

Research Article

Educational Environment in Outcome-Based Medical Education: A Mixed-Methods Study of 25th Intake Interns at the Defence Services Medical Academy, Myanmar

Ye Phyo Aung^{1,*} , Tun Tun Naing¹ , Tayzar Hein¹ , Zaw Phyo¹ , Soe Thu Ya¹,
Pyi Hein Kyaw¹ , Tin Tun² 

¹Department of Medical Education, Defence Services Medical Academy, Yangon, Myanmar

²Department of Biochemistry, Manipal University College Malaysia, Melaka, Myanmar

Abstract

The educational environment is an important determinant of students' learning experiences, engagement, satisfaction, and professional development, particularly during major curriculum reform. The Defence Services Medical Academy (DSMA), Myanmar, has implemented Outcome-Based Medical Education (OBME) to promote competency-oriented, student-centred learning and closer alignment between educational outcomes, teaching, and assessment. Continued evaluation among successive student cohorts is necessary to determine how the curriculum is experienced in practice. This study evaluated the educational environment and experiences of 25th Intake internship students undertaking the OBME programme at DSMA. An explanatory sequential mixed-methods design was employed. Quantitative data were obtained from 34 internship students using the 50-item Dundee Ready Education Environment Measure (DREEM) and analysed using descriptive statistics. The qualitative component used in-depth interviews and focus group discussions to explore students' experiences, challenges, expectations, faculty support, and peer interaction; qualitative data were analysed thematically using MAXQDA. The overall mean DREEM score was 130/200, indicating an educational environment perceived as more positive than negative. Domain scores were 31.2 ± 6.5 for Students' Perceptions of Learning, 28.7 ± 5.8 for Students' Perceptions of Teachers, 24.5 ± 4.7 for Students' Academic Self-Perception, 27.3 ± 5.2 for Students' Perceptions of Atmosphere, and 18.3 ± 4.0 for Students' Social Self-Perception. Five qualitative themes were identified: adaptation to OBME, faculty support, peer interaction, expectations versus experience, and positive aspects of the learning environment. Students valued collaborative learning, educational resources, faculty guidance, and greater responsibility for their learning. However, challenges were identified in self-directed learning, assessment, workload, consistency of faculty accessibility, and social interaction. The findings indicate that the educational environment for 25th Intake interns was generally positive, while highlighting specific opportunities for curriculum improvement. Strengthened orientation, faculty development, clearer assessment communication, structured peer support, and regular cohort-based evaluation are recommended to support continued development of OBME at DSMA.

Keywords

DREEM, Educational Environment, Outcome-Based Medical Education, Medical Education, Mixed-Methods Study, Student Perception, Curriculum Evaluation, Myanmar

*Correspondence: Ye Phyo Aung (yephyoaung@dsma.edu.mm)

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1. Introduction

The quality of the educational environment is an important component of higher education because learning occurs through interactions between students, teachers, curricula, assessment systems, institutional resources, and the wider academic climate. In medical education, these interactions are particularly important because students must integrate theoretical knowledge, clinical skills, professional behaviours, communication, teamwork, and decision-making as they progress through increasingly complex learning experiences.

Medical education has undergone substantial curricular reform during recent decades. Traditional content-oriented approaches are increasingly being complemented or replaced by integrated, learner-centred, competency-based, and outcome-based models designed to ensure that graduates achieve clearly defined professional capabilities [1-4]. These reforms shift attention from what teachers deliver to what students are expected to demonstrate upon completion of training.

Outcome-Based Medical Education (OBME) emphasises predefined competencies and the alignment of learning activities and assessment with those intended outcomes [3, 4]. Rather than concentrating principally on content exposure or time spent in training, OBME requires institutions to identify expected graduate capabilities and create educational experiences that enable students to achieve them.

This approach also changes the roles of students and educators. Students are expected to take greater responsibility for their learning, participate actively, use feedback, engage in self-directed learning, and demonstrate achievement of specified outcomes. Faculty members increasingly function as facilitators, mentors, assessors, and providers of feedback rather than solely as transmitters of information.

Although these changes have considerable educational potential, implementation can also create challenges. Students may experience uncertainty when moving from highly structured teacher-centred learning towards greater academic independence. Faculty members may require additional preparation in student-centred teaching, competency assessment, mentoring, feedback, and constructive alignment. Assessment workload, availability of learning resources, communication of expectations, and the wider institutional environment may consequently influence whether curriculum reform achieves its intended objectives [4].

The educational environment therefore provides an important perspective from which curriculum implementation can be evaluated. Genn [5] described the educational environment as an integral component of curriculum quality, encompassing organisational, social, psychological, and educational influences on student learning. A supportive environment may encourage motivation, participation, confidence, and professional development, whereas an unfavourable environment may contribute to stress, dissatisfaction, reduced engagement, and difficulty adapting to educational demands.

