Training Needs Assessment of Health Care Professionals in Reproductive, Maternal and Newborn Health in a Low-Income Setting in Tanzania

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Abstract

Background: Healthcare delivery globally and particularly in low-income setting is challenged by multiple, complex and dynamic problems. The reproductive, maternal and newborn health (RMNH) care is among the most affected areas resulting into high maternal and neonatal mortality and morbidity across the Sub Saharan region and Tanzania in particular. However, under-investment in adequate training and capacity development among health care workers (HCWs) is reported worldwide and contributes to the critical shortages, and lack of adequate knowledge and skills among HCWs. The aim of this study was to assess the training needs among HCWs of RMNH care in selected health facilities of Mwanza, Tanzania.

Methods: A cross-sectional descriptive and analytic survey using a self- administered questionnaire was conducted in 36 out of 80 health care facilities included in *Improving Access to Reproductive, Maternal and Newborn Health in Mwanza, Tanzania* (IMPACT) project within the 8 councils of Mwanza region in Tanzania. The training needs assessment (TNA) tool adapted from the Hennessy-Hicks' Training Needs Assessment Questionnaire (TNAQ) was used for data collection. The HCWs rated on the importance of their task and their current performance of the task. The differences in scores were calculated to identify the greatest training needs.

Results: Out of 153 HCWs who responded to the TNA questionnaire, majority were registered (n=62) and enrolled (n=43) nurses. Ninety percent (n= 137) were from government-owned health facilities, mostly from hospitals 68 (45%). Training needs were high in 16 areas (out of 49) including cervical cancer screening and care; accessing research resources; basic and comprehensive emergency obstetric and newborn care; and sexual and gender-based violence. The overall perceived importance of the training needs was significantly associated with perceived performance of tasks related to RMNH services (Pearson Correlation (r) = .256; p <001).

Conclusions: The study highlights 16 (out of 49) training gaps as perceived by HCWs in RMNH in Tanzania. The utilization of findings from the TNA has great potential to facilitate designing of effective trainings for local RMNH services delivery hence improve the overall quality of care.

Plain English Summary

Under-investment in adequate training and capacity development among health care workers is reported worldwide and continues to contribute to the critical shortage, and lack of adequate knowledge and skills required for delivering effective reproductive, maternal and newborn health care in low-income settings. We conducted this study to assess the training needs among health care workers in reproductive, maternity and newborn care in selected health facilities of Mwanza region in Tanzania. In this study, we conducted a survey among health care workers in 36 health care facilities in eight districts of Mwanza Region in Tanzania. We adapted a survey questionnaire with 49 items from World Health Organization in which healthcare workers were asked to identify their training needs and perceived importance. The

health care workers rated on their current perceived importance of a particular task and related performance in that particular task.

Training needs were high in 16 areas (out of 49) including cervical cancer screening and care; accessing research resources; basic and comprehensive emergency obstetric and newborn care skills; and sexual and gender-based violence. The overall perceived importance of the training needs was strongly associated with the total perceived performance of tasks related to reproductive, maternity and newborn care services. The utilization of findings from this study has great potential to facilitate designing of effective trainings that will strengthen local capacity for services delivery hence improve the overall quality of care along the continuum of reproductive, maternity and newborn care.

Background

Healthcare delivery globally and particularly in low-income setting is challenged by multiple, complex and dynamic health problems(1). There is a need for changes in formal education and continuous professional trainings to ensure sufficient quantity and quality of healthcare professionals. However, under-investment in quality education and training of healthcare providers (HCWs) is reported worldwide and contributes to the critical shortages, and lack of adequate knowledge and skills among HCWs (2). The incongruity between education strategies, health system requirements and community demands also affects the quality of maternal and newborn care in healthcare systems (3).

In Sub-Saharan Africa, 36 countries including Tanzania, are considered to have a critical shortage of HCWs to provide minimum coverage of basic services in reproductive, maternal and newborn health (RMNH) and this problem is predicted to exacerbate in the future (4). The Sustainable Development Goals (SDG 3, target 3) emphasizes on the development of HCWs with adequate training, education and skills which are relevant to the needs of the population (5). This investment for better health will also contribute to improved economic growth and achievement of other SDGs (5).

