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EVALUATION OF STUDENTS' SATISFACTION WITH DIGITAL CONTINUITY OF CARE (COC) IN MIDWIFERY EDUCATION AND CLINICAL PRACTICE

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ABSTRACT

The integration of digital technology into midwifery education provides opportunities to support Continuity of Care (CoC) learning and clinical practice. This study aimed to evaluate students' satisfaction with the use of a digital CoC application in midwifery education and clinical practice. A quantitative descriptive-analytic study was conducted in 2026 involving 51 midwifery students who had used the digital CoC application during learning and clinical practice. Participants were selected using total sampling. Data were collected using a 10-item questionnaire assessing students' satisfaction with digital CoC, including student–patient interaction, therapeutic communication, health education, access to patient information, personalized care, and professional relationships. Data were analyzed descriptively using mean and standard deviation. All ten satisfaction indicators were classified as very high, with mean scores ranging from 4.25 ± 0.77 to 4.49 ± 0.61. The highest scores were observed for students' confidence in explaining patients' health conditions and satisfaction in providing health education, both with a mean of 4.49 ± 0.61. The lowest score concerned concentration during verbal interaction while using the application (4.25 ± 0.77), although it remained in the very-high category. These findings indicate that students demonstrated a highly positive evaluation of digital CoC as a complementary tool for supporting communication, health education, information management, and woman-centred continuity of care. Digital CoC has potential for integration into midwifery education and clinical learning, with appropriate guidance to ensure that technology supports rather than replaces interpersonal communication and clinical supervision.

Keywords: digital Continuity of Care; student satisfaction; midwifery education; clinical practice; mobile health

INTRODUCTION

High-quality midwifery education is essential for preparing competent midwives who are able to provide safe, effective, and woman-centred care. The quality of midwifery education has been recognized as an important determinant of the quality of maternity services and maternal and newborn health outcomes (Ige & Ngcobo, 2024; Smith et al., 2023). Midwives play a central role in providing care that responds to women's individual needs throughout the continuum of reproductive and maternity care, including preconception, pregnancy, childbirth, the postpartum period, and health education (Hunter et al., 2022; Janke et al., 2024). Midwifery care is also strongly associated with trust, empowerment, effective communication, and the development of therapeutic relationships between women and midwives (Baghini et al., 2023). Consequently, preparing midwifery students to provide continuous, coordinated, and woman-centred care should be an important component of contemporary midwifery education.

Continuity of Care (CoC) is an important model of midwifery practice because it enables women to receive coordinated care across different stages of the maternity continuum. Midwives have an integral role in facilitating collaboration among health professionals and supporting continuity of care during pregnancy, childbirth, and the postnatal period (Aune et al., 2021; Vermeulen et al., 2023). Exposure to CoC during undergraduate education can provide students with opportunities to integrate theoretical knowledge, clinical skills, communication, clinical reasoning, and professional values within real-world care experiences (Carter

et al., 2020; Moncrieff et al., 2021). Evidence suggests that CoC experiences can contribute to students' knowledge, clinical skills, confidence, and preparedness for professional practice after graduation (Arundell et al., 2024; Foster et al., 2021). Therefore, integrating CoC into midwifery education is increasingly considered an important strategy for developing graduates who are competent and prepared to deliver woman-centred care.

Despite its potential benefits, implementing CoC within midwifery education presents several challenges. Students may experience difficulties in maintaining continuity with women, coordinating care across different clinical settings, communicating with multiple healthcare professionals, documenting care, and adapting to dynamic clinical environments (Gamble et al., 2020). Clinical supervision and preceptorship are therefore essential components of CoC education. Consistent clinical guidance allows students to develop clinical competence, critical thinking, decision-making skills, and confidence while providing care to women under professional supervision (Thomas et al., 2023; Tickle et al., 2022). Furthermore, preceptors can provide timely and relevant feedback that strengthens students' learning experiences and supports the integration of theoretical knowledge with clinical practice (Thomas et al., 2023).

Documentation is another critical component of CoC because it provides evidence of care, supports communication among healthcare professionals, and facilitates monitoring of the continuity and quality of care provided. However, conventional paper-based documentation may create practical challenges for students, including repetitive documentation, potential loss of records, delayed data collection, incomplete submissions, and the substantial time required for reporting (Cooper et al., 2021). These challenges may interfere with students' ability to efficiently manage clinical information and may reduce the time available for direct interaction with women. Previous research has shown that students recognize both the limitations of paper-based documentation and the potential benefits of digital systems, particularly in terms of accessibility and the ability to retrieve patient information more efficiently (Peacock et al., 2022).

