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Research Article

Utilization of Evidence-Based Practice and Associated Factors Among Health Professionals Working at Comprehensive Specialized Hospitals in Amhara Regional State, Ethiopia

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Abstract

Background: Evidence-based practice is clinical decision-making using the best evidence available in the context of individual patient's preferences and clinical expertise. Despite clinical effectiveness and patient safety being among its success, its utilization among health professionals is low. This study aimed to assess how well it is used by health professionals working at Amhara region specialized hospitals. *Methods:* Mixed method was used from April 1 to May 15, 2021, among health professionals working at comprehensive specialized hospitals in the Amhara region. Four hospitals were randomly selected, stepwise, samples allocated to each profession and working unit. Samples were drawn from each operating unit using stratified random sampling. Quantitative data were collected by using semi-structured and pre-tested self-administered questionnaires. Data were entered into Epi data version 4.6 and analyzed using SPSS version 26. Bivariable logistic regression analysis was executed, and variables had p-value ≤0.05 in the multivariable analysis used to declare statistical significance. Qualitative data was analyzed using open code version 4.02. *Result:* 640 health professionals were involved in this study, ten were for the qualitative part, and 633 were for the quantitative part; out of 633 involved in the quantitative study, 605 filled the questionnaire properly with a response rate 95.6%. Of 48.6%, participants had good utilization of evidence-based practice. Having masters (AOR=7.657, 95% CI 3.111-18.850), good knowledge (AOR = 3.553, 95% CI 2.192-5.759), Got training (AOR = 3.411, 95% CI 1.281-9.084) and internet access (AOR = 2.299, 95% CI 1.47-13.592) were variables significantly associated with good utilization of evidence-based practice. *Conclusion:* Nearly half of the health professionals utilized evidence-based practice well. Holding a masters' degree, good knowledge about evidence-based practice, internet access, and training were variables significantly associated with good utilization of evidence-based practice.

Keywords

Evidence-based Practice, Health Professionals, Utilization

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1. Introduction

Evidence-based practice (EBP) is a clinical decision-making process using the best evidence available in individual patients' preferences and clinical expertise [1, 2]. Its origin was in medicine in the mid-1800s, and it echoed other medical disciplines later in the last decades of the 19th century [2, 3]. EBP emerged with five sequential steps and its importance increased with the need to distinguish between effective and ineffective medical treatments based on patient outcomes [1, 4, 5].

EBP has a role in establishing models and theory, developing a national research network, and better clinical decision-making [1, 6, 7]. Nowadays, it has become the crucial instrument of health care practice to minimize theory-to-practice gaps, As a result, improved patient outcomes, health service quality, patient safety, clinical effectiveness, and improved professional performance could exist with its proper Utilization [4, 8].

Although EBP has been considered a critical element to improving health care quality, its utilization in clinical environments has been challenging globally, which has made the healthcare system fail to secure continuous performance improvement [9, 10]. A global review regarding the Utilization of EBP showed that studies conducted in low and middle-income countries [LMICs], including Africa, were low. [11, 12]. Again, deficits in updated information have been noted with various barriers to its poor achievement and directions on incorporating EBP into the African context [13].

The proportion of health professionals who had good utilization of evidence-based practice was 42% in a nationwide survey in Taiwan [13]. It was found to be significantly lower in sub-Saharan countries, including Ethiopia [14]; In particular, it was 53% among health professionals at hospitals in the north Gondar zone, 40% in northwest Ethiopia, and 34.7% among nurses and midwives working at different institutional setups in the Amhara region [15-17]. However, some studies noticed poor Utilization of EBP among health professionals, and factors like low level of knowledge, absence of infrastructures, workload, and a lack of computers were significantly associated with its utilization. An evidence-to-practice gap still exists, and there is a shortage of information regarding the extent of its Utilization [11, 13, 15-21]. Studies elucidated that there was a long delay between the generation and application of research results, and the adoption of EBP remains a challenge for health professionals [2, 22]. The systematic review from publications from 2012 to 2017 showed that the Utilization of EBP got relatively lower scores [9]. In a study in Taiwan, the proportion of health professionals who had good Utilization of EBP was 42%. [13], 40% in northwest Ethiopia [17], 53% in north Gondar zone hospitals [15], 34.7% among nurses and midwives in Amhara region [16], 51.8% among nurses at Jimma [20], and 57.6% at black lion specialized hospital [23]. In particular, 40% of health professionals had critically appraised clinical research, 34% shared evidence with patients/family members, and only 10% evaluated their practice systematically over eight weeks in Norway. [24]. Again, 26.5% of the participants at north Gondar zone hospitals appraise the literature. [15], and 45.9% searched for relevant evidence in a study in northwest Ethiopia. [17].

Studies have shown the association of socio-demographic characteristics with EBP at various levels. A nationwide survey in Taiwan showed that having a master's or doctoral degree and being a physician were variables significantly associated with good utilization of evidence-based practice [13]. A study conducted in Oman demonstrated that participants with more years of experience had better Utilization of EBP [25]. Another study in Kuala Lumpur and South Africa reported that advancement in age was significantly associated with the Utilization of EBP. Again, studies in Ethiopia revealed that sex [20], marital status [26, 27], and work experience [16, 17, 27] were statistically associated with EBP. In the above-listed Ethiopia studies, there is significant variability and controversial findings on marital status, sex, and work experience.

Concerning individual factors, a survey in Taiwan revealed that having good knowledge about EBP and a favorable attitude towards EBP were among variables significantly associated with good Utilization of EBP [13]. Again having good knowledge about EBP was mainly related to utilizing EBP in studies in the southern region of Ethiopia [19], North Gondar Zone [15], northwest Ethiopia [17].

