



Assessment of the psychometric properties of the italian version of the midwifery student evaluation of practice (MIDSTEP-IT): A validity and reliability study

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ABSTRACT

Background: Clinical learning is a crucial component of the midwifery education program, necessary to support the acquisition of professional abilities through the integration of theoretical and practical learning experiences. Evaluating Bachelor of Midwifery students' perception of their clinical learning experiences is important to improve midwifery educational programs.

Aim: the objective of this study was the translation, cultural adaptation, and validation of the Midwifery Student Evaluation of Practice (MidSTEP) in a group of Italian midwives' students.

Methods: "Translation and Cultural Adaptation of Patient Reported Outcomes Measures - Principles of Good Practice" guidelines were adopted to achieve the MidSTEP Italian version. Exploratory Factor Analysis was performed. Internal consistency for reliability was assessed using Cronbach's alpha reliability coefficient (α) and Omega coefficient (ω), while Intraclass Correlation Coefficients (ICC) were used to determine if the tool was stable over time.

Findings: The Italian version of MidSTEP (MidSTEP-IT) has good internal consistency: considering the Clinical Learning Environment Scale, Cronbach's α was 0.839 (for the "Skill Development" subscale α was equal to 0.739 and for the "Philosophy of Midwifery Practice" subscale α was equal to 0.825) while considering the Midwifery Preceptor Scale, Cronbach's α was 0.920. Factor analysis does not fully reflect the factorial analysis of the original version.

Conclusion: The MidSTEP-IT had been proven to be a valid and reliable tool, easy and fast to administer, that could be effectively helpful for investigating and measuring the Italian midwifery students' perception of their clinical learning experiences, according to the setting and impact of mentors on their professional growth. It is an innovative tool, valuable in both clinical practice and research to highlight the importance of encouraging a supportive clinical learning environment and an efficient preceptorship.

Introduction

Midwifery is associated with the more effective use of resources and improved outcomes of the mother-newborn relationship when provided by midwives who were educated, trained, licensed, and regulated. (Renfrew et al., 2014; World Health Organization, 2019)

Pre-registration midwifery education is an important step for

midwifery students to mature their fundamental professional knowledge, skills, and judgement essential for their professional practice. (Saukkoriipi et al., 2020; Gilmour et al., 2013; Bajracharya, 2021)

The midwifery curriculum includes different elements, both theoretical and practical, with a minimum of 40 % of theory and 50 % of practice in clinical settings. The midwifery program must ensure students, a suitable hands-on experience of midwifery in a different range

^{*}School of Medicine and Surgery, University of Milano-Bicocca, Via Cadore 48, 20,900 Monza, Italy ^{**}Being a validity and reliability study assessing the psychometric properties of a tool, it was needed to add specific methodological references and papers about similar researches conducted in other settings.

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of clinical situations aided by clinical tutors, who can help them progress with their learning and, in addition, assess them (Bajracharya, 2021; Marshall, 2017; Zhou and Lu, 2018).

Clinical learning is a crucial component of the midwifery education program, necessary to support the acquisition of professional abilities/competencies through the integration of different learning experiences, theoretical and practical (Ironsides et al., 2014; Jonsén et al., 2013; Modarres et al., 2022).

While attending clinical learning, students should have the chance to exercise clinical skills, critical discerning, ethical decision-making, adept communication, and translate theory into practice (European Council, 2013; Pitkänen et al., 2018).

The clinical learning environment is a complex and constantly evolving reality (Friendly and Roos, 2008), including sanatoria, private hospitals, and simulation laboratories (Kirkman, 2013): a fundamental request is that this setting be a true clinical area where students can train and develop both their clinical and professional skills with the right dyads of women and babies.