One of the most extensively used instruments for assessing the educational environment in medical and health professions education is the Dundee Ready Education Environment Measure (DREEM). Originally developed by Roff et al. [6], DREEM provides a standardised assessment of students' perceptions across five domains: Students' Perceptions of Learning (SPL), Students' Perceptions of Teachers (SPT), Students' Academic Self-Perception (SASP), Students' Perceptions of Atmosphere (SPA), and Students' Social Self-Perception (SSSP).

The instrument consists of 50 items with an overall maximum score of 200. It has been applied across diverse medical education settings and can assist institutions in identifying favourable components of the educational environment as well as areas that require improvement [6, 7]. Importantly, DREEM evaluates the educational environment from the student perspective, thereby complementing institutional indicators such as examination performance, curriculum documents, and faculty evaluations.

Assessment practices represent another major element of the educational environment. Students frequently modify their approaches to learning according to what and how they expect to be assessed. Preston et al. [8] demonstrated the substantial influence of assessment on medical students' learning, reinforcing the importance of alignment between learning outcomes, teaching activities, clinical experiences, and assessment practices.

Student support is similarly important. Faculty accessibility, relationships with teachers, institutional wellbeing resources, and social interaction can influence how students respond to academically demanding environments [9]. Consequently, implementation of student-centred or outcome-based education requires more than curricular restructuring; it also requires an institutional environment capable of supporting learners as their responsibilities increase.

At the Defence Services Medical Academy (DSMA), Myanmar, an outcome-based integrated curriculum has been introduced as part of continuing efforts to improve medical education. An earlier investigation among a previous cohort of DSMA internship students found an overall positive educational environment but identified challenges related to adaptation to OBME, assessment methods, workload, faculty support, and peer interaction [10]. That investigation demonstrated the usefulness of combining DREEM scores with qualitative exploration of students' actual educational experiences.

However, educational environments are evolving. Faculty members gain experience with new curriculum structures, assessment practices are modified, students receive different levels of orientation, and institutional resources may change. Findings obtained from one cohort therefore cannot automatically be assumed to represent the experience of subsequent cohorts.

Recent institutional educational research at DSMA has also demonstrated the value of mixed-methods evaluation for quality improvement. A 2026 evaluation of the DSMA Educator Training Programme combined quantitative and qualitative evidence and identified facilitator support, interactive learning, collaboration, and constructive feedback as important strengths while highlighting opportunities for further improvement in educational resources and practical learning [11]. Such findings reinforce the importance of evaluating both measurable educational outcomes and stakeholders' experiences when considering programme quality.

The present study therefore investigated a different cohort—the 25th Intake internship students to provide updated evidence regarding their experience of OBME. In addition to assessing the educational environment quantitatively using DREEM, qualitative inquiry was used to explore the reasons underlying students' perceptions and to identify challenges and potential areas for improvement.

This study aimed to evaluate the educational environment experienced by 25th Intake internship students in the OBME programme at DSMA and to explore their experiences regarding learning, teaching, academic confidence, atmosphere, social interaction, faculty support, workload, assessment, and expectations.

2. Materials and Methods

2.1. Study Design

This study employed an explanatory sequential mixed-methods design to evaluate the educational environment experienced by 25th Intake internship students undertaking OBME at DSMA. The study began with a quantitative assessment using the Dundee Ready Education Environment Measure. The quantitative findings provided an overall description of students' perceptions across the five DREEM domains. The subsequent qualitative phase explored participants' experiences in greater depth through semi-structured in-depth interviews and focus group discussions. The qualitative findings were used to provide contextual explanations for the quantitative results and to identify specific educational challenges and areas for improvement. Explanatory sequential mixed-methods designs are particularly useful when quantitative findings are followed by qualitative investigation to explain how participants understand and experience the patterns identified in numerical data [12].

2.2. Study Setting and Participants

The study was conducted at the Defence Services Medical Academy, Myanmar, among internship students from the 25th Intake participating in the Outcome-Based Medical Education programme.

Participants were eligible if they were internship students enrolled in the OBME programme at DSMA, had completed

at least one clinical rotation under the outcome-based curriculum, and voluntarily agreed to participate and provide informed consent.

The quantitative component included 34 internship students. For the qualitative component, purposive sampling was used to obtain detailed perspectives from students with experience of the programme. Eighteen students were selected for in-depth interviews. Focus group discussions were additionally conducted, with approximately five to six participants in each group.

2.3. Data Collection

2.3.1. Quantitative Data Collection

Quantitative data were collected using the Dundee Ready Education Environment Measure. DREEM consists of 50 items organised into five domains: Students' Perceptions of Learning (SPL), Students' Perceptions of Teachers (SPT), Students' Academic Self-Perception (SASP), Students' Perceptions of Atmosphere (SPA), and Students' Social Self-Perception (SSSP).

