

# Factors Associated with Research knowledge and Attitude among Clinical Midwives Working at Public Health Facilities of Northwest Ethiopia, 2021: A Cross-Sectional Study

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**Introduction:** Evidence-based care is pivotal in health, and needs experience and scientific evidence. Clinical midwives are busy with patient care and not involved in research, so their research knowledge and attitudes are not scientifically assessed. Our study aimed to address this gap so as to help set interventions to provide evidence-based midwifery care.

**Methods:** An institution-based cross-sectional study was conducted from September to October 2021 among clinical midwives working at public health facilities in Ethiopia. A structured and pretested self-administered questionnaire was used to collect data, which were transferred to Epi Info software. Descriptive statistics explained the variables. To identify factors, bivariate and multivariate (for knowledge) and ordinal logistic regression and correlations (for attitudes) were computed using Stata 14.  $P \leq 0.05$  was taken as significant. ORs and Spearman correlation coefficients are also reported.

**Results:** Of 335 originally selected, 314 participated, for a response rate of 93.7%. In sum, 154 (49%, 95% CI 43.5%–54.6%) had good knowledge on research. Having taken a research-methods course (AOR 6.93, 95% CI 3.37–14.24), having research skills (AOR 2.25, 95% CI 1.30, 3.91), and having participated in research (AOR 3.08, 95% CI 1.37–6.90) showed significant associations with good knowledge on research. Of all, 252 (80.3%, 95% CI 84.8%–92.1%) had positive attitudes toward research. Age and having a positive attitude in the independent variables were significant predictors of a positive attitude toward research. There was a significantly positive correlation ( $\rho=0.183$ ,  $P=0.001$ ) between knowledge and attitudes toward research.

**Conclusion:** Although a majority had a positive attitude, a significant proportion had poor knowledge of research. Provision of capacity-building activities (training and opportunities) and allocated time for research are important for the provision of evidence-based midwifery care.

**Keywords:** clinical midwives, capacity, research, knowledge, attitude, Ethiopia

## Introduction

In health practice, evidence-based practice is crucial and needs clinical experience, scientific evidence, and resources. Research capacity building empowers individuals and organizations to conduct quality research for identified health problems.<sup>1</sup> It facilitates health workers' recruitment, retention, and capability.<sup>2</sup> In sub-Saharan Africa (SSA), capacity-building activities are needed for those working roles other than teaching<sup>3</sup> and could help clinical midwives to remain in their professions and provide quality midwifery care.<sup>1</sup> For the realization of research capacity-building strategies, administrative<sup>4</sup> and leadership support,<sup>5</sup> professional development programs, and adequate research personnel are important.<sup>6</sup> They should be practical and have dissemination platforms and funding for sustainability.<sup>7</sup> High-quality research is needed in health to change practices,<sup>8</sup> and clinical midwives could be involved and contribute if empowered, valued,<sup>9</sup> and aware of ethical issues in research.<sup>10</sup>

In Africa, poor participation in research affects health outcomes.<sup>11</sup> Despite capacity-building interventions, their impact is not assessed well, due to an unstandardized framework and definition.<sup>12</sup> Different factors affect clinical midwives' knowledge of conducting research. Experience in research publication and dissemination<sup>13</sup> and a lack of training<sup>14</sup> affect knowledge, skills,<sup>5</sup> and awareness of research.<sup>9,15</sup> Attitudes toward research, the ability to identify health problems,<sup>9</sup> and perceptions of the midwifery profession further deteriorate their capacity. The learning environment,<sup>16</sup> academic performance (research-grade), and working hours are among curriculum-related factors.<sup>4</sup> Participation in research-journal clubs and conferences motivates involvement in research.<sup>17</sup>

