Health professionals’ routine practice documentation and its associated factors in a resource-limited setting: a cross-sectional study

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ABSTRACT
Objectives Documenting routine practice is significant for better diagnosis, treatment, continuity of care and medicolegal issues. However, health professionals’ routine practice documentation is poorly practised. Therefore, this study aimed to assess health professionals’ routine practice documentation and associated factors in a resource-limited setting.

Methods An institution-based cross-sectional study design was used, stratified random sampling and a pretested self-administered questionnaire were used among 423 health professionals. Epi Info V.7.1 and STATA V.15 software were used for data entry and analysis, respectively. Descriptive statistics and a logistic regression model were employed to describe the study subjects and to measure the strength of association between dependent and independent variables, respectively. A variable with a p value of <0.2 in bivariate logistic regression was considered for multivariable logistic regression. In multivariable logistic regression, ORs with 95% CIs and a p value of <0.05 were considered to determine the strength of association between dependent and independent variables.

Results Health professionals’ documentation practice was 51.1% (95% CI: 48.64 to 53.1). Lack of motivation (adjusted OR: AOR: 0.41, 95% CI: 0.22 to 0.76), good knowledge (AOR: 1.35, 95% CI: 0.72 to 2.97), taking training (AOR: 4.18, 95% CI: 2.99 to 8.28), using electronic systems (AOR: 2.19, 95% CI: 1.36 to 3.28), availability of standard documentation tools (AOR: 2.45, 95% CI: 1.35 to 4.43) were statistically associated factors.

Conclusions Health professionals’ documentation practice is good. Lack of motivation, good knowledge, taking training, using electronic systems and the availability of documentation tools were significant factors. Stakeholders should provide additional training, and encourage professionals to use an electronic system for documentation practices.

INTRODUCTION
In routine healthcare practice, evidence about the care and treatment of patients, progress notes, assessments and care plans, laboratory tests and results, medication and drug prescription information, patient education and counselling are some of the routine practices of health professionals. Therefore, documenting the health professionals’ routine practices are important for various purposes.

Documentation is a standard way of keeping ongoing patient care information. It is the relevant facts of routine health information and patient care plans, such as professionals’ evaluation and judgement about the
Documenting routine practices is essential for the continuity of patient care, legal defence, reimbursement, communication among healthcare professionals and better patient diagnoses and treatments. Maintaining routine practice is part of the health professional obligation. Healthcare facilities’ by-laws or policies should require health professionals to complete patient records. Whether the documentation is a paper-based or electronic system, it should be patient-focused, accurate, relevant, clear, permanent, confidential and timely. Electronic patient record systems are better for reducing the time spent on documenting patient information and enhancing the quality of documentation.

Poor documentation practice affects patient management, continuity of patient care and medicolegal issues, which arise from incomplete and inadequate documentation, lack of accuracy and poor quality. It leads to adverse patient outcomes, medication errors and patient deaths. Distorted health information may influence health professionals’ decision-making capabilities due to inappropriate and misleading documentation practices.

Globally, poor communication between health professionals is a reason for medical error and patient mortality. Many health professionals’ documentation practice is incomplete, inaccurate and of poor quality. According to evidence from the USA, documentation errors are a cause of at least one death and 1.3 million injuries annually. Moreover, health professionals’ documentation practice is inadequate such as 33.3% in Indonesia, 47% in England and 50% in Iran.

In the low-income and middle-income regions, a qualitative study undertaken in Uganda stated that documentation practice is limited by constraints and poor support from the administration. In Ghana, 46% of care is provided, and progress notes are not documented after the first day of patient admission. In Nigeria, only 44% of health professionals had good documentation knowledge and practice.

In Ethiopia, documentation is poorly practised and has been reported as being left undone. Health professionals’ documentation practice is 47.8% in the Tigray and 37.4% in Amhara regions. Surprisingly, 88% of the medication provided has been wrongly documented. A study report in the Amhara region states that 87% of the medications had documentation errors.

Age, sex, experience, income, levels of education, health professionals’ knowledge and attitude, motivation, workload and training about documentation are factors associated with routine practice documentation.

Documenting health professionals’ routine activities is valuable for sharing knowledge and learning from history. This has a significant impact on better decision-making and accuracy in patient diagnosis and treatment. As per our literature review, studies have not been undertaken in the current study setting. Few studies in similar settings have been carried out with only nursing as a study participants, education and counselling given to the patient were not assessed. So, assessment documentation practice in both medical and non-medical practices, including all health professionals is crucial. Therefore, this study aimed to determine health professionals’ routine practice documentation and associated factors.