The clinical learning environment can be influenced by a lot of different elements such as the kind of mentor, the quality of feedback provided to the students, the setting, and the students themselves (Mwale and Kalawa, 2016). This means that the quality of clinical teaching to students depends importantly on the efficiency and effectiveness of the tutor they had to deal with in the clinical setting (Upton et al., 2014; Walker et al., 2013; Yilmaz and Aktaş, 2023). A good relationship between the supervisor and the students results in a positive experience of clinical learning (Brunstad and Hjälmhult, 2014). Overall a positive preceptor-student relationship decreased hierarchical differences, increased student confidence and attitudes towards learning, and reflected the midwifery partnership with women during the continuity of care relationship (Sheehan et al., 2022). However, the support of mentors and preceptors focused on supporting midwifery students who learn in clinical practice has been demonstrated by literature as indicating both positive and negative experiences. The connection between a student midwife and their preceptor can have an impact on learning involvement, and in creating self-confident future professionals (Gray, 2018).

All these aspects (non supportive learning environment (Baraz et al., 2015), inadequate clinical supervision (Rajeswaran, 2016), and problems in transferring academic knowledge into clinical practice (Panda et al., 2021)) should be considered as challenging elements which impact students' learning in the clinical learning environment.

The comprehension of these elements is fundamental to taking correct actions to overcome the challenge. This will support improving clearness and consistency in learning and making clinical learning a good experience for every student on the path to becoming a capable midwife.

The student's perception of individual gratification in the clinical learning environment is fundamental for their educational success.

For the same reasons reported above, it is important to evaluate Midwifery students' perception of their clinical learning experiences. Griffith et al. (2020) developed the Midwifery Student Evaluation of Practice (MidSTEP), a valid and reliable tool effective for measuring midwifery students' perceptions of their clinical learning experiences, according to the setting and impact of mentors on their professional growth (Gamble et al., 2022).

The tool is composed of two scales that reliably measure midwifery students' perceptions of how the clinical learning environment helps in developing their skills and mirrors midwifery thinking. Its different items reproduce the feeling of competence, goals, resourcefulness, connectedness, and self-identification of students as midwives, which can be collected considering the setting and influence of mentors on their professional growth. The Turkish version is available (Aktaş and Yilmaz, 2024). Until today, in Italy, there is no such tool, making it hard to assess the perception of clinical learning experiences during educational programs.

The aim of this study was the translation, cultural adaptation, and validation of the MidSTEP in a group of Italian midwifery students. The Italian version of the scale could both give data about important material to tutors and mentors on optimising clinical learning and allow them to compare results over time at single practice locations, among locations, and programs.

Methods

Participants

Bachelor Midwifery students undertaking their second and third year during 2021 ($n = 87$) at the University of Milan-Bicocca were invited to take part in the study.

The inclusion criteria were the ability to give informed consent and being a student midwife attending the second and third years at the study site. The exclusion criteria were qualified midwives; student midwives who discontinued their undergraduate midwifery programme and student midwives on study interruption. A recruitment email was forwarded to all potential participants, including a Participant Information Sheet ensuring that students had sufficient time to consider participation. Students who wanted to participate in the study were invited to complete the online questionnaire via a web link.

A member of the research team was available to reply to any question, offer eventually needed additional information on the project, and evaluate a possible involvement. It was decided to use open-source survey software to administer the study because it allowed emailing each participant a one-time use link, plus the anonymous collection of replies. Another researcher, not related to the BMid program, had access to and examined data. In order to evaluate validity and reliability, respondents must have a minimum of 10 for each element of the subscale with the most items (Beaton et al., 2000). Since the Clinical scale of the learning environment includes a group of 16 items, divided into two sub-scales with 8 items each, a sample size of 80 students is considered appropriate.

The test-retest reliability was tested by sending randomly to 5 students, four days after the completion of the survey contained in the first link, a second email containing a new link to a perfect identical study. (Bolarinwa, 2015).

Ethical considerations

The study was undertaken under ethical standards from The Code of Ethics of the World American Association (Declaration of Helsinki, 1964) and its later amendments. Ethical approval was obtained from the research site's Ethics Committee before commencing the study (Approval number: 0,080,930/21).