Tanzania has an unacceptably high maternal mortality ratio (556 per 100,000 live births) and neonatal mortality ratio (25 per 1000 live births) (6). The areas bordering Lake Victoria (Mwanza inclusive) and Western zones have the highest rates of mortality (7). In an effort to reduce the problem, the Tanzania government has prioritized the RMNH agenda in its policies and two programmes were launched following this: *Sharpened One Plan* and *Big Results Now* (7). These programmes focused on strengthening RMNH services in all regions but with an emphasis on the most affected areas. These government efforts, with support from several stakeholders have reported impressive progress in initiation of basic emergency obstetric and newborn care services (BEmONC) and comprehensive emergency obstetric and newborn care services (CEmONC) in health facilities in Mwanza and other regions (7). However, the evaluation of these efforts particularly in remote areas highlights that suboptimal clinical skills and knowledge of HCWs remain a critical challenge and a potential obstacle for sustaining and consolidating the achievements (7). Furthermore, dissatisfaction with care related to HCWs low competencies, poor communication and lack of respect and dignity to mothers and families

are also reported to contribute to negative experiences and uptake of care (8). One of the negative outcomes of undesirable experiences of care could be an explanation for the low rates of childbirth at health facility reported in Tanzania particularly in rural areas (6).

Several interventions to strengthen HCWs' skills predominantly within the scope of midwifery practice have made remarkable contributions in reducing maternal and neonatal mortality and morbidity in countries where the burden was high (9–11). The need for stakeholders' efforts in strengthening capacity and innovative long-term solutions for human resource is suggested (7).

Historically, the capacity building and professional development has been addressed through short courses and in-service training. This approach is useful mainly where staff shortages are catastrophic. Conversely, evidence show that such trainings, when they are traditional and class-based, are less effective in addressing health problems (12–14). Onsite short term training (15) and training of HCWs in relevant professional skills is proven successful and better long-term solutions for uplifting and sustaining HCWs' knowledge and skills (9). The Tanzanian government actively encourages upgrading of HCWs in rural areas (16). Thus, the aim of this study was to assess the training needs among HCWs of RMNH care setting in government-owned and designated faith-based health facilities of Mwanza region. The training needs assessment (TNA) was nested in a baseline survey that was conducted to inform the designing and implementation of the Improving Access to Reproductive, Maternal and Newborn Health in Mwanza, Tanzania (IMPACT) project interventions that aim at strengthening human resource capacity and RMNH service delivery in Mwanza. The survey included three components: *household coverage survey*, *health facility survey* and *training needs assessment.* More details of the first two components of the IMPACT study are provided in another publication (17). This paper reports the results from the training needs assessment component.

Methods

This study employed a cross sectional quantitative survey design. Data for this study were collected as part of the baseline TNA for the IMPACT project conducted in 2017. Health care providers working in RMNH of selected health facilities responded to a self-administered questionnaire to identify individual priority training needs.

Study setting

This study was conducted as part of the 2017 baseline survey for the IMPACT project in Mwanza region in Tanzania. The IMPACT is implemented by a consortium of Aga Khan Development Network (AKDN) agencies, namely the Aga Khan Health Services Tanzania (AKHST), Aga Khan Foundation in Tanzania (AKFT), and the Aga Khan University East Africa (AKU EA), in partnership with the Tanzanian Government through Ministry of Health, Community Development, Gender, Elderly and Children (MoHCDGEC) and President`s Office Regional Administration and Local Government (PO RALG) at national, regional, district levels and local communities. The study took place in selected government-owned and designated faith-based healthcare facilities in all eight councils of Mwanza region: Buchosa, Ilemela, Kwimba, Magu,

Misungwi, Nyamagana, Sengerema and Ukerewe (18). This region is located in the northern part of Tanzania with about 3 million inhabitants (18).

Study Population

The participants included all HCWs who were a) working in the labour ward and assisting the deliveries; and 2) working in reproductive and child health clinics (under-five clinic, family planning, immunization units) at the time of the study. The study included HCWs who could fluently communicate and understand either Kiswahili or English language and provided written consent to participate. We excluded non-RMNH care providers and those who were sick during data collection.

