions of services offered by CHWs to pregnant women in two rural districts of Rwanda. There is limited evidence on the demand side of health and health services from the perspectives of the women themselves [**34**] and this study sought to highlight these needs. Through applying a social support framework, this study identified those services that pregnant women deemed as most beneficial, and what they considered as a gap in the services provided by CHWs. Informational support was the most commonly valued service that CHWs provided, while emotional and tangible supports were mentioned less often. A common theme among FGDs was the need for additional

supports. Consistent with a 2014 qualitative study conducted by Condo and colleagues [**31**] we found that CHWs regularly conduct home visits. The majority of mothers reported having an active CHW during pregnancy and almost half of the mothers were visited 6 times or more during the pregnancy. One explanation for this could be that, because CHWs live close to mothers they were able to conduct home visits frequently. But apart from that mothers in our study sample articulated having a close relationship with CHWs and this likely encouraged CHWs to keep visiting. CHWs services were positively rated by participants with more than half of the mothers rating the services as very good. Condo and colleagues' study confirms this finding and reports CHWs' close involvement with the community. However, other studies, for example Waylands 2002 study [**7**] reports low visitation rates or low approval rates for CHWs services. In Wayland's study this was linked to the unrealistically large number of houses that CHWs are expected to visit (up to 250). In Rwanda this number is lower with each CHW responsible for between 100-150 households. Participants in this study underscored the important role that CHWs play in linking them to health services. CHWs are particularly instrumental in connecting them to ANC. Mothers noted that women who were not accompanied by their partners during the first ANC visit would only be attended to if they had a document signed by their CHW. This no doubt underscores the important role that CHWs play within the health system, but such a policy implies that single mothers who are less accepting of CHWs services and hence will not seek them out are unlikely to attend ANC services.

CHWs also played an instrumental role in linking mothers to health centres by calling ambulances in the event of an emergency. Indeed, CHWs in Rwanda are equipped with mobile phones, making it easier for them to contact health facilities and ambulance drivers in the event of an emergency [**33**]. Besides, mothers in this study noted that they could phone CHWs any time if they had access to a mobile phone. But in most instances ambulances were unavailable or available only to those who lived closer to the main roads. This corroborates findings from Mwendwa's 2015 study [**11**] where CHWs lacked ambulances and had to revert to use of traditional transport in emergency situations. If CHWs lack the tools they need to carry out their tasks, this has implications for the acceptability and use of their services [**21**] and indeed this can affect their motivation. Given the centrality of community health practice in low- income settings, it is crucial for health system planners to give more attention to building the capacity of CHWs to enable them provide quality services [**8**]. The need for more tangible support was common across FGDs. In particular, the study highlighted a demand for non-health related services such as housing and food items, factors that have also been shown to be important in other contexts [**7**, **21**, **42**]. These studies show that families counselled by CHWs had limited resources to provide appropriate foods to their children. In these examples, communities resisted CHWs services by not seeking out CHWs for advice or not welcoming them in their homes. Advising mothers on the importance of feeding their children with nutritious food such as fruits and meat while important was viewed inappropriate in this study because what mothers saw as a bigger problem is not a lack of knowledge about healthy eating, but rather poverty, a finding articulated by others [**7**]. Mothers perceived CHWs as wealthier because of the incentives they receive from being part of a cooperative and suggested that CHWs should offer tangible support such as food or even money. In addition to being considered wealthy, mothers saw CHWs as influential because they are linked to 'authorities' and felt that they could advocate for them. This might suggest why mothers desired to collaborate more with CHWs. This has implications for the acceptance and demand for CHWs services; Communities may reject services from CHWs who are deemed less wealthy or influential as they may be considered less able to advocate for mothers. Encouraging communication and interactions between CHWs and community members is critical to building an understanding of the CHWs' role and support for their work [**16**].