Study design

This work was implemented by a group of researchers from Milano-Bicocca University (Italy). The involved team has previous experience in scale validation (Nespoli et al., 2018, 2021; Fumagalli et al., 2022). After receiving consent from the developers of the original instrument, the scale was translated from English to Italian following the "Translation and Cultural Adaptation of Patient Reported Outcomes Measures - Principles of Good Practice" guidelines (Wild et al., 2005). The original version was translated into three independent Italian translations thanks to three English-speaking health professionals. The different translations were then summarised by an independent mother tongue who was not previously involved. Likewise, a group of three Italian translators who were not previously involved had translated the form back into the original language. At this point, the two versions (original and back-translated) of the MidSTEP were compared. A group of 5 Italian and skilled midwives had to adjust the translated version of the instrument to Italian culture. Supplementary material 1 reported the results of

the Harmonization phase, including some amends and changes needed to solve issues regarding spelling, grammatic, or others, and to help with the scores and the final statistics interpretation. This procedure ensures conceptual equivalence between the source and the target language versions and between all translations, providing an additional quality control step.

Instrument with validity and reliability

The MidSTEP is a tool intended to measure midwifery students' perceptions of their clinical learning experiences. It mirrors their feeling of competence, goals, resourcefulness, connectedness, and self-identification as midwives, which can be collected considering the setting and influence of mentors on their professional growth (Griffiths et al., 2020).

The Midwifery Student Evaluation of Practice tool (MidSTEP) consists of two scales: the Clinical Learning Environment Scale and the Impact of the Midwifery Preceptor Scale. Each scale includes two subscales that measure midwifery students' perceptions of how the clinical learning environment helps in developing their skills and indicates a midwifery attitude (Griffiths et al., 2020).

The Clinical Learning Environment Scale includes a group of 16 items, separated into two more easily interpretable sub-scales: Skill Development (8 items) and Philosophy of Midwifery Practice (8 items).

The Impact of the Midwifery Preceptor Scale includes 10 items, separated into two more easily interpretable sub-scales: Skill Development (5 items) and Philosophy of Midwifery Practice (5 items).

For each item, a Likert response scale (4 points, from 1 = strongly disagree to 4 = strongly agree) was used. The Clinical Learning Environment Scale and the Impact of the Midwifery Preceptor Scale could be used distinctly or in combination, depending on the goal of the assessment.

Data analysis

Before conducting all the necessary analysis, it was decided to carry out Bartlett's Test of Sphericity and the KMO test. Exploratory Factor Analysis based on Parallel Analysis was performed using Jamovi 2.3.28.0, to evaluate the factorial structure of the two scales of the MidSTEP tool – the Clinical Learning Environment Scale and the Impact of the Midwifery Preceptor Scale. Considering the Exploratory Factor Analysis, the criteria of primary loading $>|.30|$ had been used to select the items.

Scales and subscales Internal consistency for reliability was assessed using Cronbach's alpha reliability coefficient (α), with values above 0.7 considered acceptable (Nunnally and Bernstein, 1994), and Omega coefficient (ω) (McDonald, 1978).

Intraclass Correlation Coefficients (ICC) were used to determine if the tool was stable over time (Barton and Peat, 2014). The two-way mixed effects model using absolute agreement definition in SPSS (Version 27.0) was calculated for each scale and subscale.

Results

Characteristics of participants

An amount of 87 survey forms were received (96.7 % response rate). All the participants were female. The age of participants is from 20 to 45 (Mean = 21.87, SD = 3.44). The sample was regularly spread across the different years, with 29 students (33.3 %) attending Year 2, 35 students (40.3 %) attending Year 3, and 23 (26.4 %) graduating/graduated students. Seventy students (80.5 %) reported having a dedicated professional preceptor, while the remaining 17 (19.5 %) reported having a fixed shift without a dedicated preceptor. The average duration of the preceptorship ranged from 2 to 12 (Mean = 5.84, SD = 2.045). Students were placed in a variety of settings. (Table 1).

Table 1
Participant characteristics.