The rapid development of digital technology has created new opportunities for innovation in health professions education. Digital learning approaches, including mobile learning and blended learning, can provide flexible, accessible, and interactive learning experiences for students (Kumar et al., 2021; Murarane za & Mtshali, 2021). In midwifery education, digital technology can support students' engagement with learning materials, facilitate communication, and assist with the documentation of CoC experiences (Sandall et al., 2024; Susanti et al., 2022). Digital platforms may also provide students with easier access to clinical information and learning resources, enabling them to manage their learning and clinical activities more efficiently (Cooper et al., 2021; Peacock et al., 2022). Therefore, integrating digital technology into CoC education may represent a promising strategy for bridging classroom learning and clinical practice.

The application of digital CoC has the potential to provide an integrated learning environment that supports students throughout their educational and clinical experiences. A digital CoC platform may facilitate the documentation of maternal care, monitoring of care continuity, access to relevant information, and reflection on students' clinical experiences. Such an approach is consistent with the growing need for health professionals to develop digital competencies and adapt to technology-supported healthcare environments. However, the effectiveness of digital learning technology should not be evaluated solely based on its technical functionality. Students' perceptions, experiences, acceptance, and satisfaction are also important indicators of whether a digital learning intervention is appropriate and sustainable within an educational context.

Student satisfaction is particularly important because it reflects students' perceptions of the extent to which a learning intervention meets their educational needs and supports their learning experiences. Satisfaction may be influenced by several factors, including perceived usefulness, ease of use, accessibility, quality of learning support, and the extent to which technology facilitates clinical learning and practice. A digital platform that is technically functional but difficult to use or poorly aligned with students' learning needs may have limited educational value. Conversely, digital technology that is perceived as useful, accessible, easy to use, and relevant to clinical practice may encourage student engagement and continued utilization.

Previous studies have established the importance of CoC experiences in midwifery education and have highlighted the potential of digital technology to support learning and clinical documentation (Carter et al., 2020; Kumar et al., 2021; Moncrieff et al., 2021; Sandall et al., 2024). However, there remains a need for further evidence concerning students' satisfaction with digital CoC when it is implemented across both educational and clinical practice contexts. Understanding students' satisfaction is important not only for evaluating the acceptability of digital CoC but also for identifying areas requiring improvement before broader implementation. Evidence from students can provide valuable information for educators and institutions in designing technology-enhanced learning strategies that are responsive to students' needs and aligned with contemporary midwifery competencies.

Therefore, evaluating student satisfaction is an important step in determining the feasibility and educational value of digital CoC in midwifery education and clinical practice. This study aims to evaluate student satisfaction with the use of digital Continuity of Care (CoC) in midwifery education and clinical practice. The findings are expected to provide empirical evidence regarding students' experiences and perceptions of digital CoC and contribute to the development of effective technology-enhanced approaches for integrating CoC learning with clinical practice in midwifery education.

MATERIALS AND METHODS

Research Design and Participants

This study employed a quantitative descriptive-analytic design to evaluate students' satisfaction with the use of a digital Continuity of Care (CoC) application in midwifery education and clinical practice. The study was conducted in 2026 and involved 51 midwifery students who had used the digital CoC application during their learning and clinical practice activities.

The participants were recruited using a total sampling technique, in which all eligible students who had used the digital CoC application and agreed to participate were included in the study. The inclusion criteria were midwifery students who had experience using the digital CoC application during learning and/or clinical practice and were willing to complete the questionnaire. Students who had not used the application were excluded.

Digital Continuity of Care Application

The digital CoC application was implemented as a technology-supported medium for students during learning and clinical practice. The application was designed to support the continuity of midwifery care by facilitating digital documentation, access to clinical information, monitoring of patient information, and students' evaluation of the care they provided.

The implementation involved a transition from conventional paper-based documentation to digital documentation. Students used the application to support their understanding of the CoC pathway, integrate theoretical knowledge with clinical practice, access clinical information, and support their clinical decision-making and preparation for professional practice.

The application was also intended to support woman-centred care by helping students maintain relevant patient information and provide more structured health education and communication during clinical encounters.

Data Collection Instrument

Data were collected using a structured student questionnaire developed to evaluate student satisfaction following the use of the digital CoC application.

Demographic and technology-related characteristics included age, education level, type of device used, daily smartphone usage, prior experience with mobile health (mHealth), internet access, previous documentation methods, clinical placement location, and prior experience handling CoC cases.

The questionnaire, consisting of 10 statements, utilized a five-point Likert scale: 5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, and 1 = strongly disagree.