A systematic review revealed that lack of time and resources, inadequate encouragement, and assistance from managers were among the factors that reduced the Utilization of EBP [9]. Training about EBP and having a position in the faculty were among organizational factors which were significantly associated with good Utilization of EBP in Taiwan [13]. With qualitative study among military medical staff working in Zambia's defense force hospitals [18] and Tikur Anbesa specialized hospital in Jakarta [23]; Participants mentioned as a barrier to utilization of EBP were lack of administrative support and poor infrastructural installation, workplace constraints, and lack of resources. Studies in Ethiopia reported that training, availability of a library, and enough time were among factors associated with the Utilization of EBP [15, 17, 18, 21, 23].

Utilizing EBP in the health care delivery system is essential as it could improve the quality of care and patient safety. However, there was a shortage of information on its utilization among health professionals and its determinant factors in Ethiopia. So, determining its utilization and investigating the reason behind it is crucial. Studies on the Utilization of EBP among health professionals in Ethiopia were few and limited in specific scope to some disciplines like nursing and midwifery, and recommendations were forwarded as using mixed

methods is appropriate for better understanding [15, 17]. So, this study is interested in assessing the Utilization of EBP among health professionals working at comprehensive specialized hospitals in the Amhara region with a mixed method.

2. Method and Materials

2.1. Study Design, Area, and Period

A mixed sequential explanatory method was used. Using a mixed-method, the study was conducted among health professionals at comprehensive specialized hospitals in the Amhara region from April 1 to May 15, 2021. The Amhara region is one of Ethiopia's largest regions, found in the northern part. It has 12 zones, three-city administrations, and 180 woredas (139 rural and 41 urban). According to the Ethiopian Central Statistics Agency, the region has a projected population of 21.5 million people, about 80 percent of rural farmers. Today, the region has 80 hospitals. Eight of them are comprehensive specialized hospitals, namely, Dessie comprehensive specialized hospital, Woldiya comprehensive specialized hospital, Debretabor comprehensive specialized hospital, Debremarkos comprehensive specialized hospital, Debrebrihan comprehensive specialized hospital, Tibebe-Ghion comprehensive specialized hospital, Felege Hiwot comprehensive specialized hospital, and Gondar comprehensive specialized hospital, 861 health centers, and 3,565 health posts. Those hospitals currently provide different services, including preventive, curative, and rehabilitative care, for patients from all woreda and zones around them [28, 29].

2.2. Source and Study Population

The source population was health professionals working at comprehensive specialized hospitals in Amhara region 2021, and those working at selected specialized hospitals in Amhara region 2021 and who were available during the data collection period considered the study population.

2.3. Inclusion and Exclusion Criteria

Health professionals working at selected comprehensive specialized hospitals in the Amhara region in 2021 and those who had work experience of more than two months and were available during the study period were included. Meanwhile, health professionals working at selected comprehensive specialized hospitals in the Amhara region in 2021 and those invited from other institutions as guests were excluded from this study. Their performance in evidence-based practice might be more influenced by the institution they came from.

2.4. Sample Size Determination

2.4.1. Sample Size Determination for Quantitative Part

The sample size of this study was determined by using the single population proportion formula with a margin of error of 5% at a 95% confidence level by adding 10% for non-respondents. 53% is taken from an Ethiopian study conducted among health professionals to assess their EBP and associated factors. [15]. The sample size for the qualitative part was determined by data saturation.

$$n = \frac{((Z_{\alpha/2})^2\, p(1-p))}{d^2} = \frac{((1.96)^2 \times 0.53(1-0.47))}{(0.05)^2} = 382.7 \approx 383$$

Non response rate 10% = 39, Final sample size (n) = 383+39 = 422

where;

1) n- sample size
2) Z α/2- Level of confidence at 95%
3) P = population proportion = 53%%
4) d- Margin of error = 5%

Since multi-stage sampling was used, it is appropriate to consider the design effect by multiplying the calculated sample size by 1.5. So, the final sample size for this study was 633.

2.4.2. Sample Size Determination for the Qualitative

Evidence-based practice in public health and medicine needs multiple data sources to explore the nature of the practice. Therefore, to address "why" the procedure is successful or not, key informant interview questions with department heads, matrons, and medical directors who have long year of administrative and technical work experience (experts) was conducted. The overall sample size was determined by the concept of as per data saturation.

2.5. Sampling Technique and Sampling Procedure

Four comprehensive specialized hospitals were randomly selected from eight specialized hospitals found in the Amhara region, and samples were allocated to hospitals chosen proportionally. Representatives of each hospital were proportionally allocated to each profession. Again representatives of each discipline were proportionally allocated to each working unit. Finally, participants were selected from each operating unit using stratified random sampling. Purposive sampling was used to determine key informants such as matrons and medical directors, who were invited purposefully (Fig 1).

2.6. Data Collection Tool and Procedure

The questionnaire is prepared in English and has five sections. Section one is socio-demographic characteristics,

section two is knowledge assessment questions, the third is attitude assessment questions, the fourth is EBP utilization assessment questions, and the last one is to address factors influencing the Utilization of EBP. The practice, knowledge, attitude, and factors assessment tools were adopted from the Ethiopian study and the Melnyk and Fineout-Overholt EBP Implementation Scale [2, 16, 17]. Four MSc students were assigned as data collectors and four as supervisors for the quantitative part. For the qualitative part, notebooks and an audio recorder were used to record the information gained from key informants' interviews of matrons and medical directors in the Amharic language. Four interview guides were prepared initially, and then probing followed accordingly. Participants who scored above or equal to the median, which was 22 (IQR = 18-31) of the possible total score of 72 on the implementation assessment score, were considered to have good Utilization of EBP [15]. Poor Utilization: Participants who scored less than the median 22 (IQR = 18-31) from the possible total score of 72 on the implementation assessment score were considered poor Utilization of EBP [15]. Good knowledge: Respondents who scored mean or above (15.1) of the total possible knowledge score were categorized as having "good knowledge." [15]. Poor knowledge: Respondents who scored below the mean 15.1 of the total possible knowledge score were categorized as poor [15]. Favorable attitude: Respondents who scored above or equal to the mean 24.7 for attitude assessment questions were categorized as having a favorable attitude. [15].