Childbirth is a highly significant personal, familial and community rite of passage that is deeply emotional and must be viewed and addressed with great respect [**34**]. Mothers in this study expressed a need for more emotional support and some sought advice from CHWs when they 'had feelings of anger'. In addition, mothers underscored the need for CHWs to deal with issues such as marital conflicts when they pay home visits. Closely related to the absence of social support is the presence of intimate partner violence during pregnancy and has been reported in previous studies in Rwanda [**43**]. A study from Ethiopia indicated that women with high social support were significantly less likely to experience depression during pregnancy [**28**]. The demand for more emotional support suggests the need to

explore CHWs role in providing emotional support, and what training CHWs receive to support this role [44]. While there was overwhelming support for CHWs services, there are mothers who did not consider CHW services beneficial and the quality of the services provided was considered poor. One key limitation of this study is that our sample consisted predominantly of women who had a CHW's support during pregnancy; we did not interview women who did not access CHWs during pregnancy or who may have declined such support from a CHW. However, this study provides great insights on the perspectives of mothers, highlighting what services they value and what additional services they require, in their own words.

Conclusion

This study reiterates the role that CHWs play in offering social support to mothers during and after pregnancy. The demand for additional CHWs support underscores the value that pregnant women attach to services provided but also underlines the gap in access to care. More studies on the interactions of CHWs with pregnant women, mothers and indeed other beneficiaries of CHWs services, in particular longitudinal studies, are needed to improve the understanding and planning of CHWs interventions.

What is known about this topic

- Effectiveness of CHWs programs from the perspective of CHWs and beneficiaries.

What this study adds

- CHWs services and supports most valued by users and what additional services they demand

Competing interests

Authors declare no competing interests.

Authors' contributions

Purity Mwendwa designed the study, collected the data, conducted the analysis and drafted the manuscript.

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Tables

Table 1: socio-demographic characteristics of FGD participants

Table 2: distribution of responses on services provided by CHWs

Table 3: services most valued by mothers

Table 4: gaps identified in CHWs work and additional services desired

References

1. World Health Organization. **World Health Report**. 2006. Accessed on September 12, 2014.
2. Liu A, Sullivan S, Khan M, Sachs S, Singh P. Community Health Workers in Global Health: Scale and scalability. Mount Sinai Journal of Medicine: A Journal of Translational and Personalized Medicine. 2011; 78(3):419-435. **Google Scholar**
3. Perry HB, Zulliger R, Rogers MM. Community health workers in low-, middle-, and high-income countries: an overview of their history, recent evolution, and current effectiveness. Annu Rev Public Health. 2014; 35:399-421. **PubMed** | **Google Scholar**
4. Viswanathan M, Kraschnewski J, Nishikawa B, Morgan LC, Thieda P, Honeycutt A, Lohr KN, Jonas D. Outcomes of community health worker interventions. Evid Rep Technol Assess (Full Rep). June 2009; (181):1-144, A1-2, B1-14, passim. **PubMed** | **Google Scholar**
5. Lawn J, Kerber K. **Opportunities for Africas Newborns, Practical data, policy and programmatic support for newborn care in Africa**. 2006. Accessed on May 25, 2015.
6. Nievar MA, Van Egeren LA, Pollard S. A meta-analysis of home visiting programs: Moderators of improvements in maternal behavior. Infant mental health Journal. 2010; 31(5):499-520. **PubMed** | **Google Scholar**
7. Wayland C. Acceptable and appropriate: Program priorities vs. felt needs in a CHW program. Critical Public Health. 2002; 12(4):335-350. **Google Scholar**
8. Juma PA, Mutombo N, Mukiira C. Women's attitudes towards receiving family planning services from community health workers in rural Western Kenya. African health sciences. 2015; 15(1):161-170. **PubMed** | **Google Scholar**
9. Lehmann U, Sanders D. **Community Health Workers: What do we Know about Them? Evidence and Information for policy**. 2007. Accessed on January 23, 2015.
10. Crispin N, Wamae A, Ndirangu M, Wamalwa D, Wangalwa G, Watako P, Mbiti E. Effects of selected socio-demographic characteristics of Community Health Workers on performance of home visits during pregnancy: A cross-sectional study in Busia District, Kenya. Global Journal of Health Science. 2012; 4(5):78-90 **PubMed** | **Google Scholar**
11. Mwendwa P. Assessing the fit of RapidSMS for maternal and new-born health: perspectives of community health workers in rural Rwanda. Development in Practice. 2015; 26(1):38-51. **Google Scholar**
12. Capner M, Caltabiano ML. Factors affecting the progression towards burnout: a comparison of professional and volunteer counsellors. Psychol Rep. 1993; 73(2):555-61. **Google Scholar**
13. DeRenzi B, Findlater L, Payne J, Birnbaum B, Mangilima J, Parikh T, Borriello G, Lesh N. Improving community health worker performance through automated SMS. Proceedings of the Fifth International Conference on Information and Communication Technologies and Development in Atlanta. ACM Digital Library. 2012. Newyork. Association for Computing Machinery. 25-34. **Google Scholar**
14. Bhutta ZA, Chopra M, Axelson H, Berman P, Boerma T, Bryce J, Bustreo F, Cavagnero E, Cometto G, Daelmans B, de Francisco A, Fogstad H, Gupta N, Laski L, Lawn J, Maliqi B, Mason E, Pitt C, Requejo J, Starrs A, Victora CG, Wardlaw T. Countdown to 2015 decade report (2000-10): taking stock of maternal, newborn, and child survival. Lancet. 2010; 375:2032-44. **PubMed** | **Google Scholar**
15. Kisia J, Nelima F, Otieno DO, Kiilu K, Wamalwa E, Sohani S, Siekmans K, Nyandigisi A, Akhwale W. Factors associated with utilization of community health workers in improving access to malaria treatment among children in Kenya. Malaria Journal. 2012; 11:48. **Google Scholar**