Data collection tool

The TNA tool was adapted from a validated WHO/Hennessy-Hicks tool (21) with 49 items focusing on capacity and training needs of RMNH health personnel. Prior to actual data collection, the researchers visited the field to familiarize with the context and gain insights on the planning of the study and the intervention. Field visit notes and the existing evidence from the study context inspired the modification of the Hennessy-Hicks training needs analysis questionnaire. This questionnaire has been internationally validated and considered successful in identifying and prioritizing training needs at the individual, group or organizational level (21). Inspired by this tool, researchers developed a questionnaire with 49 items to assess individual training needs of HCWs in reproductive healthcare in general for maternal, adolescents and newborns (36 items), leadership and management skills (9 items), and research skills (5 items). The reliability and validity of the developed TNA questionnaire was determined and the reliability of the adapted was found to be 0.954. The indexes for construct validity indicated that Comparative Fit Index was equal to 1, minimum discrepancy per degree of freedom (CMIN/DF) was equal to 0.000 and the root mean square error of approximation (RMSEA) was equal to 0.185. This indicates that the TNA questionnaire has acceptable psychometric properties.

Data collection procedure

Data was collected from HCWs working in 36 sampled government-owned and designated faith-based healthcare facilities (7 hospitals, 12 health centres and 17 dispensaries) using the modified and an internationally validated questionnaire. The self-administered questionnaires were distributed to 153 participants by research assistants supervised by one of the researchers from the research team. The eligible RMNH providers were identified by the in-charge of the health facility.

Four research assistants with experience in data collection in RMNH were involved. They were trained for nine days around the best practices on data collection, obtaining informed consent, adherence to ethics as applied to human subjects' research and data security measures.

Pilot study

A pilot was conducted in one government hospital that was selected based on how similar its characteristics were with the facilities that were to be included in the TNA baseline survey and this facility was excluded in the actual survey. The results from the test were discussed with research assistants, clarifications made, and minor modifications done including adjustment of the flow of the questions.

Sampling and sample size

All health care workers responsible for RMNH were all eligible to participate in this study. Participants were selected from 36 out of 80 stratified random sampled health facilities supported by the IMPACT project. The healthcare facilities involved 7 out of 8 hospitals in eight districts in the region, 12 out of 19 health centres, and 17 out of 53 dispensaries in Mwanza. All healthcare workers in RMNH who were available at the time of the survey were included in the study. There were no any refusals and some who did not meet the inclusion criteria were excluded.

Data analysis

The Statistical Product and Service Solutions (SPSS, version 25.0) was used for data entry and statistical analysis. Both descriptive and inferential statistics were analyzed. The HCWs provided ratings on: a) how important is the task to their caring role (*Rating A*) and b) how well the task is currently performed (*Rating B*) (21), and the differences in scores were calculated to identify the greatest training needs among the studied tasks (21). The greater the difference between rating A and B, the greater the training need and was categorized as a top priority i.e. important task, but not well performed. Where a task scored low on both A and B, the task was considered a low priority i.e. unimportant task, but not well performed. Where both ratings were rated high, the task required no training i.e. an important task, well performed. The difference in aggregate scores were analyzed indicating the percentage of participants who scored at least five for A minus the percentage of participants who scored at least 5 for B. The Chi-square test and correlation coefficient was used to determine the relationship between sociodemographic and task performance and perceived importance between HCWs.

Results

The TNA questionnaire was completed by 153 eligible HCWs. The age of the participants ranged between 21–62 years with mean age of 38.70 ± 10.89 years. The majority of HCWs in the RMNH units who participated in this study were Registered Nurses (n = 62) and Enrolled Nurses (n = 43) (Table 1).

Table 1
Participants of the training needs assessment (N = 152)

Cadre	Participants	Percentage
Assistant Medical Officers (AMO)	3	2.6
Clinical Officers (CO)	8	5.3
Registered Nurses (RN)	62	41.1
Enrolled Nurses (EN)	43	28.5
Medical Attendants (MA)	26	17.2
Maternal and Child Health Aiders (MCHA)	10	6.2
Total	**152**	
*One participants had missing information on the cadre and was excluded.		

AMO-Assistant Medical officers with 3 years of training

CO – Clinical officers with 3 years of training in medicine.

RN – Registered Nurse/Midwife with 3 years of training in nursing and midwifery

EN – Enrolled Nurse Midwife with 2 years of training in nursing and midwifery

MCHA – Maternal and Child Health Aider with 1 year of training in Midwifery

Most of the participants were from the government-owned health facilities 137 (90%) mostly from the hospital 68 (45%). Few participants were from faith-based designated district hospitals 16 (10%). All the participants worked in RMNH units with more than five years of working experience. The total number of health facilities and participants in this study is summarized below (Table 2).