Unfavorable attitude: Respondents who scored below the mean 24.7 for attitude assessment questions were categorized as unfavorable attitude. [15]. The qualitative sample size was determined as per data saturation.

2.7. Quality Control

The training was given to data collectors and supervisors concerning quantitative data collection. The tool was pretested among 61 health professionals [10% of the calculated sample size] at Black lion specialized hospital. The implementation assessment tool was internally consistent with Cronbach's alpha of 0.91. During data collection, the supervisors closely followed the day-to-day data collection process, and problems concerning data collection were reported and corrected early. After data collection, the data were checked for completeness and then entered into Epi-data. Last, the data were categorized in a non-overlapping pattern, and analysis was conducted after checking model fitness. The principal investigator held the critical informant's interview in a safe and silent area with secured privacy.

2.8. Data Processing and Analysis

After data collection, responses were checked and entered into a computer using the Epi Data Manager statistical package, and SPSS version 26 was used for data analysis. The Implementation assessment tool contains eighteen lists of activities, each scaled 0-4, then summed up for a possible minimum score of zero and a maximum of 72. The data were not distributed generally as Skewness > 1, and those who scored the median 22 (IQR = 18-31) or above were categorized as having good Utilization of EBP. In contrast, the rest were classified as having poor Utilization of EBP. Descriptive statistics, including frequencies and percentages, are calculated for all variables. Initially, bivariable logistic regression analysis was carried out to see the association between each explanatory variable's outcome. Then multivariable logistic regression analysis was held for variables with a p-value of less than 0.25 in bivariable logistic regression analysis and variables having a P-value of 0.05 in multivariable logistic regression analysis, which was used to declare statistical significance. Assumptions should be checked before binary logistic regression analysis. The logistic regression analysis model fit a Hosmer and Lemeshow Test of 0.43. The backward logistic regression method is used in multivariable analysis. For qualitative data, key informant interviews of Amharic versions from audiotape records were transcribed and translated to English, then entered into open code for thematic analysis. After analysis, the results are presented and triangulated to support the quantitative findings.

2.9. Ethics Approval and Consent to Participate

Ethical clearance was taken from the Institutional Reviewer Board (IRB) of the University of Gondar School of Nursing ethical review committee, and it approved the verbal consent process with Ref. No. S/N/164/3/2013. Although the study was conducted on humans, it did not take any biological samples from participants. We did so because the ethical review committee believed that the oral permission of participants could only collect data. Therefore, permission was gained from each hospital administrator after explaining the purpose and processes to set the appropriate data collection time by considering workload. Oral consent is taken from respondents before data collection, prevention of COVID-19 is considered during data collection, and the data collected from participants is kept confidential. In addition, they were told that the information they provided in this study would be published anonymized, and they were volunteers. All the methods were carried out in accordance with relevant guidelines and regulations in accordance with the declaration of Helsinki.

3. Result

3.1. Socio-demographic Characteristics of Health Professionals

Of the 640 health professionals involved in this study, ten were for the qualitative part, and 633 for the quantitative detail. Out of 633 health professionals involved in the

quantitative analysis, 605 filled out the questionnaire correctly, with a response rate of 95.6%. Of the total participants, 360 (59.5%) were males, 516 (85.3%) had a first degree, 58 (9.6%) were masters, and the rest 31 (5%) were specialists. The majority of participants (78%) work for more than 8 hours. Three hundred forty-three (56.7%) had work experience of five or fewer years. Regarding salary, 434 (71%) had 10000 or less Ethiopian Birr per month (Table 1).

Table 1. *Socio-demographic characteristics of health professionals working at comprehensive specialized hospitals in Amhara region 2021 (n = 605).*

Variables	Categories	Frequency	
		No	%
Sex	Male	360	59.5%
	Female	245	40.5%
Age	<=30 years	178	29.4%
	31-40 years	361	59.7%
	41-50 years	56	9.3%
	>50 years	10	1.7%
Marital status	Single	249	41.2%
	Married	356	58.8%
Educational status	Degree	516	85.3%
	Masters	58	9.6%
	Specialist	31	5.1%
Experience	<= 5 years	343	56.7%
	6-10 years	163	26.9%
	11-15 years	72	11.9%
	>15 years	27	4.5%
Average working time/day	<=8hr	131	21.7%
	>8hr	474	78.3%
Average monthly income	<10000 ETB	430	71.1%
	10000-14999 ETB	148	24.5%
	>=15000 ETB	27	4.5%
Hospital	Gondar	212	35.0%
	Felege Hiwot	200	33.1%
	Dessie	140	23.1%
	Woldiya	53	8.8%
Professional field	Nurse	379	62.6%
	Medicine	110	18.2%
	Midwifery	86	14.2%
	Anesthesia	17	2.8%
	Physiotherapist	13	2.1%
Working unit	inpatient department	244	40.3%
	outpatient department	129	21.3%

Variables	Categories	Frequency	
		No	%
	Gyni/obs	111	18.3%
	Emergency	98	16.2%
	other/ multi-unit	23	3.8%

3.2. Utilization of Evidence-based Practice Among Health Professionals

This study assessed the utilization of evidence-based practice among health professionals using an evidence-based practice implementation assessment scale containing eighteen lists of activities. The frequency of each exercise for the last two months (8 weeks) has been assessed, and responses labeled zero to four. The scales rated as zero for those who had not implemented evidence-based practice at all in the last two months, one for those who had implemented 1-3 times, two for those who had implemented 4-5 times, three for those who had implemented 6-7 times, and four for those who had implemented eight times. After summing up the values of each scale replied to by participants, the maximum score was 64, and the minimum was 6, from a possible total score of 72. The data were not distributed generally as skewness > 1, so the median was used to make a cutoff between excellent and poor utilization. The median EBP utilization assessment score was 22 (IQR=18-31). Health professionals who had good utilization of evidence-based practice were 48.6%/294, while the rest had poor utilization. Health professionals who did not change their approach based on their information from in-service training were 225 (37%).