If there is an enabling environment in an organization, midwives accept research opportunities and use them,<sup>18</sup> and their attitudes could be improved if research is prioritized.<sup>14</sup> Attitudes and support of managers and other staff for midwifery research,<sup>5</sup> research infrastructure (resources, time, collaborations) and the whole system<sup>2</sup> also matters for their capacity. Studies in sub-Saharan African countries have highlighted the importance of advocacy,<sup>19</sup> knowledge-sharing platforms, and institutional support for research programs.<sup>3</sup> In addition, capacity-building activities, such as training, are crucial for Ethiopian clinical midwives.<sup>20</sup>

Despite these interrelated and complex factors, studies have not been conducted to assess the knowledge and attitudes of clinical midwives with regard to research. Our study aimed to fill this gap and set strategies to equip them with the necessary knowledge to conduct midwifery research for the provision of quality and evidence-based midwifery care. This study will also be a basis for conducting further research.

## Methods

### Study Design, Setting, Population, and Sampling

An institution-based cross-sectional study was conducted from September to October 2021 among clinical midwives working at public health facilities in Central and North Gondar zones in the Amhara region of Ethiopia, where 6,335,757 live. There are a total of 23 public hospitals and 222 health centers in the zone. The two study areas were selected by lottery. Around 350 trained registered clinical midwives were working in these institutions. The study participants were those midwives working in a clinical setting. We focused on them due to poor involvement and other factors stated in the Introduction. All midwives working in public health facilities of the study area were considered the study population and were included, while those working in academic areas and not available during data collection (due to leave, illness, and other reasons) were excluded.

### Data Collection and Quality Control

Before actual data collection, discussions were made on prevention measures against COVID-19, and basic protective materials (sanitizer, face mask, and gloves) were given to data collectors and supervisors. Ethics clearance was obtained from the Institutional Review Board of the University of Gondar,<sup>21</sup> and a support letter was written to each health facility. After the objective of the study had been explaining, informed written consent was obtained from each study participant. A structured, pretested, self-administered questionnaire was used to collect the data. The tool was developed from the literature.<sup>22</sup> To maintain its consistency, the questionnaire was first prepared in English and translated back into Amharic (local languages) by professional translators with author support. The tool was checked for consistency using Cronbach's  $\alpha$ . Training was provided for five data collectors and one supervisor on the objectives of the study and data-collection procedures for 2 days. Pretesting was done on 5% of the sample size among midwives working outside the study area and necessary corrections made. The collected data were assessed for completeness and accuracy on a daily basis by supervisors. The tool gathered sociodemographic and education information, along with questions for assessing knowledge and attitudes toward research. A participant scoring above the mean (21.56) was considered to have good knowledge (data were normally distributed, with no prior references to operationalize knowledge responses on research). If participants responded with agree/strongly agree, they were considered to have positive attitudes, whereas they were considered to have negative attitudes if they responded with disagree/strongly disagree.

## Data Management and Analysis

Data were transferred to Epi Info 7 and exported to Stata version 14 for further analysis. Frequencies, percentages, and means  $\pm$  SD were computed for the variables. To compute knowledge, model fitness was assessed with the Hosmer–Lemeshow goodness-of-fit test, and both bivariate and multivariate logistic regression were used to estimate associations. Similarly, after checking for normality and goodness of fit of the model, ordinal logistic regression and Spearman correlation coefficients were analyzed for attitudes and to assess the predictability of the variables. Significance was taken as  $P < 0.05$ , and ORs with 95% CIs are reported. Spearman correlation coefficients were computed to assess relationships among important variables.

## Results

### Sociodemographic and Academic Characteristics

Of 335 clinical midwives, 314 participated, giving a response rate of 93.7%. The median age was 27 years, and 66.9% were aged 25–29 years. More than half (52.9%) were male and 274 (87.3%) urban dwellers. About three-fifths (63.1%) of participants were bachelor's degree holders, while a majority (73.6%) had graduated from governmental colleges. More than half (58.6%) had studied under a regular educational program. Nearly half (47.8%) currently worked at a health center, while half (50%) had clinical working experience of 4 years and above (Table 1).

