Digital literacy and factors associated with digital technology use among auxiliary nurse midwives in Nepal

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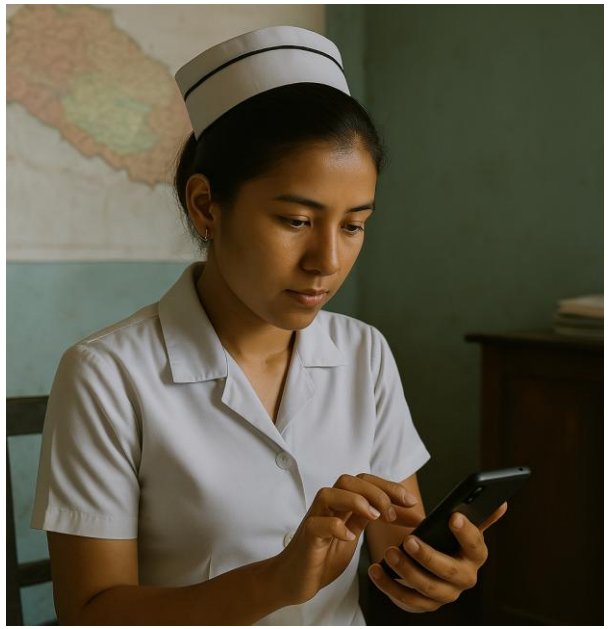
Introduction

- Digital health technologies (eHealth, mHealth, telemedicine, health information system) enhance healthcare delivery in resource-limited settings.
- Digital literacy is vital for technological integration in Nepal's healthcare system.
- Bridge healthcare gaps by extending services to remote areas with limited health workers in primary health facilities.
- Low digital literacy hinders effective use of digital health technologies.



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Objective

- To assess digital literacy and the factors associated with the use of digital technology among auxiliary nurse midwives (ANMs) in primary healthcare facilities in Nepal.

Methods

Study design: Cross-sectional online survey

Study setting: Primary healthcare facilities in Nepal

Study population: Auxiliary Nurse Midwives

Sample size: 172

Sampling recruitment strategy: Purposive sampling mobilizing health networks

Methods

Data collection:

- Self-administered survey (July to December, 2023)
- Adapted tool '*technology acceptance model' and 'unified theory of acceptance and use of technology model*'

Perception on usefulness of digital technologies

1. Using digital technology would enable me to accomplish tasks more quickly
2. Using digital technology in my job would improve my job performance
3. Using digital technology in my job would increase my productivity
4. Using digital technology would enhance my effectiveness on the job
5. Using digital technology would make it easier to do my job
6. I would find digital technology useful in my job

Perception on ease of use towards digital technologies

1. Learning to operate digital technology would be easy for me
2. I would find it easy to get information through digital technology to do what I want them to do
3. My interaction with digital technology would be clear and understandable
4. I would find digital technology to be flexible to interact with
5. It would be easy for me to become skillful at using digital technology
6. I would find digital technology easy to use

7-point Likert Scale

Attitude towards digital technology

1. Using digital technology is a good idea
2. Working with digital technology is fun
3. I like working with digital technology

Social influence towards the use of digital technology

1. People who influence my behavior think that I should use digital technology
2. People who are important to me think that I should use digital technology
3. The senior management of the organization has been helpful in the use of digital technology
4. In general, the organization has supported the use of digital technology

Facilitating conditions to use digital technology

1. I have the necessary resources to use digital technology
2. I have the knowledge necessary to use digital technology
3. Digital technologies are not compatible with other systems I use
4. A specific person (or group) is available for assistance with digital technology difficulties

Anxiety

1. I feel apprehensive (anxious) about using digital technology
2. It scares me to think that I could lose a lot of information using digital technology by hitting wrong key
3. I hesitate to use digital technology for fear of making mistakes I cannot correct
4. Digital technologies are somewhat intimidating (frightening) to me

Methods

Independent variable:

- Socio-demographic characteristics
- Perceived usefulness
- Perceived ease of use
- Attitudes
- Social influence
- Facilitating conditions
- Anxiety

Dependent variable:

- Frequency of using digital technology
- Skills in using digital technology
- Confidence in using digital technology
  - ✓ *Computer/laptops*
  - ✓ *Microsoft applications*
  - ✓ *Smart phones*
  - ✓ *Tablets/iPad*
  - ✓ *Email*
  - ✓ *Internet*
  - ✓ *Social media*