The instrument employed was a respondent satisfaction questionnaire regarding the use of the digital CoC application; it comprised 10 statements assessing students' perceptions of the digital CoC's impact on verbal communication, confidence in explaining patient conditions, therapeutic communication, health education, patient trust, personalized care, interaction quality, communication support, timely information delivery, and the overall professional relationship with the patient.

Data Collection Procedure

Data collection was conducted after the 51 students had used the digital CoC application during their learning and clinical practice activities. Before completing the questionnaire, students were informed about the purpose and procedures of the study and were asked to provide informed consent.

After completing their experience with the digital CoC application, each participant independently completed the questionnaire based on their actual experience. The questionnaire was administered after application use to ensure that students' responses reflected their direct experience with the digital CoC platform.

Data Analysis

Data were analyzed using descriptive statistics. Frequencies and percentages were used to describe participant characteristics, while means and standard deviations were calculated for the 10 satisfaction items.

Each item was scored using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). An overall mean satisfaction score was calculated, with higher scores indicating higher student satisfaction. Mean scores were categorized as very low (1.00–1.80), low (1.81–2.60), moderate (2.61–3.40), high (3.41–4.20), and very high (4.21–5.00).

Ethical Considerations

Participation was voluntary, and participants were informed about the purpose and procedures of the study before completing the questionnaire. Informed consent was obtained from all participants. Participants were informed that their participation or non-participation would not affect their academic evaluation. Data were handled confidentially and were analyzed in aggregate form to protect participants' privacy.

RESULTS AND DISCUSSION

3.1 Characteristics of Respondents

A total of 51 midwifery students participated in this study. The characteristics of the respondents are presented in Table 1.

Table 1. Characteristics of Respondents (n = 51)

Characteristics	n	%
Age		
18 years	1	2.0
19 years	21	41.2
20 years	25	49.0
21 years	4	7.8
Device used		
Android	37	72.5
iOS	13	25.5
Tablet	1	2.0
Daily smartphone use		
<2 hours	1	2.0
3–4 hours	24	47.1
>5 hours	26	51.0
Previous mHealth experience		
No	24	47.1
Yes	27	52.9
Internet access		
Good	51	100.0
Previous documentation method		
100% paper-based	38	74.5
Mixed	13	25.5
Clinical practice setting		

Hospital	51	100.0
Previous CoC case management		
Never	31	60.8
Yes	20	39.2

The respondents were predominantly 20 years old (49.0%), followed by those aged 19 years (41.2%). Most respondents used Android devices (72.5%), and 51.0% reported using smartphones for more than five hours per day. More than half of the respondents (52.9%) had previous experience with mobile health (mHealth) applications, while all respondents reported good internet access.

Regarding previous documentation practices, 74.5% of students had previously used fully paper-based documentation, whereas 25.5% had used a mixed documentation system. All respondents conducted their clinical practice in hospitals. Notably, 60.8% of students had never previously managed a Continuity of Care (CoC) case.

3.2 Students' Satisfaction with Digital Continuity of Care

Student satisfaction with the use of digital Continuity of Care (CoC) was assessed using 10 statements on a five-point Likert scale. The results are presented in Table 2.

Table 2. Students' Satisfaction with the Use of Digital CoC in Learning and Clinical Practice (n = 51)

No.	Satisfaction Indicator	Mean ± SD	Category
1	The use of the mHealth application in front of patients does not interfere with my concentration during verbal interaction.	4.25 ± 0.77	Very high
2	Data available in the application help me explain patients' health conditions with greater confidence.	4.49 ± 0.61	Very high
3	The application helps me conduct more structured therapeutic communication with patients.	4.45 ± 0.67	Very high
4	The use of digital media increases my satisfaction in providing health education to patients.	4.49 ± 0.61	Very high
5	Patients appear more confident in my explanations when I show development data or graphs through the application.	4.39 ± 0.60	Very high
6	The mHealth application helps me remember details of patients' histories, making care more personalized (Woman-Centered Care).	4.45 ± 0.64	Very high
7	I feel that the quality of my interaction with patients has improved since using digital CoC.	4.39 ± 0.63	Very high
8	Reminder features or communication guidance in the application are helpful when interacting with patients who have communication difficulties.	4.41 ± 0.61	Very high
9	I am satisfied because I can provide accurate and timely information to patients with the assistance of the application.	4.45 ± 0.61	Very high
10	Overall, the transition to digital media has a positive impact on my professional relationship with patients.	4.45 ± 0.64	Very high

All ten satisfaction indicators were classified as very high, with mean scores ranging from 4.25 ± 0.77 to 4.49 ± 0.61. The highest mean scores were observed for students' confidence in explaining patients' health conditions and their satisfaction in providing health education, both with a mean of 4.49 ± 0.61. The lowest mean score was observed for the statement concerning concentration during verbal interaction, with a mean of 4.25 ± 0.77.