16. Bhattacharyya K, Winch P, Le Ban K, Tien M. **Community Health Worker Incentives and Disincentives: How They Affect Motivation, Retention, and Sustainability**. 2001. Accessed on February 19, 2013.

17. Chandani Y, Noel M, Pomeroy A, Andersson S, Pahl MK, Williams T. Factors affecting availability of essential medicines among community health workers in Ethiopia, Malawi, and Rwanda: solving the last mile puzzle. Am J Trop Med Hyg. 2012 Nov; 87(5 Suppl):120-6. **PubMed** | **Google Scholar**

18. Gopalan SS, Mohanty S, Das A. Assessing community health workers' performance motivation: a mixed-methods approach on India's Accredited Social Health Activists (ASHA) programme. BMJ Open. 2012; 2(5). **Google Scholar**

19. Rowe AK, de Savigny D, Lanata CF, Victora CG. How can we achieve and maintain high-quality performance of health workers in low-resource settings? Lancet. 2005 Sept; 366(9490):1026-35. **Google Scholar**

20. Bhutta ZA, Lassi ZS, Pariyo G, Huichoet L. **Global experience of community health workers for delivery of health related Millennium Development Goals: a systematic review, country case studies, and recommendations for scaling up**. 2010. Accessed on March 2, 2013.

21. Puett C, Alderman H, Sadler K, Coates J. 'Sometimes they fail to keep their faith in us': community health worker perceptions of structural barriers to quality of care and community utilisation of services in Bangladesh. Matern Child Nutr. 2015 Oct; 11(4):1011-22. **PubMed** | **Google Scholar**

22. McKinlay JB. Some approaches and problems in the study of the use of services--an overview. Journal of health and social behavior. 1972 June; 13(2):115-152. **Google Scholar**

23. Takasugi T, Lee ACK. Why do community health workers volunteer? A qualitative study in Kenya. Public Health journal. 2012 Oct; 126(10):839-45. **Google Scholar**

24. Finau SA, Taumoepeau B, To'a L. Review of the village health worker pilot scheme in Tonga. N Z Med J. 1986 Sept; 99(807):592-6. **PubMed** | **Google Scholar**

25. Norbeck JS, Lindsey AM, Carrieri VL. The development of an instrument to measure social support. Nursing research. 1981; 30(5):264-269. **PubMed** | **Google Scholar**

26. Cohen LH, Sargent MM, Sechrest LB. Use of psychotherapy research by professional psychologists. American psychologist. 1986; 41(2):198-206. **Google Scholar**