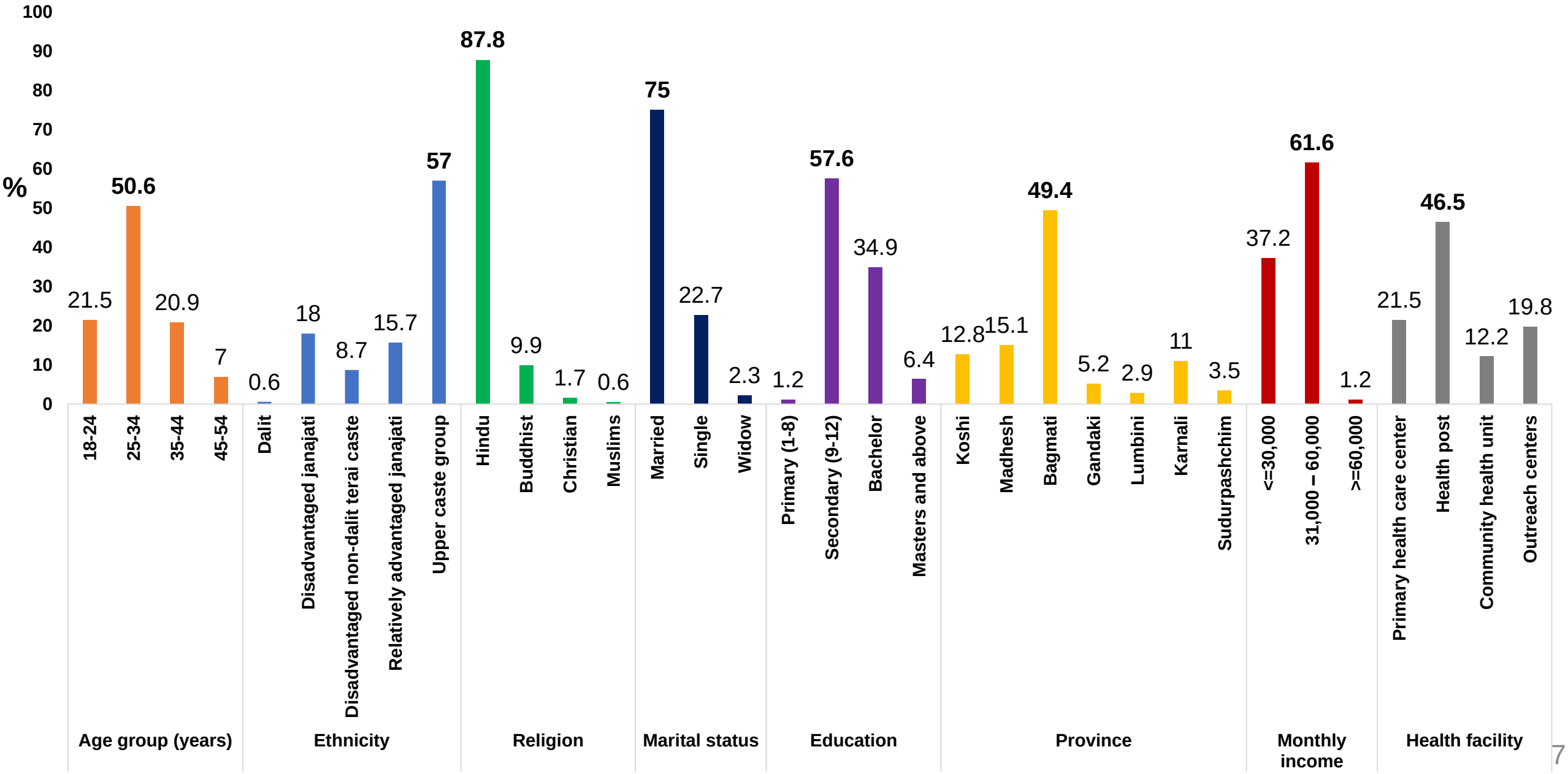
5-point Likert Scale

Data analysis:

- Descriptive statistics and multiple linear regression analysis using the R program

Result

Sociodemographic characteristics (n=172)



Result

Variables	Total Score	Mean ± SD
Perceived usefulness of digital technologies	42	30.2 ± 11.0
Perceived ease of use towards digital technologies	42	31.1 ± 9.9
Attitude towards digital technologies	21	16.6 ± 5.0
Social influence towards the use of digital technologies	28	19.7 ± 7.1
Facilitating conditions to use digital technologies	28	17.2 ± 6.1
Anxiety about the use of digital technologies	28	13.9 ± 6.2
Frequency of using digital technologies	35	25.6 ± 5.1
Skill in using digital technologies	35	25.1 ± 6.3
Confidence in using digital technologies	35	26.3 ± 6.2

Factors associated with frequency of using digital technology (multiple linear regression)

Variables	Beta	95% CI	p-value
Age			
Below 35 years	Ref		
35 years and above	-2.6	-4.2, -1.1	**0.001**
Ethnicity			
Other caste	Ref		
Upper caste	0.85	-0.67, 2.4	0.3
Education			
Secondary and below	Ref		
Bachelor and above	2	0.56, 3.5	**0.007**
Marital			
Married	Ref		
Others (single or widow)	2.1	0.37, 3.7	**0.017**
Facility			
Primary health care center	Ref		
Health post and other facilities	-1.7	-3.4, 0.01	0.051
Religion			
Hindu	Ref		
Others	-2.1	-4.5, 0.35	0.093
Composite usefulness	0	-0.09, 0.10	>0.9
Composite ease of use	0.06	-0.06, 0.18	0.3
Composite attitude	-0.46	-0.76, -0.16	**0.003**
Composite social influence	0.21	0.03, 0.39	**0.023**
Composite facilitating conditions	0.16	0.01, 0.31	**0.034**
Composite anxiety	-0.14	-0.26, -0.02	**0.024**