These findings indicate that students generally responded very positively to the use of digital CoC in learning and clinical practice. The high scores across all indicators suggest that students perceived the application as useful for supporting communication, health education, access to patient information, and professional interaction.

3.3 Digital CoC and Student–Patient Interaction

The findings demonstrate a highly positive student evaluation of digital CoC in relation to student–patient interaction. The highest-rated indicators were increased confidence in explaining patients' health conditions and increased satisfaction in providing health education, both scoring 4.49 ± 0.61.

These findings suggest that access to structured information through the digital CoC application may support students in communicating clinical information and providing health education. The availability of patient-related information may enable students to prepare explanations more confidently and provide information in a more timely and organized manner.

This finding is relevant to woman-centred midwifery care. Janke et al. (2024) emphasized the importance of understanding women's needs and expectations in midwifery care, while Aune et al. (2021) highlighted the importance of relational continuity in midwifery care. Therefore, digital CoC should be positioned as a supporting tool that facilitates information access and continuity while maintaining the interpersonal relationship between students and women.

The lowest score was observed for the statement concerning whether use of the application in front of patients interfered with students' concentration during verbal interaction (4.25 ± 0.77). Although this indicator remained within the very-high category, it highlights an important consideration regarding digital technology use during patient encounters. Students should be encouraged to maintain eye contact, active listening, empathy, and therapeutic communication while accessing digital information.

3.4 Digital CoC as a Learning and Clinical Practice Support

The findings also indicate that digital CoC may serve as a complementary support for students during clinical learning. This is particularly relevant because 60.8% of students had never previously managed a CoC case, while 74.5% had previously used fully paper-based documentation.

Despite limited previous CoC experience, all satisfaction indicators were categorized as very high. This suggests that students were able to accept and utilize digital CoC as a supporting medium during their educational and clinical activities. The application may help students organize patient information, remember relevant clinical details, and provide timely information to patients.

These findings are consistent with Carter et al. (2020), who emphasized the importance of pre-registration education in preparing students for continuity of midwifery care. Moncrieff et al. (2021) similarly highlighted the importance of continuity experiences in developing students' knowledge, confidence, and readiness for professional practice.

The findings are also relevant to the Indonesian context. Susanti et al. (2022) highlighted the potential of mobile health development to integrate midwives' competencies and service needs within continuity of midwifery care in Indonesia. The present study extends this perspective by demonstrating that students reported very high satisfaction with digital CoC in an educational and clinical practice setting.

However, these findings should be interpreted specifically as evidence of student satisfaction, rather than direct evidence of improved clinical competence. The present study did not include a control group or a pre–post assessment of clinical competence. Therefore, further comparative and longitudinal studies are needed to

determine whether the use of digital CoC leads to measurable improvements in clinical competency, documentation quality, or patient outcomes.

3.5 Implications for Midwifery Education

The findings have important implications for contemporary midwifery education. Digital CoC has potential as a complementary learning tool to support clinical documentation, access to patient information, therapeutic communication, health education, and continuity of care.

The high score for personalized care (4.45 ± 0.64) indicates that students perceived the application as useful in remembering patient history and supporting individualized care. Similarly, the high score for therapeutic communication (4.45 ± 0.67) suggests that digital CoC may help students organize communication with patients.

Nevertheless, digital CoC should not replace direct clinical supervision or interpersonal midwifery care. Arundell et al. (2024) emphasized the role of midwives in supporting students' knowledge and skill development, while Thomas et al. (2023) highlighted the importance of preceptor experiences during undergraduate midwifery placements.

Therefore, digital CoC should be integrated with structured learning, clinical supervision, preceptorship, and guidance on professional digital communication. The technology should strengthen rather than replace the relational foundations of midwifery care.

Overall, the results demonstrate that students reported very high satisfaction across all 10 indicators of digital CoC use. The consistently high scores support the potential integration of digital CoC into midwifery education and clinical practice, particularly as a complementary tool for communication, health education, information management, and woman-centred continuity of care.

CONCLUSION

Digital Continuity of Care (CoC) demonstrated a very high level of student satisfaction among 51 midwifery students, with all ten satisfaction indicators classified as very high. The findings support the potential integration of digital CoC as a complementary tool in midwifery education and clinical practice to facilitate communication, health education, information management, and woman-centred continuity of care. Further studies using comparative and longitudinal designs are recommended to evaluate its effects on clinical competence and patient outcomes.

CONFLICT OF INTEREST

The authors declare that they have no financial, personal, or professional conflicts of interest that could have influenced the conduct, analysis, interpretation, or publication of this study.

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