Table 2
Number of health facilities and healthcare providers in the study

Facility	Sampled facilities	Surveyed facilities	Questionnaire Distributed (M/F)
Dispensaries	53	17	29 (8/21)
Health centres	19	12	53 (8/45)
Hospitals	8	7	71 (9/62)
Total	**80**	**36**	**153 (25/128)**
*Two providers had significant missing information on the type of health facility they work and were excluded in this analysis			

Priority Training Needs

The difference between the care items with the highest score in rating A and the lowest score in rating B (important task, not well performed) were obtained. The care items with a score of greater than 40 were marked as a high priority area for training. The training needs were the highest in 16 (out of 49) care items including cervical cancer screening and care; research; basic and comprehensive emergency obstetric and newborn care (BEmONC & CEmONC); and sexual and gender-based violence (Table 3).

Table 3: High Priority training needs

	Care item	Important *Rating A*		Not-well performed *Rating B*		Difference
		n	%	n	%	%
1	Providing care and education for cervical cancer screening and treatment	136/150	90.7	58/150	38.7	52
2	Accessing research resources (e.g. time, money, Information, equipment)	130/148	87.8	56/148	37.8	50
3	Competently providing comprehensive emergency obstetric and newborn care (CEmONC)	127/147	86.4	56/147	38.1	48.3
4	Feeling confident in providing surgical care (including caesarean section)	88/129	68.2	27/129	20.9	47.3
5	Identifying cases of sexual and gender based violence and knowing how to make appropriate referrals	136/151	90.1	65/151	43.0	47.1
6	Feeling confident in providing anaesthetic care	89/134	66.4	26/134	19.4	47
7	Identifying research needs and designing locally relevant research	136/149	91.3	67/149	45.0	46.3
8	Competently providing basic emergency obstetric and newborn care (BEmONC)	144/152	94.7	78/152	51.3	43.4
9	Implementing the maternal infant and young child nutrition (MIYCN) programme	138/148	93.2	74/148	50.0	43.2
10	Providing information, education, counselling or family planning services to adolescents	136/153	88.9	70/153	45.8	43.1
11	Providing counselling, care and support for women who are subject to gender based violence	134/151	88.7	69/151	45.7	43
12	Evaluating patients' psychological and social needs	132/149	88.6	69/149	46.3	42.3
13	Delivering gender sensitive reproductive, maternal, child and adolescent health services (such as providing privacy for consultations, gender sensitive counselling approaches, involvement of men)	145/152	95.4	81/152	53.3	42.1
14	Planning and organizing an individual patient's care	136/150	90.7	74/150	49.3	41.4
15	Implementing effective disease surveillance and reporting	140/150	93.3	77/150	51.3	42
16	Understanding gender equality issues relating to reproductive, maternal, child and adolescent health	149/153	97.4	85/153	55.6	41.8

Relationship between demographic characteristics and HCW performance on the stipulated tasks (N = 153)

Fisher's exact test was performed to establish if there is any relationship between demographic characteristics i.e. gender, duration of employment and age and perceived performance on the stipulated tasks by health care workers of the RMNH services, where the relationship was not statistically significant (Table 4).

Table 4
Relationship between demographic characteristics and HCW performance on the stipulated tasks

		Good	Poor	Fisher exact test	df	P-value
Gender	Male	10	8	1.057	2	.589
	Female	66	34			
Duration of employment (Years)	0–10	22	41	4.440a	8	.859
	11–20	4	11			
	21–30	5	12			
	31–40	2	11			
	41–50	0	1			
Duration in RMNHC	0–10	29	62	2.565	6	.879
	11–20	3	4			
	21–30	2	6			
	31–40	1	4			
Age-group	21–30	16	19	7.878	8	.441
	31–40	6	19			
	41–50	8	17			
	51–60	5	18			
	60 and above	0	1			

Table 5
The gap between the perceived importance and the competence in care provision (49 items)