Responses were recorded on a five-point Likert scale ranging from 0 to 4, where 0 = Strongly Disagree, 1 = Disagree, 2 = Uncertain, 3 = Agree, and 4 = Strongly Agree. The maximum overall DREEM score is 200, with higher scores reflecting a more favourable perception of the educational environment. An overall DREEM score between 101 and 150 is conventionally interpreted as indicating an educational environment that is more positive than negative [6, 7].

2.3.2. Qualitative Data Collection

The qualitative component used semi-structured in-depth interviews and focus group discussions to explore students' educational experiences in greater detail. Discussion areas included experiences of transitioning to OBME, self-directed learning, assessment, faculty accessibility and guidance, peer collaboration, workload, expectations of the curriculum, social interaction, and perceived strengths and weaknesses of the learning environment. Focus group discussions were used to identify shared experiences and encourage interaction among students regarding common challenges, expectations, and potential improvements.

2.4. Data Analysis

Quantitative data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics were used to summarize participants' characteristics and DREEM results. Frequencies and percentages were used for categorical variables, while means and standard deviations were calculated for the five DREEM domains.

Qualitative data were organised using MAXQDA and analysed thematically. The analysis involved systematic examination of participant responses, coding of recurring ideas,

grouping related codes, generation of themes, and refinement of the themes according to the research objectives. Qualitative findings were subsequently interpreted alongside the quantitative DREEM findings to provide a more comprehensive understanding of the educational environment.

2.5. Ethical Considerations

Ethical approval was obtained from the Ethics Review Committee of the Defence Services Medical Academy. Informed consent was obtained from all participants before participation. Participation was voluntary, and students were informed that participation or withdrawal would not affect their

academic standing. Confidentiality and anonymity were maintained throughout data collection, analysis, and reporting. Identifying information was removed from research data, and qualitative quotations were presented without personal identifiers.

3. Results

The results are presented in two components. The quantitative findings describe participants' characteristics and DREEM scores, while the qualitative findings provide additional insight into students' experiences of OBME.

3.1. Quantitative Findings

3.1.1. Demographic Characteristics

Table 1. Demographic Characteristics of Participants ($n = 34$).

Variable	Category	n (%)
Sex	Male	34 (100.0)
Age	22-24 years	34 (100.0)
Clinical rotations completed	1-2 rotations	12 (34.3)
	3-4 rotations	22 (65.7)

All 34 participants were male and were 22–24 years of age. Regarding clinical exposure, 12 students (34.3%) had completed 1–2 clinical rotations, whereas 22 students (65.7%) had completed 3–4 rotations. Thus, approximately two-thirds of the cohort had completed three or more clinical rotations, indicating that most participants had substantial exposure to the OBME clinical learning environment before completing the DREEM evaluation.

3.1.3. DREEM Domain Scores

3.1.2. Overall Educational Environment

The overall mean DREEM score was 130 out of a possible 200. According to conventional DREEM interpretation, this indicates an educational environment perceived as more positive than negative. Most participant scores were concentrated between approximately 120 and 140, while fewer participants were located at the higher and lower ends of the score distribution.

Table 2. DREEM Domain Scores Among 25th Intake Internship Students.

DREEM Domain	Mean $\pm$ SD	Interpretation
Students' Perceptions of Learning (SPL)	31.2 $\pm$ 6.5	Positive perception
Students' Perceptions of Teachers (SPT)	28.7 $\pm$ 5.8	Moving in the right direction
Students' Academic Self-Perception (SASP)	24.5 $\pm$ 4.7	Feeling more on the positive side
Students' Perceptions of Atmosphere (SPA)	27.3 $\pm$ 5.2	A more positive atmosphere
Students' Social Self-Perception (SSSP)	18.3 $\pm$ 4.0	Not too bad

DREEM Domain	Mean $\pm$ SD	Interpretation
Overall DREEM	130/200	More positive than negative

Students generally reported favourable perceptions across all five components of the educational environment. Learning was perceived positively, while perceptions of teachers indicated that teaching was moving in the right direction. Students also demonstrated a positive academic self-perception and generally favourable perception of the atmosphere. Social self-perception remained acceptable but suggested that the social dimension of the educational environment warranted further consideration.

3.2. Qualitative Findings: Thematic Analysis

Qualitative analysis provided deeper insight into how students experienced OBME. Five major themes emerged: adaptation to Outcome-Based Medical Education; faculty support and accessibility; peer interaction and collaborative learning; expectations versus experience; and a positive learning environment with continuing social challenges.

3.2.1. Theme 1: Adaptation to Outcome-Based Medical Education

Students described the transition to outcome-based learning as a substantial change from their previous educational experiences. Increased responsibility for learning, greater emphasis on self-directed study, and unfamiliar assessment approaches were important sources of difficulty during the early period of transition.