Characteristics	Number (n = 87)	Percentage
Age of participants		
20–25	83	95.4
26–30	1	1.2
> 30	3	3.4
Year Level		
Second Year	29	33.3
Third Year	35	40.3
Graduating/Graduated	23	26.4
Preceptorship model		
Dedicated	70	80.5
Non-dedicated	17	19.5
Preceptorship duration (weeks)		
2 - 4	18	20.7
5 - 6	48	55.1
7 - 9	16	18.4
10 - 12	5	5.8
Setting		
Community	8	9.2
Gynecological and Obstetrical Emergency Room	1	1.1
Operating Theater	1	1.1
Delivery Room	36	41.4
Gynecological Unit	2	2.3
Neonatal Unit	2	2.3
Maternity Unit	30	34.5
Neonatal Intensive Care Unit	7	8.1

Exploratory factor analysis

The original version of the Clinical Learning Environment Scale (Griffith et al., 2020) was composed of two subscales. The first one was "Skill Development", which included 8 items and the second one was the "Philosophy of Midwifery Practice", which originally included 8 items. Before conducting all the necessary analysis, it was decided to carry out Bartlett's Test of Sphericity and the KMO test to support the factorability of the items: in all the sections the KMO value was higher than 0.6 (global: 0.792), and Bartlett's Test of Sphericity was significant (X^2 : 486, df: 120, $p < .001$). Therefore, the variables and data were suitable for factor analysis. An Exploratory Factor Analysis (EFA) based on Parallel Analysis was conducted. It was found that some items (7, 8, 13, 17, and 18) saturated well on both factors, therefore an Oblimin rotation was applied. After the application of the Oblimin rotation, the results indicated a two-factor solution, that partially differed from the original one: "Skill Development" included 6 items (1, 2, 5, 7, 8, 18), and "Philosophy of Midwifery Practice" included 8 items (9, 11, 12, 13, 14, 15, 16, 17) (Table 2, Fig. 1). The MidSTEP's Clinical Learning Environment scale explained the 36.6 % of the overall variance. Specifically, the first dimension explained the 22.9 % of the variance while the second the 13.7 %.

The original version of the Midwifery Preceptor Scale (Griffith et al., 2020) was composed of two subscales. The first one is "Skill Development", which originally included 5 items and the second one is the "Philosophy of Midwifery Practice", which originally included 5 items. Before conducting all the necessary analysis, it was decided to carry out Bartlett's Test of Sphericity and the KMO test to support the factorability of the items: in all the sections the KMO value was above 0.8 (global 0.869), and Bartlett's Test of Sphericity was significant (X^2 : 561, df: 45, $p < .001$). An Exploratory Factor Analysis (EFA) based on Parallel Analysis was conducted. The results indicated a one-factor solution that included all 10 items (Table 3, Fig.1). The MidSTEP's Midwifery Preceptor Scale explained the 55 % of the variance.

Scale statistics and reliability

Scales and subscales Internal consistency for reliability was assessed using Cronbach's alpha reliability coefficient (α) and Omega coefficient (ω). Considering the Clinical Learning Environment Scale, Cronbach's α

Table 2
Clinical Learning Environment Scale: Items and Primary loadings.

Item	Primary Loading	
	Skill Development	Philosophy of Midwifery Practice
1. Appropriate clinical experience to support my learning of midwifery knowledge	0.332	
2. Experiences that enable me to work to my full scope of practice appropriate to my year level	0.361	
5. Staff that understand the requirements and capabilities of each year level	0.514	
7. Opportunities for me to practice self-care strategies (e.g. taking breaks, leaving shift when fatigued)	0.723	
8. A self-directed approach to my learning	0.554	
9. Experiences that reinforce the positive influence I can have on the health and well-being of women and their families		0.783
11. Experiences that prepare me to be a change agent for maternity services reform		0.544
12. Experiences that align with my own midwifery philosophy		0.573
13. Experiences that promote the importance of midwifery continuity of care		0.496
14. Experiences that enable me to develop new insights into the complexity of care that a midwife can offer		0.639
15. Experiences that help me discover the midwife I want to be		0.595
16. Experiences that support my professional growth as a midwife		0.627
17. Experiences that show the importance of the midwife in supporting women to have a positive birth experience		0.709
18. Opportunities to voice any concerns I have regarding my clinical placement	0.562	

was 0.839 and McDonald's ω was 0.857. Regarding its 2 subscales, for the "Skill Development" there was an α equal to 0.739 and a ω equal to 0.744, and for the "Philosophy of Midwifery Practice" an α equal to 0.825 and a ω equal to 0.842 had been found. The test-retest reliability of the scale and subscales was defined thanks to intraclass correlation coefficients (ICC). The average ICC value for the Clinical Learning Environment Scale was 0.987 indicating very good temporal stability, while the average ICC values for the "Skill Development" and "Philosophy of Midwifery Practice" subscales were, respectively, 0.982 and 0.975 indicating very good values.