Care item		% Important care (response > = 5) A		% Well performed care (response > = 5) B		% difference
		n	%	n	%	%
1	Understanding gender equality issues relating to reproductive, maternal, child and adolescent health	149/153	97.4	85/153	55.6	41.8
2	Delivering gender sensitive reproductive, maternal, child and adolescent health services	145/152	95.4	81/152	53.3	42.1
3	Providing patient friendly reproductive, maternal, child and adolescent health services	144/152	94.7	94/152	61.8	32.9
4	Understanding and using maternal, new-born and child health score cards	135/152	88.8	91/152	59.9	28.9
5	Providing focused antenatal care according to WHO guidelines	148/153	96.7	109/153	71.2	25.5
6	Offering malaria diagnosis with rapid diagnostic testing	147/153	96.1	108/153	70.6	25.5
7	Providing malaria treatment in pregnancy	145/151	96.0	119/151	78.8	17.2
8	Providing education on voluntary counselling and testing for HIV/AIDS	149/153	97.4	107/153	69.9	27.5
9	Providing education, counselling and support for HIV/AIDS prevention, care, and management for adolescents	139/152	91.4	87/152	57.2	34.2
10	Competently managing uncomplicated deliveries	137/151	90.7	108/151	71.5	19.2
11	Competently utilising the partograph for every women in labour	148/152	97.4	98/152	64.5	32.9
12	Competently providing basic emergency obstetric and new-born care (BEmONC)	144/152	94.7	78/152	51.3	43.4
13	Competently providing comprehensive emergency obstetric and new-born care (CEmONC)	127/147	86.4	56/147	38.1	48.3
14	Competently managing severe intra- and postpartum haemorrhage	143/152	94.1	98/152	64.5	29.6

Care item		% Important care (response > = 5) A		% Well performed care (response > = 5) B		% difference
15	Competently managing women suffering from severe pre-eclampsia and eclampsia	144/151	95.4	92/151	60.9	34.5
	New-born care skills					
16	Effectively resuscitating new-borns using the new-born bag and mask (HBB-Helping Babies Breathe)	142/150	94.7	101/150	67.3	27.4
17	Identifying danger signs and complications in child birth and effectively managing maternal and new-born referral for further investigations or treatment	145/153	94.8	108/153	70.6	24.2
18	Providing education and counselling on prevention of mother to child transmission of HIV (PMTCT)	147/151	97.4	112/151	74.1	23.3
19	Effectively managing PMTCT treatment of HIV positive pregnant women, mothers and infants	146/153	95.4	99/153	64.7	30.7
20	Providing education and support to mothers in initiation of breast feeding within one hour of delivery and exclusive breast feeding for 6 months	149/153	97.4	123/153	80.4	17.0
21	Implementing the maternal infant and young child nutrition programme	138/148	93.2	74/148	50.0	43.2
22	Offering the Tanzania expanded programme for immunization (EPI)	143/152	94.0	93/152	61.2	32.8
23	Understanding vaccine management and logistics (cold chain maintenance)	138/149	92.6	84/149	56.4	36.2
24	Being proficient on injection safety and infectious waste management	151/153	98.7	131/153	85.6	13.1
	Family planning					
25	Providing family planning services to women and men in a union	141/153	92.2	93/153	60.8	31.4
26	Providing family planning services to unmarried/single women and men	140/153	91.5	83/153	54.2	37.3
27	Providing information, education, counselling or family planning services to adolescents	136/153	88.9	70/153	45.8	43.1

Care item		% Important care (response > = 5) A		% Well performed care (response > = 5) B		% difference
	Screening and Surgical reproductive care					
28	Providing care and education for cervical cancer screening and treatment	136/150	90.7	58/150	38.7	52
29	Feeling confident in providing surgical care (including caesarean section)	88/129	68.2	27/129	20.9	47.3
30	Feeling confident in providing anaesthetic care	89/134	66.4	26/134	19.4	47
31	Identifying cases of sexual and gender based violence and knowing how to make appropriate referrals	136/151	90.1	65/151	43.0	47.1
32	Providing counselling, care and support for women who are subject to gender based violence	134/151	88.7	69/151	45.7	43
33	Planning and organizing an individual patient's care	136/150	90.7	74/150	49.3	41.4
34	Evaluating patients' psychological and social needs	132/149	88.6	69/149	46.3	42.3
35	Implementing effective infection control strategies	146/153	95.4	97/153	63.4	32
36	Implementing effective disease surveillance and reporting	140/150	93.3	77/150	51.3	42
	Leadership and Management skills					
37	Organising your own time effectively	143/153	93.5	112/153	73.2	20.3
38	Personally coping with change in the health service delivery	151/153	98.7	115/153	75.2	23.5
39	Working as a member of a team	150/153	98.0	128/153	83.7	14.3
40	Assuming a leadership role	130/152	85.5	93/152	61.2	24.3
41	Developing leadership skills	129/153	84.3	83/153	54.2	30.1
42	Mentoring and guiding other staff	147/153	96.1	107/153	69.9	26.2
43	Supervision and management of community health workers	146/152	96.1	95/152	62.5	33.6
44	Training of community health workers	141/149	94.6	88/149	59.1	35.5