27. Collins NL, Dunkel-Schetter C, Lobel M, Scrimsha SCM. Social support in pregnancy: psychosocial correlates of birth outcomes and postpartum depression. J Pers Soc Psychol. 1993; 65(6):1243-58. **Google Scholar**

28. Dibaba Y, Fantahun M, Hindin MJ. The association of unwanted pregnancy and social support with depressive symptoms in pregnancy: evidence from rural Southwestern Ethiopia. BMC pregnancy and childbirth. 2013; 13(1):135. **Google Scholar**

29. Farmer PE, Nutt CT, Wagner CM, Sekabaraga C, Nuthulaganti T, Weigel JL, Farmer DB, Habinshuti A, Mugeni SD, Karasi JC, Drobac PC. Reduced premature mortality in Rwanda: lessons from success. BMJ. 2013; 346:f65. **PubMed** | **Google Scholar**

30. MoH Rwanda. **National Community Health Strategic Plan**. 2013. Accessed on July 2, 2015.

31. Condo J, Mugeni C, Naughton B, Hall K, Tuazon MA, Omwega A, Nwaigwe F, Drobac P, Hyder Z, Ngabo F, Binagwaho. Rwanda's evolving community health worker system: a qualitative assessment of client and provider perspectives. Human resources for health. 2014; 12:71. **Google Scholar**

32. Matthews DM. Global rhetoric, local actors: community health workers and the concept of participation in Rwanda. 2009. in Long TL, Li Z. **The Meaning Management Challenge: Making Sense of Health, Illness, and Disease**. 2010. Accessed on April 6, 2012.

33. Ngabo F, Nguimfack J, Nwaigwe F, Mugeni C, Muhoza D,Wilson DR, Kalach J, Gakuba R, Karema C, Binagwaho A. Designing and Implementing an Innovative SMS-based alert system (RapidSMS-MCH) to monitor pregnancy and reduce maternal and child deaths in Rwanda. Pan Afr Med J. 2012; 13:31. **Google Scholar**

34. COVAW-K, Agola A. **Experiences of Childbirth by Women and their Care Providers in Narok and Isiolo Counties, Kenya**. 2012. Accessed on June 1, 2014.

35. NISR. **Fourth Population and Housing and Census Rwanda- Huye**. 2012. Accessed on April 22, 2016.

36. NISR. **EICV 3 DISTRICT PROFILE South - Nyaruguru**. 2012. Accessed on April 7, 2016.

37. MoH Rwanda. **The National e-Health Strategic Plan 2009-2013**. 2009. Accessed on January 22, 2011.

38. Corbin J, Strauss A. Basics of Qualitative Research: Grounded Theory Procedures and Techniques. 1990, Newbury Park, California: SAGE Publications. **Google Scholar**

39. Patton MQ. Qualitative evaluation and research methods. 1990; (2nd ed) Thousand Oaks, CA, US: Sage Publications, Inc, 532. **Google Scholar**

40. Braun V, Clarke V. Using thematic analysis in psychology. Qualitative research in psychology. 2006; 3(2):77-101. **Google Scholar**

41. Cohen S, Willis TA. Stress, social support, and the buffering hypothesis. Psychological bulletin. 1985; 98(2):310-57. **PubMed** | **Google Scholar**

42. Glenton C, Colvin CJ, Carlsen B, Swartz A, Lewin S, Noyes J, Rashidian A. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. Cochrane Database Syst Rev. 2013; (10):Cd010414. **Google Scholar**

43. Ntaganira J, Muula AS, Masaisa F, Dusabeyezu F, Siziya S, Rudatsikira E. Intimate partner violence among pregnant women in Rwanda. BMC women's health. 2008; 8(1):17. **PubMed** | **Google Scholar**

44. Mutamba BB, Ginneken VN, Paintain LS, Wandiembe S, Schellenberg D. Roles and effectiveness of lay community health workers in the prevention of mental, neurological and substance use disorders in low and middle income countries: a systematic review. BMC Health Serv Res. 2013; 13:412. **Google Scholar**