**METHODS**

**Study design and period**

An institutional-based cross-sectional study was employed among health professionals working in public health facilities in the Ilu Aba bora Zone, from 24 March up to 19 April 2022.

**Study setting**

Ilu Aba Bora Zone is found in Southwest Ethiopia. The zone is located 600 km away from Addis Ababa, the capital city of Ethiopia. In the zone, there are 44 total health facilities and 2 hospitals (1 general hospital and 1 referral hospital). The public health facilities provide different health services for more than a million of the population in southwest parts of the country coming from Gambela, Southern Nation Nationality and People’s region.

**Study population and eligibility criteria**

All healthcare professionals working in the public health facilities of Ilu Aba Bora Zone and those who were found during the data collection period were the sources and study population, respectively. Healthcare professionals who were not permanently employed, those who were not present during the study period and who worked as data clerks were excluded.

**Sampling size determination**

A sample size (n) was determined by using a single population proportion formula, 

$$N = \left( \frac{Z_{a/2}}{d} \right)^2 \times P(1-P)/d^2,$$

where 

- n = the required sample size, 
- \(Z_{a/2}\) = the value of standard normal distribution or 1.96, 
- \(p\) = the prevalence of documentation practice among health professionals and so the default maximum value of 50% was used for \(p\), 
- \(d\) = degree of precision or 0.05. Taking this, the required sample size was calculated to be 384. After adding a 10% non-response rate, a total of 423 healthcare professionals participated in this study.

**Sampling producer**

A stratified simple random sampling method was used. Due to the limited resources, we have to cover all types of health facilities, we have included two hospitals directly and three randomly selected health centres. Once the sample was stratified based on the types of randomly selected health facilities, the sample was allocated to each stratum proportionally. Then, a simple random sampling technique was used to select the study subjects in each public health facility. The list of health professionals was taken from human resource departments. Accordingly, there are 1043 health professionals from 5 randomly selected health facilities.
selected health facilities. The sampling procedure has been presented in figure 1.

Operationalisations and measurements
In the healthcare system, patient status, medical diagnoses, planned care, medical interventions or treatments, laboratory tests, result confirmations, medications, patient education and counselling, communication and delivering service are activities of health professionals. All the mentioned activities of health professionals are either medical or non-medical activities (patient education and counselling), but all are routine activities for health professionals. As a result, health professionals use standard documentation tools such as manual records and/or electronic systems to document their routine activities correctly and on time while respecting the rules of ethics. Accordingly, health professionals’ routine practice documentation was assessed by using 12 ‘yes’ and ‘no’ questions. The level of health professionals’ routine practice documentation was determined using the mean value as a cut-off point. Hence, the level of health professionals’ routine practice documentation is good if the score is above or equal to the mean value, and otherwise poor documentation practice.

Knowledge
The study participants’ level of knowledge was measured by using 10 ‘yes’ and ‘no’ options. Health professionals who scored above or equal to the mean score were considered to have good knowledge, and those who scored below the mean value had poor knowledge.

Attitude
The study participants’ level of attitude was measured by using nine Likert scale questions with responses ranging from 1 ‘strongly agree’ to 5 ‘strongly disagree’. Health professionals who scored above or equal to the mean score were considered to have a good attitude, otherwise, poor attitude.

Data collection tool and quality assurance
The tool used was developed based on reviewing similar studies. A pretested, self-administered questionnaire was used. Two supervisors and three data collectors received 2 days of intensive training on the study objectives and how to approach study participants. A pretest was done outside the study area with 10% of the study subjects to check the readability and consistency of the questionnaire. The data obtained from the pretest were used to check the validity and reliability of the tool. The Cronbach’s alpha was used to check the reliability of the tool with a value of 0.83.

Data processing and analysis
The data entry was performed using Epi Info V.7.1 software packages and analysed using STATA V.15 software. Descriptive statistics were computed to describe the sociodemographic characteristics of the healthcare professionals, their knowledge and their attitudes towards routine practice documentation. Bivariable and multivariable binary logistic regression analyses were conducted to measure the association between the dependent and independent variables. In the bivariable regression analysis...
analysis, variables with a p value of <0.2 were considered for further multivariable logistic regression analysis. The OR with a 95% CI level was assumed to assess the strength of the association between dependent and predictor variables. For all significantly associated variables, a p value <0.05 was used as a cut-off point. A variance inflation factor was performed. Consequently, its value for all predictors was between one and three. This revealed that there was no correlation between the variables. The Hosmer-Lemeshow test was performed to assess the model fitness, and so model was fitted (p=0.271).