**Table 1** Sociodemographic and academic characteristics of participants

	n	%
<b>Age (years)</b>		
≤24	35	11.2
25–29	210	66.9
≥30	69	21.9
<b>Sex</b>		
Male	166	52.9
Female	148	47.1
<b>Religion</b>		
Orthodox Christian	293	93.3
Muslim	19	6.1
Protestant	2	0.6
<b>Residence</b>		
Urban	274	87.3
Rural	40	12.7
<b>Mother's education</b>		
None	237	75.5
Formal education	77	24.5
<b>Father's education</b>		
None	220	70.1
Formal education	94	29.9
<b>Highest educational qualification</b>		
Diploma (level IV)	98	31.2
Degree	198	63.1
Master's and above	18	5.7
<b>Type of school/facility graduated from</b>		
Governmental	231	73.6
Private	83	26.4

(Continued)

**Table 1** (Continued).

	n	%
<b>Program of study accomplished</b>		
Regular	184	58.6
Extension	130	41.4
<b>Prior research-methods course</b>		
Yes	216	68.8
No	98	31.2
<b>Type of health facility currently working in</b>		
Referral hospital	93	29.6
General/primary hospital	71	22.2
Health center	150	47.8
<b>Current working unit (sum exceeds 100% due to multiple responses)</b>		
Labor and delivery	220	70.1
Family planning	100	31.8
Comprehensive abortion care	53	16.9
Antenatal care	138	43.9
Other*	20	6.4
<b>Years of experience as a clinical midwife (years)</b>		
<2	43	13.7
2–4	114	36.3
>4	157	50
<b>Average monthly income</b>		
Willing to mention	225	71.7
Not willing to mention	89	28.3

**Note:** \*Gynecology ward, postnatal care, youth services, immunization.

## Perception of Organization's Support

A total of 159 (50.6%) participants said that their facility had no continuous professional development program, while 46 (14.6%) reported that their facility conducted research-training needs assessments for staff, including midwives. More than a fifth (22%) perceived their facility to have dedicated staff with the skills, time, and resources to help with research (Table 2).

**Table 2** Perception of organization's support for conducting research

	Yes	No	Do not know
<b>Has a continuous professional development program for staff, including midwives</b>	116 (36.9%)	159 (50.6%)	39 (12.4%)
<b>Conducts research-training needs assessment for staff, including midwives</b>	46 (14.6%)	220 (70.1%)	48 (15.3%)
<b>Has allocated budget for conducting ongoing research</b>	32 (10.2%)	209 (66.6%)	73 (23.2%)
<b>Involves staff, including midwives, in developing research plans</b>	35 (11.1%)	207 (65.9%)	72 (22.9%)
<b>Has external partners that support research</b>	58 (18.5%)	158 (50.3%)	98 (31.2%)
<b>Has dedicated staff with the skills, incentives, time, and resources to help with research</b>	69 (22%)	168 (53.5%)	77 (24.5%)

# Knowledge and Attitudes Regarding Research

## Knowledge and Associated Factors

Of the 314 participants, 154 (49%, 95% CI 43.4%–54.7%) were identified as having good research knowledge.

## Factors Associated with Knowledge of Research

To identify associated factors, bivariate and multivariate logistic regression analyses were carried out. On multivariate analysis, having taken a research-methods course (AOR 6.93, 95% CI 3.37–14.24), having good research skills (AOR 2.25, 95% CI 1.30–3.91), and having participated in research (AOR 3.08, 95% CI 1.37–6.90) had a significantly positive association with knowledge (Table 3).

## Attitudes

A total of 252 (80.3%, 95% CI 84.8%–92.1%) participants were identified as having positive attitudes toward research (Figure 1): 251 (79.9%) had a positive response to the statement “I have trust in the midwifery profession and research” and 244 (77.7%) responded positively to the statement “I can conduct research and related activities.” Nearly three-quarters (72.9%) said that “I will get involved in research if I get the opportunity and dedicated time.” The highest negative response (16.9%) was to the statement “Research is relevant to clinical midwives” (Table 4).