3.3. Factors Affecting Utilization of Evidence-based Practice

This study identified socio-demographic, individual, and organizational factors which enable or hinder health professionals' Utilization of EBP. More than half (89.3%) of participants answered that there was a lack of computers, 351 (58%) replied that there was a lack of a library in their institution, and 548 (90.6%) of participants replied that there was a lack of time to find new guidelines/protocols or online research findings, and 479 (79%) of participants answered that there was no difficulty understanding recent national treatment guidelines and protocols (Table 2). Health professionals who had good knowledge of evidence-based practice were 333 (55%), and the remaining 272 (45%) had poor knowledge. Around two-thirds (66%) of health professionals had a favorable attitude towards EBP, while the rest had an unfavorable attitude.

Table 2. *Factors affecting utilization of evidence based practice among health professionals who were working at comprehensive specialized hospitals in Amhara region 2021(n = 605).*

S. no	Factors	Response	
		Yes /%	No /%
1	Lack of computer	540 / 89.3%	65 / 10.7%
2	Lack of internet	323 / 53.4%	282 / 46.6%
3	lack of training about evidence-based practice	561 / 92.7%	44 / 7.3%
4	Lack of new treatment guidelines	277 / 45.8%	328 / 54.2%
5	Difficulty in understanding English to use the literature?	84 / 13.9%	521 / 86.1%
6	Lack of library	351 / 58.0%	254 / 42.0%
7	Inability to implement recommendations of research studies in to clinical practice	146 / 24.1%	459 / 75.9%
8	Difficulty in judging the quality of research papers and reports	153 / 25.3%	452 / 74.7%
9	Difficulty in determining the applicability of research findings	155 / 25.6%	450 / 74.4%
10	no sufficient time to find new guidelines/protocols or online research findings	54 / 890.6%	57 / 9.4%

S. no	Factors	Response	
		Yes /%	No /%
11	Difficulty to understand recent national treatment guidelines and protocols?	126 / 20.8%	479 / 79.2%
12	the culture of your team is not receptive to changing practice	583 / 96.4%	22 / 3.6%
13	lack of authority in the workplace to change practice	453 / 74.9%	152 / 25.1%
14	Managers are didn't support to use evidence-based practice	562 / 92.9%	43 / 7.1%
15	No interdisciplinary discussion during patient management to apply evidence to practice?	594 / 98.2%	11 / 1.8%

3.3.1. Socio-demographic Factors Determining Utilization of Evidence-based Practice

The highest proportion of good Utilization of EBP was among these masters' holders in their academic qualifications and in medicine as a profession, which was 84% and 75%, respectively. The odds of having good Utilization of EBP among these medicine professions (AOR = 3.500, 95% CI 1.805-6.787, P-value 0.001) was 3.5 times that of nurses and having a master in academic qualification (AOR = 7.657, 95% CI 3.111-18.850, P-value 0.001). 7.6 times more likely to have good Utilization of EBP compared to first-degree holders, both in bivariable and multivariable logistic regression analysis (Table 3). Qualitative data supports this quantitative finding. Most key informants mentioned that those medical practitioners, those masters and above, could have exercised evidence-based practice better by informing them that the difference was in the teaching-learning process. Key informant 7 (at the age of 38) replied to the question, "How frequently do health professionals use evidence-based practice in your hospital?

(Like*"I think it is not practiced well in our hospital setup, health professionals also May not familiar with it except masters and some other highly active professionals"*. He responded again to the question "what makes masters and above learners and medicine students different in this regard? *" The way they learn is entirely based on reading; even their practice is re-evaluated following recent scientific medical directions, patient outcomes, and scenarios discussed in morning sessions. Medical students, physicians, and experts are expected to read to defend in such sessions, making them better to exercise evidence-based practice.*

3.3.2. Individual Factors Determining Utilization of Evidence-based Practice

The proportion of health professionals who had good Utilization of EBP among those who had good knowledge was 69.9%, while it was only 26% among those who had poor knowledge of EBP. Similarly, 60% of those had internet access, and 54% could understand English literature in its language. The odds of having good Utilization of EBP among those who had good knowledge about EBP (AOR = 3.553, 95% CI 2.192-5.759, P-value 0.001) was 3.5 times that of those who had poor knowledge about it. Also, those who can understand literature in the English language (AOR = 3.909, 95% CI 1.793-8.520, P-value = 0.001) are four times more likely to have good Utilization of EBP when compared to those who have difficulty understanding literature in the English language. With bivariable and multivariable analysis, the ability to determine the applicability of research findings (AOR = 3.964, 95% CI 2.231-7.042, P-value 0.001) was among individual factors associated significantly with good Utilization of EBP (Table 3). Qualitative results also support this finding as the majority of key informants reported that low awareness of health professionals about EBP, sticking to what they know, lack of interest in using evidence among health professionals, inability to understand scientific papers due to language barrier, misunderstanding of findings, and poor habit of reading were among factors which were categorized under the subtheme (individual factors). For the question, "What are the factors affecting the Utilization of EBP?

(Key informant 3 replied,*"Health professionals are not aware of its importance; some other health professionals were not eager to use some chances to do it. I think it is related to our poor habit of reading. Many of us were not well informed about where scientific explanations and guidelines are found"*. The other participant added that*: There is no such a good EBP experience. Some colleagues find it difficult to read the EBP, and some health professionals feel that you are too busy to do your daily activities and too lazy while they see you practicing EBP on the internet. On the other hand, people find it challenging to choose which website information is correct and to read because no one has shown us to do it during our university stay or at work.*

3.3.3. Organizational Factors Determining Utilization of Evidence-based Practice

The majority of participants (98.2%) replied that there was no interdisciplinary discussion during patient management to apply evidence to practice, and 583 (96.4%) revealed that the culture of their team was not receptive to change.