Considering the Midwifery Preceptor Scale, Cronbach's α was 0.920 and McDonald's ω was 0.923. Intraclass Correlation Coefficients (ICC) were used to determine if the tool was stable over time. The average ICC value for the Midwifery Preceptor Scale was 0.966 indicating very good temporal stability. (Table 4)

Discussion

Our study, through a rigorous process of translation, adaptation and validation, provides a reliable tool to assess the midwifery students' clinical learning experience in the Italian context. The availability of the MidStep-IT allows the monitoring and optimisation of the clinical learning experience during the education program to support the acquisition of professional abilities/competencies through the integration of different learning experiences, theoretical and practical (Modarres et al., 2022).

The Italian version of the MidSTEP tool simply replicated the original version with some major differences: in the Clinical Learning Environment Scale, the "Skill Development" subscale included different items (some were not included) and the Impact of the Midwifery Preceptor

Scale was unidimensional. Specifically, regarding the changes affecting the "Skill Development" subscale, item 3 ("Opportunities to achieve the mandatory clinical requirements") and item 4 ("A culture that facilitates evidence-based midwifery practice") were not included in the final Italian version and this could be explained considering specific organisational and cultural issues. The achievement of the mandatory clinical requirements is guaranteed at two different levels: national and local. At a national level, a programmatic national system (Ministerial Decree n° 270, 2004) defines the Midwifery Bachelor Course requirements including the minimal criteria to identify clinical settings (i.e., number of births per year, availability of dedicated midwifery units and services, etc.). At a local level, each midwifery student received an individual clinical learning program based on the course's year and practical skills achieved.

Midwifery students found a hard time shifting theoretical knowledge into clinical practice (Panda et al., 2021). The gap between theoretical knowledge of evidence-based practice and day-to-day clinical practice is one of the major concerns in midwifery education (Hall-Lord et al., 2013).

According to the literature, the present analysis suggested removing the item related to "A culture that facilitates evidence-based midwifery practice" (Item 4) from the "Skill Development" subscale of the Clinical Learning Environment Scale. This misalignment between theory and practice could probably derive from the long time needed for the research findings to be translated into clinical practice (Curtis et al., 2017).

Clinical learning environments are crucial for midwifery student experiences, encouraging knowledge development, self-directed learning, and providing opportunities across the full scope of midwifery practice (Griffiths et al., 2020). Using this scale, students' clinical learning experience can be explored and barriers and facilitators can be identified. The analysis of reliable evaluation data regarding the quality of clinical learning experiences should be implemented to improve the quality of the clinical learning environment. The second scale of the MidSTEP-IT is the "Impact of Midwifery Preceptor" one. The findings of the present study strongly differed from the original ones: a two-factor solution was not sustainable and the new results supported a one-factor solution.

It has to be considered that in midwifery's world, it is hard to separate the communication of the philosophy of care from its practical translation into actions. This is mainly because skills development and philosophy of care are inherently connected. It is very well understandable why the present findings suggest these two dimensions to be better represented as a one-factor solution.

As suggested by Mauri et al. (2020) professional skills are the first relevant area for being an efficient preceptor. Mentors have to update constantly so that students will not be in a position to perceive discrepancies between theory and practice.

Our results highlighted the multi-faceted role of the preceptor. The mentor becomes a facilitator of not only their skill development as they pass it onto their students but also in their model of the philosophy of care in midwifery. In this way the preceptor plays a pivotal role in the confidence and competence of the student (Ball et al., 2022). Considering the present findings and the ones of the original version, two could be suggestions. The first one would be to use the two scales in conjunction with each other. Alternatively, it could be the case to assess the psychometric properties of a revised MidSTEP Italian Version tool, developing a single two-dimensional scale ("Skill Development" and "Philosophy of Midwifery practice").