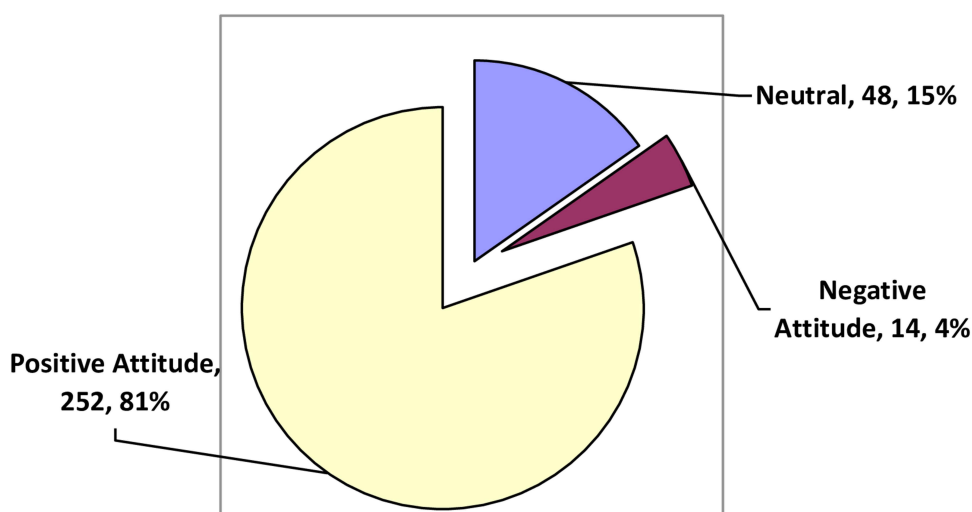
## Factors Associated with Attitudes

To identify these, ordinal logistic regression analysis was conducted for eleven independent variables for their predictability. Age and positive attitudes had a significant association with attitudes toward research. When age increased, the odds of having a positive attitude toward research increased by 3.4-fold (age 25–29 years) and 5.7 (age ≥30 years). Similarly, responding positively to the statement “I will get involved in research if I get the opportunity and dedicated time”, the odds of having

**Table 3** Bivariate and multivariate logistic regression analysis of factors associated with knowledge of research

	Knowledge		Crude OR (95% CI)	Adjusted OR (95% CI)
	Good	Poor		
<b>Mother's education</b>				
None	106 (33.8%)	131 (41.7%)	1	1
Formal education	48 (15.3%)	29 (9.2%)	2.05 (1.21–3.47)	1.32 (0.72, 2.40)
<b>Type of health facility graduated from</b>				
Governmental	134 (42.7%)	97 (30.9%)	4.35 (2.47, 7.67)	1.82 (0.91, 3.66)
Private	20 (6.3%)	63 (20.1%)	1	1
<b>Type of facility currently working in</b>				
Referral	55 (17.5%)	38 (12.1%)	2.00 (1.18, 3.38)	0.58 (0.31, 1.12)
General/primary hospital	36 (11.5%)	35 (11.1%)	1.42 (0.81, 2.50)	1.06 (0.52, 2.16)
Health center	63 (20.1%)	87 (27.7%)	1	1
<b>Prior research-methods course</b>				
Yes	139 (44.3%)	77 (24.5%)	9.99 (5.39, 18.50)	<b>6.93 (3.37, 14.24)*</b>
No	15 (4.8%)	83 (26.4%)	1	1
<b>Research skills</b>				
Good	109 (34.7%)	63 (20.1%)	3.73 (2.33, 5.97)	<b>2.25 (1.30, 3.91)*</b>
Poor	45 (29.6%)	97 (60.2%)	1	1
<b>Participation in research</b>				
Yes	39 (12.4%)	9 (2.9%)	5.69 (2.65, 12.22)	<b>3.08 (1.37, 6.90)*</b>
No	115 (36.6%)	151 (48.1%)	1	1

Note: \*P<0.005.