Nevertheless, none of these factors was significantly associated with the Utilization of EBP in bivariable or multivariable logistic regression analysis. Participants who were working at Dessie comprehensive specialized hospital (AOR = 7.55, 95% CI 3.936-14.467, P-value 0.001) and Felege Hiwot comprehensive specialized hospital (AOR = 2.596, 95% CI 1.500-4.491, P-value = 0.001) were 7.79 and 2.59 times more likely to have good Utilization of EBP when compared to those who were working at Woldiya comprehensive specialized hospital. Similarly, participants who spent more than eight hours on average working time at a hospital per day (AOR = 2.257, 95% CI 1.067-4.776, P-value = 0.033) had good Utilization of EBP as double of those who spent 8 hours. Again, health professionals with internet access (AOR = 2.299, 95% CI 1.4713.592, P-value 0.001) and training (AOR = 3.411, 95% CI 1.281-9.084, P-value = 0.014) were 2.2 and 3.4 times more likely to have good Utilization of EBP when compared to those with a lack of internet and lack of training, respectively. Working at an emergency unit (AOR = 2.463, 95% CI 1.318-4.605, P-value = 0.005) is also among organizational factors significantly associated with good Utilization of EBP (Table 3). A majority of key informants reported that the hospital's environment is not convenient for exercising EBP, lack of technologically advanced materials, organizations are not supportive of exercising EBP, lack of training about EBP, lack of free internet access, and lack of computers was among factors affecting utilization of evidence-based practice, which were under the subtheme (organizational factors).

Furthermore, key informants were questioned to justify the relationship between the use of evidence-based practice and long working hours in hospitals; key informants replied that having more time at the hospital gave opportunities to exercise EBP by mentioning that there was no more safe time for reading at home as a home and social responsibilities took more time. For the question, "did working time have a significant impact on the utilization of EBP?" (Key informant seven at the age of 38 years old said that

" I know that how much sophisticated with patients does the hospital environment, to be honest, it could not be a reason, we have time at hospitals to exercise evidence-based practice rather than home, most of us have so many issues at home, The initiation to update you come better while facing cases. Even if we have free time out of the hospital, we perceive it as time for relaxation. I am sure you have a better opportunity to exercise evidence-based practice while you wait in the hospital more".

The other participant also asked about the possible root factors of EBP; he stated that: - *The current educational curriculum for BSc has a poor emphasis on EBP. There is also a lack of flexibility of hospital protocols again in the workplace. Once the guidelines, standards, and directions are given, there is no room for these want to change practice by reading further.* The other participants also add this statement about the possible factors of EBP implementation: *The hospital protocol and seniors didn't allow change. The absence of area-specific studies, standards, and guidelines (most Western designed) led to poor health care outcomes; stepwise, health professionals lack the confidence to utilize them.*

Respondents explained the possible cause behind most organizational problems, as the majority of crucial informants put financial constraints and poor attention of higher officials regarding them as prior problems. For the question, "what makes it difficult to obtain important resources to utilize EBP?" Key informant six at the age of 46 replied, as" *I think budget is not assigned for it and the funding was targeted mainly for medications and other issues, the attention is given to it by administrative bodies including me also less*".

Table 3. *Binary logistic regression analysis of factors determining utilization of evidence based practice among health professionals at comprehensive specialized hospitals in Amhara region 2021(n = 605).*

Variables	Category	EBP utilization status		95% C.I.		
		Poor	Good	COR	AOR	p-value
Profession	nurse(1)	216	163	1	1	
	Medicine	27	83	4.074	3.500 (1.805-6.787)	.0001***
	Midwifery	45	41	1.207	1.251 (.558-2.807)	.587
	Anesthesia	11	6	.723	.358 (.083-1.538)	.167
	Physiotherapist	12	1	.110	.183 (.017-1.972)	.162
Academic qualification	1st degree(1)	297	219	1	1	
	Masters	9	49	7.384	7.657 (3.111-18.850)	.0001***
	Specialist	5	26	7.052	.269 (.057-1.276)	.098
Hospital	Gondar	131	81	1	1	

Variables	Category	EBP utilization status		95% C.I.		
		Poor	Good	COR	AOR	p-value
	Felege Hiwot	104	96	1.493	2.596 (1.500-4.491)	.001**
	Dessie	42	98	3.774	7.546 (3.936-14.467)	.0001***
	Woldiya (1)	34	19	.904	1.047 (.477-2.300)	.909
	inpatient	139	105	1	1	
	outpatient	78	51	.866	1.490 (.705-3.148)	.296
Working unit	Gyni/obs	54	57	1.397	1.583 (.708-3.538)	.263
	emergency(1)	37	61	2.182	2.463 (1.318-4.605)	.005**
	Other	3	20	8.825	3.555 (.551-22.922)	.182
Knowledge status	Poor (1)	201	71	1	1	
	Good	110	223	5.739	3.553 (2.192-5.759)	.000***
Av. Working time/day	<=8hr(1)	78	53	1	1	
	>8hr	233	241	1.522	2.257 (1.067-4.776)	.033*
Lack of internet	Yes(1)	199	124	1	1	
	No	112	170	2.436	2.299 (1.4713.592)	.000***
Lack of training	Yes(1)	303	258	1	1	
	No	8	36	5.285	3.411 (1.281-9.084)	.014*
English language barrier	Yes(1)	72	12	1	1	
	No	239	282	7.079	3.909 (1.793-8.520)	.001**
Unable to determine applicability of findings	Yes(1)	123	32	1	1	
	No	188	262	5.357	3.964 (2.231-7.042)	.0001***

*** = p-value <0.001, ** = p-value <0.01, and * = p-value ≤ 0.05

4. Discussion

This study aimed to assess the utilization of evidence-based practice (EBP) and associated factors among health professionals working at comprehensive specialized hospitals in the Amhara region. The current study revealed that evidence-based practice among health professionals was 48.6% (95% CI, 44.5-52.7), supported by qualitative findings. The majority of key informants reported that utilization of evidence-based practice among health professionals in their institution was low. It is consistent with findings conducted at Jimma, which are (51.8%). Still, the study population was different as the current study was among other health professionals, and at Jimma, it was among nurses [20].