Strengths and limitations

This paper is the first Italian study that provides a valid and reliable tool, easy and fast to administer, that could be effectively helpful for investigating and measuring the Italian midwifery students' perceptions of their clinical learning experiences.

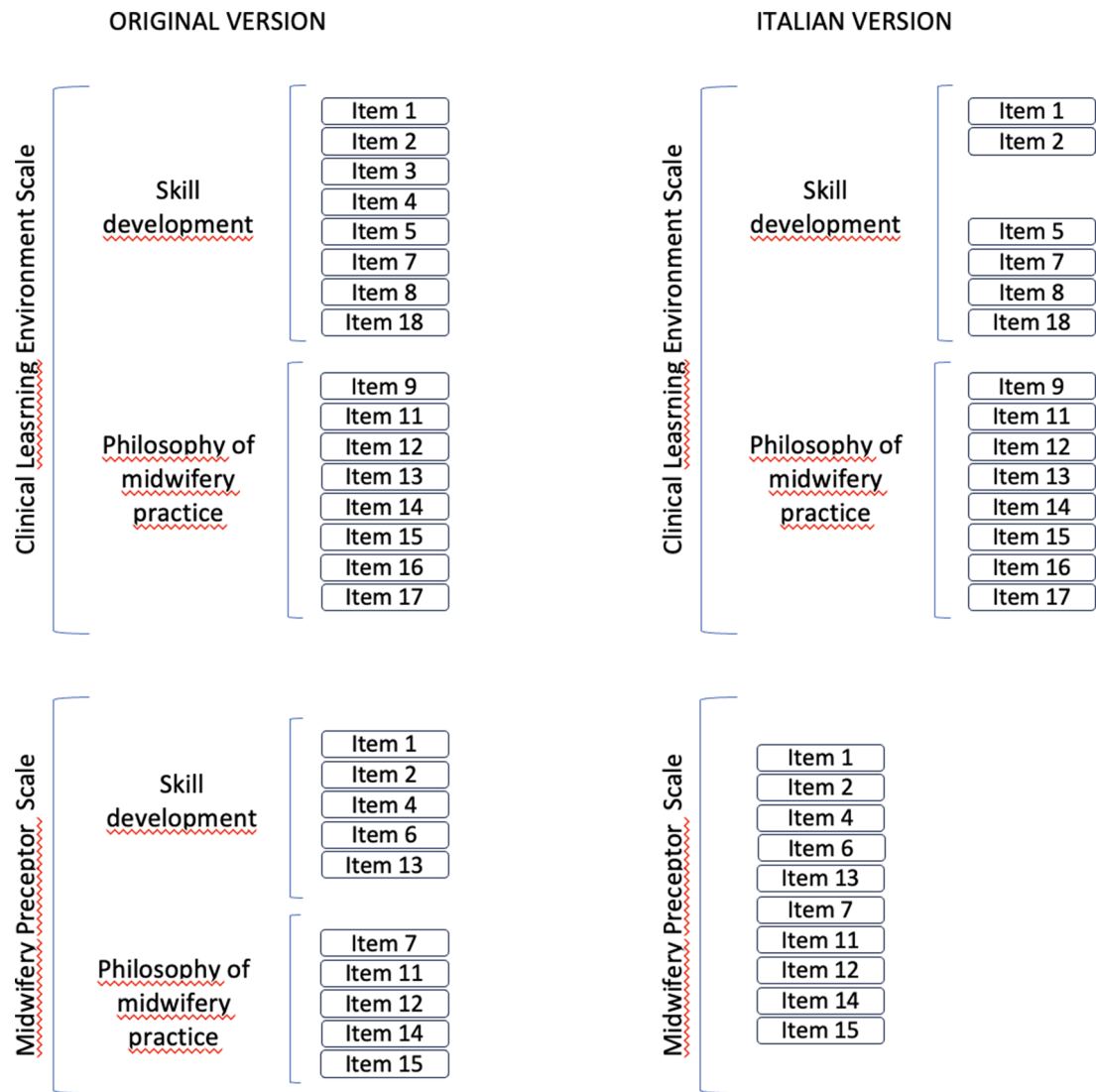


Fig. 1. Comparison between the original version of the MidSTEP and the Italian version (IT MidSTEP).