**Figure 1** Clinical Midwives Attitude towards Research at Central and North Gondar Public Health Facilities of Northwest Ethiopia, 2021.

a positive attitude toward research were fourfold those having a negative attitude. For participants who respond positively to the statement, “I can conduct research and related activities”, the odds of having a positive attitude toward research increased 2.4-fold. A two-tailed correlation analysis was computed to examine the relationship between attitudes with knowledge of research and other independent variables. We observed that attitudes toward research had a positive significant correlation ( $r=0.001$ ,  $P=0.001$ ) with having research knowledge and all attitudes measuring independent variables (Table 5).

## Discussion

There is no scientific evidence on clinical midwives’ knowledge and attitudes regarding research and related activities. Our study aimed at addressing this and enrolled 314 midwives, a majority (63.1%) of which held bachelor’s degrees. The International Confederation of Midwives strongly recommends the involvement of midwives in research to provide high-quality midwifery services.<sup>23</sup> About half (50.6%) the midwives said that their facility had a continuous professional development program for staff, including midwives. Unless there is no adequate and continual support to midwives, the quality of midwifery services provided could be affected.<sup>24</sup> In Tanzania, a lack of evidence-based practice supported by research resulted in poor service provision (30%–40%) and health outcomes.<sup>25</sup> Capacity-building activities are needed for clinical midwives<sup>20</sup> and also to strengthen increasing midwifery research and publication of findings.<sup>26</sup>

A significant proportion (52.9%) of midwives also responded that their health facilities did not conduct research relevant to clinical practice. This could be due to the fact that a majority (64.5%) of them work in primary health-care units (health centers and primary hospitals). In the Ethiopian health-care system, facilities are not expected to conduct research unless they have a teaching role in addition to patient care.<sup>27</sup> Midwives also added that facilities did not support

**Table 4** Attitudes toward research

	Positive, n (%)	Neutral, n (%)	Negative, n (%)
I have trust in the midwifery profession and research	251(79.9%)	44(14%)	19(6.1%)
I can conduct research and related activities	244(77.7%)	51(16.2%)	19(6.1%)
I can use/apply research findings in clinical practice	240(76.4%)	42(13.4%)	32(10.2%)
I will get involved in research if I get the opportunity and dedicated time	229(72.9%)	65(20.7%)	20(6.4%)
Research is relevant for clinical midwives	222(70.7%)	39(12.4%)	53(16.9%)

**Table 5** Ordinal logistic regression and correlation analysis of attitudes toward research

	Ordinal regression		Correlation	
	OR (95% CI)	P	Spearman correlation coefficient ( $\rho$ )	P
<b>Age (in years)</b> ≤24 25–29 ≥30	I 3.43 (0.57–6.29) 5.67 (0.21–11.14)	<b>0.019</b> <b>0.042</b>	–0.054	0.339
<b>Sex</b> Male Female	I 1.39 (–2.3 to 5.09)	0.460	–0.080	–0.155
<b>Type of facility graduated from</b> Governmental Private	1.75 (–1.33 to 4.82) I	0.266	–0.096	0.091
<b>Average monthly income</b> Willing to mention Not willing to mention	1.21 (–2.44 to 2.31) I	0.957	0.061	0.277
<b>Prior research-methods course</b> Yes No	1.42 (–2.68 to 2.87) I	0.947	–0.017	–0.769
<b>Participation in research</b> Yes No	2.09 (–5.14 to 3.07) I	0.621	–0.045	0.430
<b>I have trust in the midwifery profession and research</b> Positive response Neutral Negative response	3.37 (–18.78 to –5.78) 2.20 (–9.07 to –4.46) I	<b>0**</b> 0.031	0.183, 0.858	<b>0**</b>
<b>I can conduct research and related activities</b> Positive response Neutral Negative response	2.43 (–10.27 to –0.72) 2.18 (–4.73 to 3.81) I	<b>0.024</b> 0.833	0.754	<b>0**</b>
<b>I can use research findings in my clinical practice</b> Positive response Neutral Negative response	1.76 (–8.98 to –2.09) 1.65 (–5.36 to 1.10) I	<b>0.002</b> 0.196	0.696	<b>0**</b>
<b>I will get involved in research if I get the opportunity and dedicated time</b> Positive response Neutral Negative response	3.98 (–21.95 to –6.34) 3.28 (–16.50 to –3.65) I	<b>0</b> <b>0.002</b>	0.680	<b>0**</b>
<b>Research is relevant for clinical midwives</b> Positive response Neutral Negative response	2.05 (–10.05 to –2.02) 1.87 (–6.36 to 0.96) I	<b>0.003</b> 0.148	0.220	<b>0**</b>
<b>Knowledge on research</b>			0.183	0.001**