The proportion of health professionals who had good Utilization of EBP in this study was lower than the findings from studies conducted in Ethiopia, which were 53% among health care providers in north Gondar zone hospitals and 57.6% at Black Lion specialized hospital. [15, 23]. The variation might be due to a difference in data collection tools both in content and number, as the implementation assessment tool of the study at Gondar contained six items. In comparison, 18 items were used in the current study. The survey at Black Lion specialized hospital might be due to a difference in the study population, as the present study was done among health professionals as a whole, while it was among nurses only in the survey at Black Lion specialized hospital.

On the other hand, the finding of this study was higher than the studies conducted in the Amhara region among nurses and midwives [34.8%] and in Taiwan among health professionals [42%] of participants who had the excellent implementation of EBP [13, 16]. The variation might be due to a difference in the study population. The current study was conducted at comprehensive specialized hospitals, and the former was conducted among nurses and midwives working at different institutional setups (including primary hospitals and general hospitals). The difference from the study in Taiwan was the tool used to assess the Utilization of EBP. It used an EBP assessment tool containing five items, and an assessment was done

for the EBP activities of health professionals over one year. However, the current study used a tool containing eighteen items and an evaluation that incorporated health professionals' EBP activities over the last two months. Potentially, the ability of health professionals to recall their EBP activities might be decreased as time goes back. Again, the result of this study was higher than the utilization level of health professionals in the survey in northwest Ethiopia. 40% of participants scored above the (mean) [17]. While it was 48.6% in the current study, the variation might be due to a difference in the study setup. It was conducted among health care workers at primary hospitals, general hospitals, and referral hospitals, which was not at comprehensive specialized hospitals in the current study.

Concerning each activity, 69% of participants (95% CI, 65.7-73.2) had shared evidence from a research study with a patient or family member, and 64% of participants had evaluated their practice at least once or more times over the last two months. With the study in Norway, 34% of participants shared evidence from a research study with a patient or family member. Only 10% of participants had evaluated their practice at least once or more times over the last two months. [24]. The variation might be due to a difference in sample size, as the current study was conducted among 605 health professionals while it was among 180 nurses in Norway. Another difference was the study population, which was among nurses only. The current study showed that about 42% of participants had searched for relevant evidence from recent national guidelines and literature to solve clinical questions three or fewer times over two months, which is nearly equal to that found in northwest Ethiopia [45.9%, 17]. Also, 20% of health professionals had no experience of appraised a clinical research study, and 4% of participants had not applied findings of literature searches in their daily clinical practice, respectively. It was 49.6% and 52.8%, respectively, in northwest Ethiopia [17]. This difference might be due to improvements in accessibilities for EBP among hospitals and the relative increment of interest among health professionals to update themselves over time.

This study revealed that respondents' profession had a significant association with the Utilization of EBP, as participants in medicine in their profession (AOR = 3.500, 95% CI 1.805-6.787, P-value 0.001) had good Utilization of EBP 3.5 times that of nurses. Similarly, it was among factors associated significantly with findings in Taiwan and Ethiopia. [13, 17]. These similarities might be since reading and utilizing evidence for decisions among medical professionals continued as a trend over the period more than in other medical disciplines. As a result, no more studies existed with incon sistencies in this regard. The academic qualification significantly associated with the current research was being master, as the odds of having good Utilization of EBP among masters' holders (AOR = 7.657, 95% CI 3.111-18.850, P-value < 0.001) was 7.6 times to that of first-degree holders. This finding is similar to the conclusions of Taiwan. [13]. The similarity might be due to the high probability of learning, and exercising the known is more likely when academic development exists.

Nevertheless, it was not among the factors significantly associated with the Utilization of EBP in a study conducted in northwest Ethiopia. [17], Being a BSc nurse, a physician, and a specialist were all significantly related. This difference might be a difference in the composition of categories under the variable academic qualification, as it did not incorporate second degrees [masters] into its category under it, but it did in the current study. Concerning individual factors associated with the Utilization of EBP, this study revealed that participants who had good knowledge of EBP (AOR = 3.553, 95% CI 2.192-5.759, P-value 0.001) were 3.6 times more likely to have good Utilization of EBP when compared to those who had poor knowledge of EBP. Likewise, having good knowledge about EBP was positively associated with utilizing evidence-based practice in the study at Gondar and the systematic review of low-and middle-income countries [12, 15]. These similarities might be due to the link between knowledge and practice, as the chance of exercising things after knowing is better in most circumstances. The current study reported that the proportion of health professionals who had good knowledge of evidence-based practice was 55% (95% CI, 51-59), lower than the findings at Teaching Hospital in Malaysia. Kuala Lumpur showed that 67% of participants knew the evidence-based practice [30]. This difference might be due to the difference in the socio-economic status of these two countries, as the more developed socio-economically, the more likely they are to have better achievement in many aspects of advancement.

The odds of having good Utilization of EBP among participants without difficulty understanding literature in English (AOR = 3.909, 95% CI 1.793-8.520, P-value = 0.001) were four times that of those who had an English language barrier. Likewise, it is among variables that had significant associations with the utilization of evidence-based practice in studies at north Gondar zone hospitals and northwest Ethiopia [15, 17]. It may be due to a common problem with English language fluency. Many of us Ethiopians are not native English language speakers, so the difficulty in understanding scientific justification in the English language might be more likely.