Care item		% Important care (response > = 5) A		% Well performed care (response > = 5) B		% difference
	Research Skills					
45	Undertaking effective data reporting and monitoring of service delivery	147/152	96.7	111/152	73.0	23.7
46	Statistically analysing your own data and using health facility data to understand local health challenges and inform service delivery	147/152	96.7	94/152	61.8	34.9
47	Identifying research needs and designing locally relevant research	136/149	91.3	67/149	45.0	46.3
48	Accessing research resources (e.g. time, money, Information, equipment)	130/148	87.8	56/148	37.8	50
49	Actively influencing evidence based services provision	142/151	94.0	79/151	52.3	41.7

The correlation between demographic characteristics (gender, duration of employment, age) with perceived task importance was generally found to be not statistically significant. However, perceived importance of task was positively correlated with overall performance of task related to RMNH services (Pearson Correlation (r) = .256; P < 001) (Fig. 1)

Discussion

The training need assessment was designed to collect information on training gaps in various clinical RMNH care and identify training needs among health personnel working in sampled health care facilities under the IMPACT project in Mwanza region. The findings of the TNA were critical in guiding the design of the interventions for capacity building among HCWs in the region. The findings highlight the training gaps as perceived by HCWs in RMNH that indicate training priorities for the study setting in Tanzania.

The findings of this study show that the training needs were the highest in 16 (out of 49) care items. Amongst the identified gaps were: cervical cancer screening and care; basic and comprehensive emergency obstetric and newborn care (BEmONC & CEmONC); sexual and gender-based violence; providing information, education, counselling on family planning to adolescents; and implementing the maternal, infant and young child nutrition programmes. These findings are supported by research in India, Pakistan and Nigeria where gaps were identified in maternal and newborn care, skills in emergence and basic obstetric care among health providers (22–24). However, for the Pakistan study, the gaps were categorized by cadres where medical doctors poorly performed in MNCH in comparison with other cadres. Our study did not perform such a comparison, because this was a perception study, we did not observe HCWs' performance. The highlighted training gaps correspond with areas in RMNH with poor

indicators in Mwanza and the country in general (25), it is therefore not surprising that HCWs perceived these areas as gaps. For example, there is high maternal mortality rate, neonatal mortality rate and perinatal mortality rate (556 per 100, 000 live births, 25 per 1000 live births and 39 per 1000 live births respectively), only 32% use of modern contraceptives methods among women of reproductive age, and 42% of ever married women have experienced spousal violence, whether physical or sexual in Tanzania (20). To enhance providers' competencies, refresher continuing medical educational programmes relevant to specific health care cadres are required.

Previous studies have highlighted barriers preventing HCWs from attending continued education that include negative attitudes (26), time constraints and limited finance to support training (26–28), child care and home responsibilities(27), lack of opportunity and previous negative experience(28). It is critical to have mechanisms in place that ensure health care professionals are continuously supported to attend relevant on-job trainings that will translate in improved RMNH outcomes. Furthermore, the findings of our study call for a collaborative work between professional training institutions and the government to design innovative continuing educational programmes that not only would respond to the needs of HCWs but also include blended short courses that allow flexibility and enhance their clinical practice for improved quality of care. Additionally, health care managers need to understand factors hindering and motivating HCWs from attending continuing educational programmes and set up strategies to promote and warrant participation. Addressing the training needs of HCWs may contribute towards achieving reduced maternal and neonatal deaths and morbidities especially in low resource settings.