RESULT

Description of study subjects

From 423 participants, 415 responded to a questionnaire with a 98.11% response rate. The mean age of the study subjects was 29.28 (SD±2.21) years with a minimum age of 21 years and a maximum age of 59 years. Half (51.1%) of the study subjects were male. The majority (66.7%) of study subjects were BSc degree holders or below. Of the total respondents, around 6–10 (62.4%) of the study participants had up to 5 years of working experience.

Less than half (32.3%) of the study subjects were trained in routine practice documentation. Of 415 study participants, 225 (56.6%) health professionals earned 4500–7500 Ethiopian Birr per month, and 8–10 (80.2%) health professionals responded that standard documentation tools were available in the working area. One hundred twenty-five (54.22%) health professionals used manual forms for documentation purposes (table 1).

Health professionals’ routine practice documentation

Overall, 51.1% (95% CI: 46.29% to 53.55%) of health professionals had good routine practice documentation; 6.99% of different laboratory test request forms were not completed and documented; 6.025% of the physicians’ prediagnosis was completed and documented; 5.54% of drug prescription and laboratory result forms were not completed and documented. Documentation incompleteness accounted for 32.52% of health professionals’ poor routine practice documentation (table 2).

Factors associated with routine practice documentation

Bivariate and multivariate logistic regressions were used to measure the association between dependent and independent predictors. In the bivariate logistic regression, p<0.2 was used and sex, age, training, knowledge, attitude, types of documentation tools, availability of standard documentation tools, workload and motivation of study subjects were the candidate variables for the multivariable regression analysis. In the multivariable regression model, knowledge, training, motivation, types and availability of the standard documentation tools were significant factors for routine practice documentation (table 3).

Health professionals who lack motivation were 59% (adjusted OR (AOR): 0.41, 95% CI: 0.22 to 0.76) less likely to document routine practices. Health professionals who had good knowledge of routine practice documentation were 1.4 (AOR: 1.35, 95% CI: 0.72 to 2.97) times more likely to document routine practice than those who had poor knowledge. Health professionals who were trained in routine practice documentation were 4.2 (AOR: 4.18, 95% CI: 2.99 to 8.28) times more likely to document routine practices than those who were not trained. Health professionals who used electronic systems for routine practice documentation were 2.2 (AOR: 2.19, 95% CI: 1.36 to 3.28) times more likely to document their routine practices than those who used manual forms for documentation. The availability of standard documentation tools were 2.5 (AOR: 2.45, 95% CI: 1.35 to 4.43)

<table>
<thead>
<tr>
<th>Sn</th>
<th>Content of items for routine practice documentation</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patients’ admission assessment is documented or attached for the patient admitted</td>
<td>17 (4.10)</td>
<td>13 (3.13)</td>
</tr>
<tr>
<td>2</td>
<td>Physicians’ prediagnosis is completed and documented</td>
<td>14 (3.37)</td>
<td>25 (6.02)</td>
</tr>
<tr>
<td>3</td>
<td>Different laboratory test request forms completed and documented</td>
<td>19 (4.58)</td>
<td>29 (6.99)</td>
</tr>
<tr>
<td>4</td>
<td>The nursing care plan is completed and attached to the patient’s card</td>
<td>28 (6.75)</td>
<td>15 (3.61)</td>
</tr>
<tr>
<td>5</td>
<td>Laboratory request accepted and attached to patient card</td>
<td>21 (5.06)</td>
<td>14 (3.37)</td>
</tr>
<tr>
<td>6</td>
<td>Laboratory results from filling out (completed) and documented</td>
<td>15 (3.61)</td>
<td>23 (5.54)</td>
</tr>
<tr>
<td>7</td>
<td>Laboratory results attached to patient cards</td>
<td>12 (2.90)</td>
<td>11 (2.65)</td>
</tr>
<tr>
<td>8</td>
<td>Final diagnosis and treatment results documented</td>
<td>10 (2.41)</td>
<td>24 (5.78)</td>
</tr>
<tr>
<td>9</td>
<td>Drug prescription forms completed and documented</td>
<td>20 (4.82)</td>
<td>23 (5.54)</td>
</tr>
<tr>
<td>10</td>
<td>Maternal and child health service forms completed and documented</td>
<td>22 (5.30)</td>
<td>12 (2.89)</td>
</tr>
<tr>
<td>11</td>
<td>Follow-up form (form for chronic patients) completed and documented</td>
<td>18 (4.34)</td>
<td>8 (1.93)</td>
</tr>
<tr>
<td>12</td>
<td>Progress report documented including education and counselling given to the patients</td>
<td>16 (3.86)</td>
<td>6 (1.45)</td>
</tr>
<tr>
<td>Overall health professionals’ routine practice documentation</td>
<td>212 (51.1)</td>
<td>203 (48.9)</td>
<td></td>
</tr>
</tbody>
</table>
times more odds for health professionals to document their routine practices (table 3).