In a systematic review among 106 articles, English language barriers were not among the most common factors concerning the Utilization of EBP. [31]. So, difficulties in understanding scientific justification with the English language might not be a problem for participants from most foreign countries. English is their primary language in the workplace and education, making them comfortable with literature in the English language. Concerning the impact of length of working time at hospitals, the current study revealed that health professionals who had an average working time of greater than eight hours per day (AOR = 2.257, 95% CI 1.067-4.776, P-value = 0.033) were 2.25 times more likely to have good Utilization of EBP when compared to those who had less than eight hours.

The majority of critical informants included in this study reported that the more time spent at the hospital, the more likely they were to exercise evidence-based practice by reasoning out that health professionals' time at home was full of tasks, including social responsibilities. In the study in northwest Ethiopia, it was not significantly associated. [17]. The variation might be due to a change in the working hour arrangement made by the ministry of health, as previously, health professionals were assigned to hospitals in three shifts, which made them have equal working time at hospitals, and the variability of EBP utilization status among them due to a difference in average working time might be less likely. Nowadays, it has changed, as the three-shift working style has retired, and health professionals are assigned to work 8 hours a day and maybe assigned at night again with duty payment. This makes their working time range from 8-16 hours/day and increases their hospital waiting time. Likewise, their EBP utilization level might be affected by their average working time variation.

The proportion of participants who had good Utilization of EBP among those with training was 81%. In comparison, it was 46% among participants with a lack of training, so training (AOR = 3.411, 95% CI 1.281-9.084, P-value = 0.014) was significantly associated with good Utilization of EBP. Again, it was mentioned by the majority of key informants who participated in this study as it was among the problems related to the Utilization of EBP, which was under the subtheme of organizational factors, with the reason of resource unavailability and poor attention to it. It was a determinant factor in the systematic review of low-and middle-income countries, with studies in Zambia and Gondar [18]. The possible reason for this might be the poor trend of low-and middle-income countries in providing frequent refresher training, as it needs financial and resource adjustment, which is a challenge for many of these countries.

5. Conclusion and Recommendation

This study showed that nearly half of health professionals had good utilization of evidence-based practice, which was low compared to other studies. Ninety percent of participants reported a lack of training, the team's culture was not receptive to change, and managers were not supportive of evidence-based practice. These factors came out in front with higher proportions. In multivariable logistic regression analysis, being master in academic qualifications, having good knowledge of evidence-based practice, training, and internet access were variables significantly associated with the utilization of evidence-based practice at different levels.

Health professionals need to increase their fluency and understanding of scientific explanations by taking online tutorials and additional language courses. Managers needed to create a network with concerned bodies to provide training to health professionals about evidence-based practice and a convenient environment for experience sharing among professions about evidence-based practice. Hospitals needed to have accessibilities like internet access to allow easy access to updated medical information easily accessible to health professionals. Curriculum reviewer needed to consider evidence-based practice while reviewing curriculum or standard.

Abbreviations

ANA	American Nursing Association
AOR	Adjusted Odds Ratio
BSc	Bachelor of Science
COR	Crude Odds Ratio
EBP	Evidence-Based Practice
ETB	Ethiopian Birr
HCs	Health Centers
HPs	Health Posts
INC	International Council of Nursing
MSc	Masters of Science
OPD	Out-Patient Department
SPSS	Statistical Package for Social Science
WHO	World Health Organization

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Author Contributions

Jemal Mohammed Bahru: Conceptualization, Formal Analysis, Funding acquisition, Investigation, Project administration, Resources, Writing – original draft

Mignote Hailu: Methodology, Software, Supervision, Validation, Visualization

Bewuketu Terefe: Data curation, Writing – review & editing

Data Availability Statement

All though most necessary information's were included within the manuscript, detail data share will be accessed from the correspondence authors through his email for anyone needs it.

Conflicts of Interest

The authors declare no conflicts of interest.

References

[1] Yates C. Evidence-based practice: The components, history, and process. Counseling Outcome Research and Evaluation. 2013; 4(1): 41-54. https://doi.org/10.1177/2150137813477873

[2] Melnyk BM, Gallagher-Ford L, Thomas BK, Troseth M, Wyngarden K, Szalacha L. A study of chief nurse executives indicates low prioritization of evidence-based practice and shortcomings in hospital performance metrics across the United States. Worldviews on Evidence-Based Nursing. 2016; 13(1): 6-14. https://doi.org/10.1111/wvn.12133

[3] Organization WH. Facilitating evidence-based practice in nursing and midwifery in the WHO European Region. World Health Organization. Regional Office for Europe; 2017.

[4] Sonğur C, Özer Ö, Gün Ç, Top M. Patient safety culture, evidence-based practice and performance in nursing. Systemic Practice and Action Research. 2018; 31(4): 359-74. https://doi.org/10.1007/s11213-017-9430-y

[5] Al-Lawama M. How to implement medical evidence into practice in developing countries. International journal of medical education. 2016; 7: 320. https://doi.org/10.5116/ijme.57e2.f330

[6] FRCGP SGMFF. Evidence-based healthcare and quality improvement2014.

[7] Brigita Skela-Savič1 JG, Mariusz Panczyk3, Athina E. Patelarou4, Urban Bole5, Antonio Jesús Ramos-Morcillo6, Stefano Finotto7, Daniela Mecugni8, Darja, Jarosova9, Evridiki Patelarou10, Jakub Dolezel11 and Maria Ruzafa-Martínez12. Full Title: Teaching Evidence-Based Practice (EBP) in Nursing Curricula in Six European Countries—A descriptive study. 2020. https://doi.org/10.1016/j.nedt.2020.104561

[8] Jacobs1 JA, PFC, CD, TF, EJ, GP, et al. A survey tool for measuring evidence-based decision making capacity in public health agencies 2012.