Surprisingly, accessing research resources (i.e. time, money, information, equipment) and identifying research needs and designing locally relevant research were among the topics that received the highest ratings. This findings contradicts a common stereotype on lack of interest for research among clinicians reported in United Kingdom and Bahrain (29, 30). However, the findings from other previous studies indicate a low self -assessed research capacity among nurses (31, 32) and a need for training in research methods among nurses and other HCWs (31, 33, 34). In alignment with our study findings, lack of research resources like time and funding were found to be the most commonly perceived barriers to undertaking research among practitioners in the UK, USA and Bahrain (29, 30, 35), increased paper work and disruption to work flows (35) and lack of statistical support (30). Among the motivating factors for participating in research included providing benefits to patients, hoping to create knowledge relevant for patient care, finding solutions to difficult health problems and as an opportunity for professional development among clinical staff (35) and research supportive environment such as a research mentor (36). Health care providers in clinical practice are in a unique position to identify health problems and propose relevant evidence based solutions through clinical research. These findings call for innovative strategies for inculcating a research culture and required skills among practicing HCWs including joint research between clinical and academic institutions to design context specific relevant clinical action research with direct impact on patient care.

Overall, the perceived importance on the specific tasks was positively correlated with the overall perceived performance of tasks related to RMNH services. Similarly, findings of a study in South Africa indicated

that, the more comprehensively professional nurses were trained, the more competent they felt, and they expressed more negativity towards their work if they perceived they were inadequately trained (37). The fact that the HCWs' perceived importance of the tasks correlated with their perceived performance underscores the need for ensuring strategies are in place to address the identified training gaps. This implies, HCWs may lack confidence in their performance in the areas that were perceived important but with less ability to perform the tasks that might hinder their overall performance. Conversely, in a study among Tanzanian enrolled nurse midwives, more than 90% of the participants demonstrated both high performance and perceived competence in provision of primary health care services related to family planning, maternal and child care (38). One explanation could be that our study involved HCWs at various levels of care including referral facilities that require advanced skills for provision of RMNH including emergence care as opposed to the above study that only explored the elements of primary health care. Nonetheless, there is a need to tailor the trainings to the needs of the providers, this study was undertaken to determine and contextualize the specific training needs of HCWs in Mwanza.

As expected, majority of HCWs in the studied setting were registered and enrolled nurses constituting 67 percent of all study participants. These findings reflect the overall number of nurses and midwife in Tanzania who constitute more than 60 percent of the total health care workforce in Tanzania(39). Nevertheless, the results may be confounded by higher numbers of registered and enrolled nurse midwives that may not be representative of the training needs among other HCWs.

Limitations

This study was conducted in only one region and therefore might limit the generalization of the findings in broader contexts. However, the sample was obtained randomly thus enabling generalization to the study area. The study used a WHO tool that has not been previously validated within the country. However, in this study, the reliability of the adapted TNA questionnaire was tested and found to be 0.954. Relatedly, indexes for construct validity was found to be at acceptable level with CFI equal to 1, (CMIN/DF) equal to 0.000 and RMSEA of 0.185, suggesting the tool to having acceptable reliability and validity. As this is a cross sectional study, it does not provide a causal-effect relationship that would provide more insights on health outcomes. However, as explained earlier, this study was set to guide the designing of the IMPACT project interventions. Future publications would focus on the intervention and its effect on HCWs perceptions of their performance on various RMNH care items.

Conclusion

The results of the current study highlight the training gaps as perceived by HCWs in RMNH in Tanzania, where 16 (out 49) care items were identified as priority for training. Furthermore, this study demonstrates that the perceived importance of the training needs to be significantly associated with performance of tasks related to RMNH services.

Implication For Practice

The utilization of findings from TNA assessment has great potential to improve local service delivery hence improve the overall quality of care in a particular setting. The findings of this study might be helpful in identification of the training gaps that has potentials to guide the design of continuing professional educational programs among HCWs in Tanzania. The findings could also be used by higher learning educational institutions to strengthen pre and post qualification postgraduate curricula for various professional programmes. Furthermore, since the tool has been validated for use in some low resource countries (Hennessy, D., Hicks, C., Hilan, A., & Kawonal, Y. (2006); Gaspard, J., & Yang, C. M. (2016) it may be generalizable to East African countries.