Table 3
Impact of the Midwifery Preceptor Scale: Items and Primary Loading.

Item	Primary Loading
1. Directly supports the development of my midwifery skills	0.794
2. Understands the academic elements of my degree program	0.508
4. Facilitates progressive development of my confidence as a student midwife	0.783
6. Supports me to achieve my clinical requirements	0.735
7. Role models positive self-care practices	0.750
11. Creates a sense of belonging to the organisation	0.825
12. Creates opportunities for sharing professional best practice	0.682
13. Supports me to perform clinical skills	0.694
14. Values my clinical opinion	0.807
15. Supports me to advocate for women's rights	0.788

Having included students attending different years and different clinical settings ensures the tool applies to the whole midwifery educational program. Consequently, the MidSTEP-IT could be used to support local and national policymakers in programmatic decision-making to ensure a student-centred midwifery educational program. The overall response rate of 96.7 % was extremely good, meaning that the tool is well-accepted and easy to use.

This study presents some limits that have to be considered and

reduced in future studies. First of all, it is not possible to assess a correlation with a gold standard, being MIDSTEP the only tool identified for this specific purpose. Moreover, considering undergraduate students could limit the generalizability of results even if, on the other hand, the heterogeneity of clinical locations and mentorship models is quite an important strength.

Conclusion

The MidSTEP-IT has been proven to measure midwifery students' perceptions of their clinical learning experiences. It mirrors their feeling of competence, goals, resourcefulness, connectedness, and self-identification as midwives, which can be collected considering the setting and influence of mentors on their professional growth. It is a new instrument, useful both considering the clinical practice and the research and effective in highlighting the importance of encouraging a supportive clinical learning environment and an efficient preceptorship.

The next studies using the MidSTEP-IT should test the relationships between different modes of preceptorship and midwifery students' experience in different clinical settings. This could be helpful in identifying differences in the perception of midwifery students' clinical learning experiences because of the variance in geographic areas. Future validations should include a correlation with a gold standard and focus

Table 4
Descriptive statistics, reliability, and test-retest reliability for MidSTEP subscales.

Scale	N° of items	Mean (SD)	Range	Cronbach's α	McDonald's ω	Test-Retest ICC (95 %CI)
Clinical Learning Environment Total	14	3.25 (0.38)	1–4	.74	.74	.987 (0.89 - 0.999)
Skill Development Subscale	6	3.19 (0.47)	1–4	.83	.84	.982 (0.868 - 0.998)
Philosophy of Midwifery Practice Subscale	8	3.3 (0.44)	1–4	.84	.86	.975 (0.774 - 0.997)
Midwifery Preceptor Total	10	3.38 (0.54)	1–4	.92	.92	.966 (0.745 - 0.996)

SD = Standard Deviation, ICC = Intraclass correlation coefficient, IC = 95 % Confidence Interval.

on the personal, educational, and organizational factors influencing midwifery students' clinical learning experiences, to deepen and make the MidSTEP-IT more reliable.

Our study provides data about important material to tutors and mentors on optimising clinical learning. It allows them to compare results over time at single practice locations, among locations, and programs.

Statement of significance

The MidSTEP-IT is a reliable and easy-to-use tool that can be used to investigate Italian midwifery students' perceptions of their clinical learning experiences.

The MidSTEP-IT could be used to support policymakers in programmatic decision-making, ensuring a student-centred midwifery educational program, and improving the clinical learning experience.

CRediT authorship contribution statement

Antonella Nespoli: Supervision, Conceptualization. **Gaia Giulia Angela Sacco:** Writing – original draft, Methodology, Formal analysis. **Fatima Zahra Bouhachem:** Investigation, Data curation. **Francesca Motta:** Investigation, Data curation. **Simona Paredi:** Data curation. **Laura Antolini:** Supervision, Formal analysis. **Maria Panzeri:** Writing – review & editing. **Edda Pellegrini:** Writing – review & editing, Methodology. **Simona Fumagalli:** Writing – original draft, Supervision, Methodology, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

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