Note: \*\* $P < 0.001$ .



them to conduct research (63.1%) and there were no opportunities to participate in research conferences (52.9%). As a result, midwives are poor at utilizing research findings in their clinical service provision.<sup>28</sup>

Although research is one of the midwifery profession's roles,<sup>29</sup> a significant proportion of midwives reported having poor research knowledge (51%). This finding is congruent with a study conducted in Turkey, in which <50% of nurses had good clinical research knowledge.<sup>30</sup> Clinical midwives need to conduct research in addition to care for patients. A midwife/nurse mentor program in Australia was initiated to address research-related gaps, and showed an improvement in midwives' basic knowledge and awareness of the value of midwifery research, in addition to having the confidence to lead research.<sup>31</sup> Such initiatives have to be financed and sustained well to enable midwives with research-related competencies. This was evidenced in this study, where good research knowledge was noted among midwives who had taken research courses and participated in research, and a study in Turkey.<sup>30</sup>

About four-fifths (80.3%) of the midwives had positive attitudes toward research. This indirectly showed their interest in research and a need for intervention to sustain and prevent negative attitudes toward the use of research findings in clinical practice.<sup>28</sup> It was also observed that there was a positive correlation between attitudes and knowledge of research, and the same finding was observed in Turkey.<sup>30</sup> The two domains are interrelated, and knowing the subject matter might positively or negatively affect one's attitude. Changing midwives' attitudes toward research has great value for the provision of evidence-based practices and sustains these.<sup>25</sup>

As age increased, the odds of having a positive attitude toward research were higher. More than three-quarters (76.4%) of the participants believed that they could use research findings in their clinical practice that would help them to provide evidence-based care.<sup>32</sup> In addition, they responded that they would conduct research (77.7%) if given the opportunity and dedicated time (72.9%).<sup>19</sup> However, more than half (53.5%) reported that their facility had no dedicated personnel with the capacity (skills, time, and resources) for conducting research. A lot has to be done to fill this gap and sustain midwives' positive trust in the midwifery profession and research (79.9%), given the low job-satisfaction levels (52.9%) reported in another study,<sup>33</sup> involving the Ministry of Health, Ethiopian Midwives Association, and other stakeholders in employing midwives in every part of the country.

## Conclusion

Although a majority of the midwives had positive attitudes, a significant proportion had poor knowledge of research. Such knowledge could change their attitudes and improve the quality of midwifery care through the application of research findings. Provision of capacity-building activities (training and opportunities) and allocated time for research is paramount for the provision of evidence-based midwifery care.

## Limitations

This research shares the limitations of any cross-sectional study. It was on midwives only, and other professionals working in the clinical setting were not addressed. We suggest researchers conduct large-scale mixed studies covering all health professionals in a clinical setting to compare professional differences and explore factors to devise inclusive strategies.

## Data Sharing

Data will be available upon request from the corresponding author.

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## Disclosure

The authors report no conflicts of interest in this work.



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