**DISCUSSION**

This study assesses health professionals’ routine practice documentation and associated factors. Health professionals who had good knowledge about routine practice documentation, training on documentation, using electronic systems for documentation, the availability of standard documentation tools and a lack of motivation towards routine practice documentation were statistically significant factors associated with health professionals’ routine practice documentation.

The study revealed that health professionals’ routine practice documentation was good (51.1%). This finding is higher than previous similar studies, which found 44.2% in Nigeria, \(^{17}\) 33.3% in Indonesia \(^{12}\) and 37.4%-48.8% in different parts of Ethiopia. \(^{3,18,23}\) However, the finding is lower than the study done in Jamaica, which reports that health professionals’ documentation practice is 98%. \(^{24}\)

**Table 3** Bivariate and multivariate analysis of factors associated with health professionals’ routine practice documentation (n=415)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Routine practice documentation</th>
<th>OR (95% CI)</th>
<th>COR (95% CI)</th>
<th>AOR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>107 25.80</td>
<td>103 24.80</td>
<td>0.95 (0.65 to 1.40)* 0.93 (0.60 to 1.44)</td>
<td>1 1</td>
</tr>
<tr>
<td>Female</td>
<td>96 23.10</td>
<td>109 26.30</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>123 29.64</td>
<td>148 35.66</td>
<td>1.50 (1.00 to 2.26)* 1.35 (0.72 to 2.97)†</td>
<td>1 1</td>
</tr>
<tr>
<td>Poor</td>
<td>80 19.28</td>
<td>64 15.42</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Age (in years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26–30</td>
<td>120 28.92</td>
<td>124 29.88</td>
<td>0.83 (0.48 to 1.44)* 1.10 (0.58 to 2.08)</td>
<td>1 1</td>
</tr>
<tr>
<td>31–35</td>
<td>23 5.54</td>
<td>36 8.67</td>
<td>1.26 (0.62 to 2.58) 1.20 (0.52 to 2.77)</td>
<td>1 1</td>
</tr>
<tr>
<td>&gt;35</td>
<td>31 7.47</td>
<td>16 3.86</td>
<td>0.42 (0.19 to 0.90) 0.51 (0.21 to 1.34)</td>
<td>1 1</td>
</tr>
<tr>
<td>21–25</td>
<td>29 6.99</td>
<td>36 8.67</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Motivation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>171 41.21</td>
<td>163 39.28</td>
<td>0.62 (0.38 to 1.02)* 0.41 (0.22 to 0.76)†</td>
<td>1</td>
</tr>
<tr>
<td>Yes</td>
<td>32 7.71</td>
<td>49 11.80</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Attitude</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>165 39.76</td>
<td>182 43.86</td>
<td>1.40 (0.83 to 2.36)* 1.09 (0.71 to 2.04)</td>
<td>1 1</td>
</tr>
<tr>
<td>Poor</td>
<td>38 9.15</td>
<td>30 7.23</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Training on documentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32 7.71</td>
<td>102 24.57</td>
<td>4.96 (3.12 to 7.88)* 4.18 (2.99 to 8.28)†</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>171 41.21</td>
<td>110 26.51</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Availability of documentation sheet</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>147 35.42</td>
<td>186 44.82</td>
<td>2.73 (1.63 to 4.55)* 2.45 (1.35 to 4.43)†</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>56 13.50</td>
<td>26 6.26</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Types of tool used for documentation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic system</td>
<td>119 28.67</td>
<td>80 19.28</td>
<td>2.34 (1.58 to 3.47)* 2.19 (1.36 to 3.28)†</td>
<td>1</td>
</tr>
<tr>
<td>Manual form</td>
<td>84 20.24</td>
<td>132 31.81</td>
<td>1 1</td>
<td></td>
</tr>
<tr>
<td>Workload</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>130 31.33</td>
<td>151 36.39</td>
<td>0.67 (0.33 to 1.36)* 0.48 (0.21 to 1.10)</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>64 15.42</td>
<td>70 16.86</td>
<td>1 1</td>
<td></td>
</tr>
</tbody>
</table>