[9] Saunders H, Gallagher-Ford L, Kvist T, Vehviläinen-Julkunen K. Practicing healthcare professionals' evidence-based practice competencies: An overview of systematic reviews. Worldviews on Evidence-Based Nursing. 2019; 16(3): 176-85. https://doi.org/10.1111/wvn.12363

[10] Warren JI, McLaughlin M, Bardsley J, Eich J, Esche CA, Kropkowski L, et al. The strengths and challenges of implementing EBP in healthcare systems. Worldviews on Evidence-Based Nursing. 2016; 13(1): 15-24. https://doi.org/10.1111/wvn.12149

[11] Li S, Cao M, Zhu X. Evidence-based practice: Knowledge, attitudes, implementation, facilitators, and barriers among community nurses—systematic review. Medicine. 2019; 98(39). https://doi.org/10.1097/MD.0000000000017209

[12] Shayan SJ, Kiwanuka F, Nakaye Z. Barriers associated with evidence-based practice among nurses in low-and middle-income countries: A systematic review. Worldviews on Evidence-Based Nursing. 2019; 16(1): 12-20. https://doi.org/10.1111/wvn.12337

[13] Weng Y-H, Kuo KN, Yang C-Y, Lo H-L, Chen C, Chiu Y-W. Implementation of evidence-based practice across medical, nursing, pharmacological and allied healthcare professionals: a questionnaire survey in nationwide hospital settings. Implementation Science. 2013; 8(1): 1-10. https://doi.org/10.1186/1748-5908-8-112

[14] Forland F, Rohwer AC, Klatser P, Boer K, Mayanja-Kizza H. Strengthening evidence-based healthcare in Africa. BMJ Evidence-Based Medicine. 2013; 18(6): 204-6. https://doi.org/10.1136/eb-2012-101143

[15] Beshir MA, Woreta SA, Kebede M. Evidence-based practice among health professionals in hospitals of Northwest Ethiopia: a cross-sectional study. International journal of evidence-based healthcare. 2017; 15(4): 161-70. https://doi.org/10.1097/XEB.0000000000000111

[16] Dagne AH, Beshah MH, Kassa BG, Dagnaw EH. Implementation of evidence-based practice and associated factors among nurses and midwives working in Amhara Region government hospitals: a cross-sectional study. Reproductive Health. 2021; 18(1): 1-10. https://doi.org/10.1186/s12978-021-01096-w

[17] Dessie G, Jara D, Alem G, Mulugeta H, Zewdu T, Wagnew F, et al. Evidence-based practice and associated factors among health care providers working in public hospitals in Northwest Ethiopia during 2017. Current Therapeutic Research. 2020; 93: 100613. https://doi.org/10.1016/j.curtheres.2020.100613

[18] Abdulwadud O, Nyareza S, Mthoniswa JP, Nonde L, Malasha F, Lifuka E. Knowledge of Cochrane, evidence-based medicine and the Cochrane Library at Defence Force Medical Services: a baseline cross-sectional survey among military health personnel in Zambia. Medical Journal of Zambia. 2019; 46(1): 1-9. https://doi.org/10.55320/mjz.46.1.212

[19] Dade EA. Assessment of Nurses' Knowledge and Utilization of Evidence Based Practice and its Associated Factors in Selected Hospitals of Three Zones of Southern Ethiopia, 2017: Addis Ababa University; 2017.

[20] Dereje B, Hailu E, Beharu M. Evidence-based practice utilization and associated factors among nurses working in Public Hospitals of Jimma Zone Southwest Ethiopia: A cross sectional study. General Medicine: Open Access. 2019; 7(1): 1-11.

[21] Hoyiso D, Arega A, Markos T. Evidence based nursing practice and associated factors among nurses working in Jimma zone public hospitals, Southwest Ethiopia. International Journal of Nursing and Midwifery. 2018; 10(5): 47-53. https://doi.org/10.5897/IJNM2017.0294

[22] Buekens P, Keusch G, Belizan J, Bhutta ZA. Evidence-based global health. Jama. 2004; 291(21): 2639-41. https://doi.org/10.1001/jama.291.21.2639

[23] Hadgu G, Almaz S, Tsehay S, Almaz S, Tsehay S. Assessment of nurses' perceptions and barriers on evidence based practice in Tikur Anbessa specialized hospital Addis Ababa Ethiopia. Am J Nurs Sci. 2015; 4(3): 73-83. https://doi.org/10.11648/j.ajns.20150403.13

[24] Kjersti Stokke NRO, Birgitte Espehaug and Monica W Nortvedt. Evidence based practice beliefs and implementation among nurses: a cross-sectional study 2014.

[25] Ali A. Ammouri, Ahmad A. Raddaha, Preethy Dsouza, Renu Geethakrishnan, Judith A. Noronha, Arwa A. Obeidat, et al. Evidence-Based Practice Knowledge, attitudes, practice and perceived barriers among nurses in Oman 2014.

[26] Wassie MA, Zeleke AA, Dachew BA, Kebede M. Evidence-based practice and its associated factors among medical laboratory professionals in West Amhara hospitals, Northwest Ethiopia. International journal of evidence-based healthcare. 2018; 16(1): 66-72.
https://doi.org/10.1097/XEB.0000000000000122

[27] Aynalem ZB, Yazew KG, Gebrie MH. Evidence-based practice utilization and associated factors among nurses working in Amhara Region Referral Hospitals, Ethiopia. PloS one. 2021; 16(3): e0248834.
https://doi.org/10.1371/journal.pone.0248834

[28] Health (MoH) mo. Health Infrastructure of regional health bereau in Ethiopia. 2020.

[29] USAID. AMHARA-EOP-Brief-6-2018. 2018.

[30] Bashar FJ. Assessing attitudes towards knowledge and use of evidence-based practice among nurses working in a teaching hospital in Kuala Lumpur. International Journal of Education and Literacy Studies. 2019; 7(1): 25-30.
https://doi.org/10.7575/aiac.ijels.v.7n.1p.25

[31] Sadeghi-Bazargani H, Tabrizi JS, Azami-Aghdash S. Barriers to evidence-based medicine: a systematic review. Journal of evaluation in clinical practice. 2014; 20(6): 793-802.
https://doi.org/10.1111/jep.12222