Key findings

- **Age**: 2.6× less likely (≥35 years)
- **Education**: 2× more likely (Bachelor+)
- **Marital status**: 2.1× more likely (other)
- 1↑ **Attitude** score = 0.46↓ frequency of using technology (Negative link)
- 1↑ **Social influence** score = 0.21↑ frequency of using technology (Positive link)
- 1↑ **Facilitating conditions** score = 0.16↑ frequency of using technology (Positive link)
- 1↑ **Anxiety** score = 0.14↓ frequency of using technology (Negative link)

Factors associated with skills in using digital technology (multiple linear regression)

Variables	Beta	95% CI	p-value
Age			
Below 35 years	Ref		
35 years and above	-3.3	-4.9, -1.7	**<0.001**
Ethnicity			
Other caste	Ref		
Upper caste	1.2	-0.26, 2.7	0.1
Education			
Secondary and below	Ref		
Bachelor and above	1.3	-0.17, 2.8	0.082
Marital			
Married	Ref		
Others (single or widow)	-0.82	-2.5, 0.85	0.3
Facility			
Primary health care center	Ref		
Health post and other facilities	-0.99	-2.7, 0.69	0.2
Religion			
Hindu	Ref		
Others	1.8	-0.58, 4.2	0.14
Composite usefulness	0.07	-0.02, 0.16	0.14
Composite ease of use	-0.06	-0.17, 0.06	0.3
Composite attitude	-0.03	-0.34, 0.27	0.8
Composite social influence	0.09	-0.09, 0.26	0.3
Composite facilitating conditions	-0.04	-0.18, 0.11	0.6
Composite anxiety	-0.13	-0.25, -0.01	**0.036**
Composite frequency of use	0.66	0.51, 0.81	**<0.001**

Key findings

- **Age**: 3.3× less likely (≥35 years)
- 1↑ **Anxiety** score = 0.31↓ skills in using technology (Negative link)
- 1↑ **Frequency of use** score = 0.66↑ skills in using technology (Positive link)

Factors associated with confidence in using digital technology (multiple linear regression)

Variable	Beta	95% CI	p-value
Age			
Below 35 years	Ref		
35 years and above	-1.6	-3.0, -0.25	**0.021**
Ethnicity			
Other caste	Ref		
Upper caste	0.1	-1.2, 1.2	>0.9
Education			
Secondary and below	Ref		
Bachelor and above	0.31	-0.90, 1.5	0.6
Marital			
Married	Ref		
Others (single or widow)	-1.1	-2.4, 0.29	0.12
Facility			
Primary health care center	Ref		
Health post and other facilities	-0.3	-1.7, 1.1	0.7
Religion			
Hindu	Ref		
Others	-1.8	-3.8, 0.10	0.063
Composite usefulness	-0.09	-0.16, -0.01	**0.024**
Composite ease	0.09	-0.01, 0.18	0.076
Composite attitude	-0.38	-0.63, -0.14	**0.003**
Composite social influence	0.17	0.02, 0.32	**0.023**
Composite facilitating conditions	0.19	0.07, 0.31	**0.003**
Composite anxiety	-0.21	-0.31, -0.11	**<0.001**
Composite frequency of use	0.52	0.37, 0.67	**<0.001**
Composite skill	0.28	0.15, 0.41	**<0.001**

Key findings

- **Age**: 1.6× less likely (≥35 years)
- 1↑ **Perceived usefulness** score = 0.09↓ confidence in using technology (Negative link)
- 1↑ **Attitude** score = 0.38↓ confidence in using technology (Negative link)
- 1↑ **Social influence** score = 0.17↑ confidence in using technology (Positive link)
- 1↑ **Facilitating conditions** score = 0.19↑ confidence in using technology (Positive link)
- 1↑ **Anxiety** score = 0.21↓ confidence in using technology (Negative link)
- 1↑ **Frequency of use** score = 0.52↑ confidence in using technology (Positive link)
- 1↑ **Skill** score = 0.28↑ confidence in using technology (Positive link)

Conclusion

- This study uncovers critical factors—age, education, marital status, attitudes, social influence, facilitating conditions and anxiety—that shape ANMs' use of digital health technologies.

- It highlights that consistent use and skill development are essential for building confidence and enhancing performance.

- Empowering health providers through tailored interventions and training will help them leverage technology more effectively, ultimately driving better health outcomes.

THANK YOU

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Biography

Ms. Karki is a public health researcher with over seven years of experience in advancing health outcomes through evidence-based research. She possesses comprehensive expertise in mixed-methods research, with a focus on maternal and child health, digital health interventions, and the prevention and control of non-communicable diseases. She also brings valuable experience in implementation science and has contributed to numerous field studies, including surveys and intervention evaluations across Nepal.