Reference category=1.
*Significant in COR.
†Significant in AOR.
AOR, adjusted OR; COR, crude OR.
This might be due to the utilisation of technologies such as the electronic medical record and district health information system V.2 (DHIS2), the accessibility of required tools for documentation and health professionals’ good commitment to using DHIS2 data. Additionally, this variation might be due to the information difference, the time gap between studies, the high patient flow, the shortage of time and the workload of health professionals.

Health professionals who lack motivation were 59% less likely to have documentation practices when compared with those who had gained motivation. This finding is inconsistent with studies done in Ethiopia and Amhara regions. This might be due to professional encouragement, poor financial support, less opportunities for further educational development, poor infrastructures and low hospital management support.

Health professionals for whom standard documentation tools were available were 2.5 times more likely to document routine practices than those for whom standard documentation tools were not available. This finding is consistent with a study done in Australia, Tigray and Amhara regions. This might be due to familiarisation with standard documentation sheets, and the accessibility of integrated routine health information forms for recording and reporting.

Health professionals who had good knowledge of routine practice documentation were more likely to document their routine practice. This result is supported by studies done in Ethiopia, the USA and Australia. This might be due to health professionals’ familiarity with documentation guidelines and manual forms that improve health professionals’ knowledge of routine practice documentation. Additionally, the reason might be that health professionals understand the importance of documenting routine practice, the viability of reading materials, know that record-keeping is required for medicolegal issues and have good competency in the area of documentation. Moreover, spending on documentation courses may promote health professionals’ knowledge.

Health professionals who were trained in routine practice documentation were 4.2 times more likely to document routine practices than those who were not trained. This evidence is supported by studies done in Ethiopia and Iran. This might be due to training, which might enhance health professionals’ knowledge and motivation for documentation and provide team-based learning, intrapersonal skills sharing and consultation gained from colleagues. Plus, training may force health professionals to develop a positive attitude towards routine practice documentation.

Health professionals who used electronic systems for routine practice documentation were 2.2 times more likely to document their routine practices than those who used manual forms. This study is supported by a study done in Ethiopia and a study done about maintaining standard documentation sheets, and the accessibility of integrated routine health information forms for recording and reporting.

The capability of electronic systems to reduce the time spent documenting patient care. Additionally, record-keeping in the light of recent public inquiries, national interests in shifting from paper to digital storage of data, the capability of electronic health records to generate a complete record of an episode of care and the longitudinal nature of the electronic system might be possible reasons. Moreover, a need for real-time access to health information when and where it is needed might be reason why an electronic system could be more likely to be good for documentation.

**STRENGTH AND LIMITATION**

Since the data were collected at a specific time, social desirability bias may occur. Significant variables may have a temporal relationship. This study assesses the use of electronic systems for documentation as an independent variable. All health professionals were included, and documentation regarding education and counselling was assessed. Hence, the finding is unique as compared with previous studies. Moreover, the mean value was used as a cut-off point to determine level of health professionals’ routine practice documentation to consider the weighted average values.

**CONCLUSIONS**

In this study, health professionals have good routine practice documentation. Knowledge, training, using an electronic system, availability of standard documentation tools and lack of motivation are statistically significant factors for routine practice documentation. Health policy formulators and stakeholders give additional training to health professionals, and encourage them to use an electronic system for documentation. Stakeholders should improve health professionals’ knowledge and motivation of routine practice documentation. Additional high-quality studies are required on a similar topic.

**Contributors** AWD had made a substantial contribution in writing the conception, designing the study, analyzing the data, and discussing the findings. SYK and ATD were involved in drafting the manuscript and interpreting the results. AAC and HSN had revised the manuscript. MKH, AAS, ADW, and MOE all made significant contributions to revising the manuscript, and managing the data. All authors read and approved the final manuscript submission for publication.

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**Competing interests** None declared.

**Patient consent for publication** Not applicable.

**Ethics approval** Ethics approval was obtained from the Institutional Review Committee of the health science college of Mettu University with reference number ARcsu/271/24. Informed verbal and written consent from the study participant was obtained.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data availability statement** All the data generated and analysed during this study are included, in the table and text form, in this article. If required, the data will be available on request from the corresponding author. Not applicable.

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