Abbreviations

BEmONC: Basic Emergence Obstetric and Newborn Care; CEmONC: Comprehensive Emergence Obstetric and Newborn Care; COSTECH: Tanzania Commission for Science and Technology; HCWs: Health care workers; IMPACT: Improving Access to Reproductive, Maternal, and Newborn health in Tanzania; NIMR: National Institute for Medical Research; MNCH: Maternal, Newborn and Child Health; RMNH: Reproductive, Maternal and Newborn Health; SGDs: Sustainable Development Goals; TNA: Training Needs Assessment; UK: United Kingdom; USA: United states of America; WHO: World Health organization;

Declarations

Ethics considerations

This study was approved by the National Institute for Medical Research Reference: NIMR/HQ/R.8a/vol. IX/2517 on 9th June, 2017. Research permits for all researchers and study clearance were obtained from The Tanzania Commission for Science and Technology (COSTECH). The permission to conduct this survey was sought from the regional, district and health facilities authorities. Detailed information regarding the study was provided to all the participants before embarking on the study. Data was collected only after the informed consent was obtained and consent forms signed. Questionnaires were distributed and left with participants for them to fill at their convenient time and place.

Consent for publication

Not applicable

Availability of data and materials

Data to support the findings of this study are available and may only be accessed by those interested who will be required to obtain special permission from the Aga Khan University, Monitoring and Evaluation Research Unit (AKU-MERL).

Competing interests

Authors declare no competing interest.

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Authors contributions

CM, EP, TM, KI, LM, MM, MAM, DS, MT and GE contributed to the conception and designing of the study.TM conducted the data analysis. TM, MM were involved in the field work. CM, EP drafted the manuscript and CM worked on revising the manuscript to this final draft. CM, EP, TM, KI, LM, SB, MM, JO, DS, MAM, LS, SM, MT and GE critically reviewed and provided inputs to the manuscript. All authors have read and approved the final version of this manuscript.

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Figures

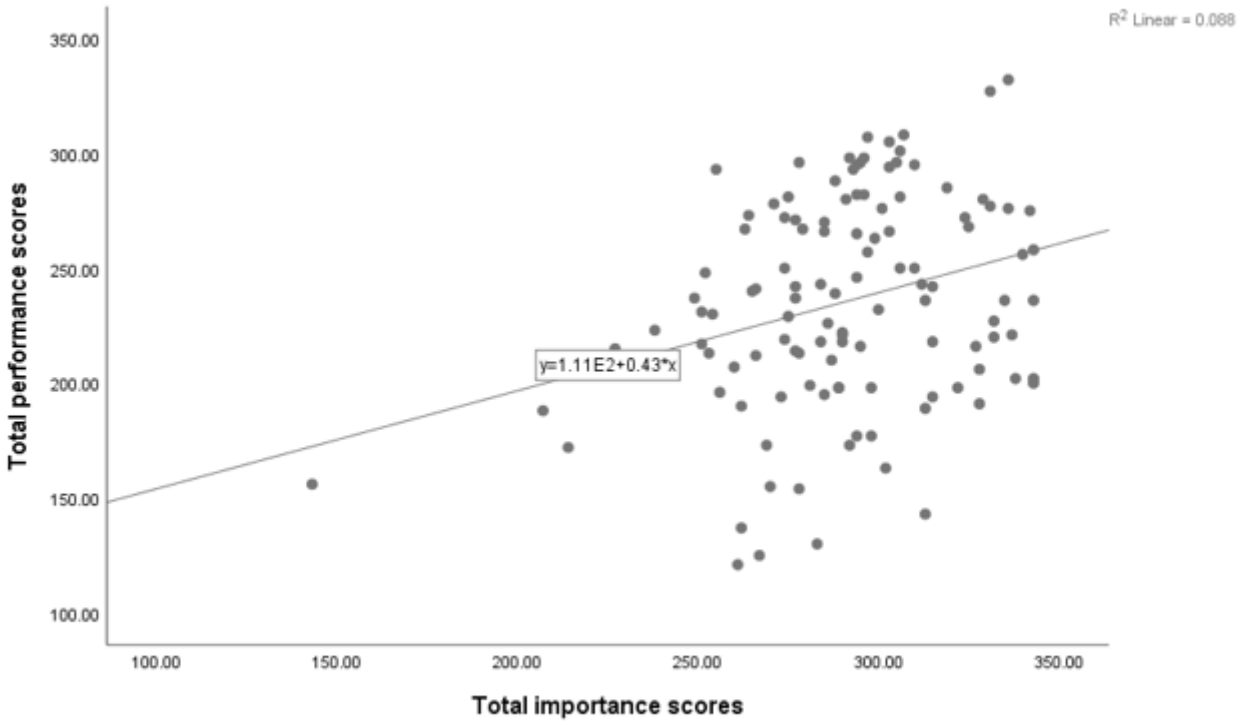

Figure 1

Correlation between perceived importance and performance of task