"The transition to the OBME curriculum was challenging. We had to adapt quickly to new learning methods, which required more self-directed study. Initially, it was overwhelming, but with time, I started to appreciate the flexibility it offers."

Students therefore experienced both benefits and difficulties associated with increased learner autonomy. Another participant described a need to change established approaches to learning:

"The shift from traditional lectures to outcome-based assessments was hard. It required a change in mindset, and initially, I felt lost. However, the regular feedback from instructors helped me adjust."

The findings indicate that adaptation was progressive. Although students experienced initial uncertainty, feedback and increasing familiarity with the curriculum helped them develop confidence over time.

3.2.2. Theme 2: Faculty Support and Accessibility

Faculty guidance emerged as an important influence on students' ability to adapt to OBME. Students particularly valued

teachers who were available for consultation, clarified expectations, and provided feedback.

"The faculty were supportive, especially during the first few weeks. They were always available for consultations, which helped ease some of the anxiety associated with the new curriculum."

However, access to faculty support was not experienced equally.

"Some faculty members were very approachable and provided valuable guidance, but others were less accessible. This inconsistency made it difficult to get the support I needed at times."

These findings suggest that students generally valued their teachers but that consistency of support represented an area for improvement.

3.2.3. Theme 3: Peer Interaction and Collaborative Learning

Students consistently described peers as an important source of academic support. Study groups, discussions, and collaborative learning helped students respond to unfamiliar curriculum demands and difficult academic content.

"Collaborative learning was crucial for me. My peers and I formed study groups, which made it easier to tackle the more difficult topics. Sharing knowledge among ourselves was very beneficial."

"Group discussions and projects were the highlights for me. They allowed me to engage with different perspectives and learn from my peers, which was an enriching experience."

Peer interaction therefore contributed not only to social support but also directly to learning.

3.2.4. Theme 4: Expectations Versus Actual Experience

Differences between expectations and experience represented another major theme. Students described differences in curriculum structure, workload, assessment, and the level of independence expected of them.

"I expected the OBME program to be more structured like the traditional curriculum, but it was more fluid. The workload was heavier than I anticipated, and it took some time to adjust to the continuous assessment approach."

"I had high expectations for the OBME program, particularly regarding hands-on learning. While there were opportunities for practical work, I felt that the assessments were overly theoretical, which was disappointing."

These findings indicate that students' understanding of the programme before entering the relevant stage of training did

not always correspond with the realities of learning and assessment.

3.2.5. Theme 5: Positive Learning Environment with Continuing Social Challenges

Despite the difficulties identified, participants also recognised positive characteristics of the educational environment. Educational resources, facilities, and an atmosphere supportive of learning were valued.

“Despite the challenges, the learning environment was generally positive. The modern facilities and access to resources made it easier to focus on my studies. The atmosphere was conducive to learning.”

However, the demands of the programme sometimes reduced opportunities for broader social interaction.

“The social aspect of the program was tough. It felt like everyone was too focused on their own progress, and there was less time to socialize. This made the experience somewhat isolating at times.”

Focus group discussions similarly identified a need for more consistent faculty communication regarding expectations and assessment and additional opportunities for peer collaboration. Taken together, the qualitative results demonstrated that students valued many aspects of the educational environment, but experienced identifiable difficulties related to transition, assessment, workload, accessibility of support, and social connection.

4. Discussion

This mixed-methods study evaluated the educational environment experienced by 25th Intake internship students during continued implementation of OBME at DSMA. The overall DREEM score of 130/200 indicated an educational environment perceived as more positive than negative. Quantitative findings across the five DREEM domains were generally favourable, while qualitative findings provided important explanations of both the strengths and limitations of the programme. Students particularly valued learning opportunities, faculty guidance, peer collaboration, educational resources, and the increasing responsibility associated with student-centred learning. At the same time, the qualitative findings identified important challenges involving adaptation to self-directed learning, assessment methods, workload, consistency of faculty accessibility, and social interaction.

The positive overall DREEM assessment indicates that students generally regarded their learning environment favourably. This is important because educational climate is closely connected with how students interact with a curriculum. Genn [5] emphasised that curriculum and educational environment are closely related and that the environment experienced by learners can influence educational quality. DREEM provides a useful means of examining this relationship because it cap-

tures multiple aspects of students' experiences rather than reducing educational quality to examination results alone [6].

The findings of the present study also demonstrate the value of mixed-methods evaluation. The overall score suggested a generally positive environment, but qualitative findings identified specific concerns that could have been obscured if only the total DREEM score had been considered. This pattern is similar to other mixed-methods educational evaluations conducted at DSMA, where quantitative ratings have identified overall strengths while qualitative evidence has revealed specific opportunities for improvement [11].

4.1. Comparison With the Previous DSMA Cohort

A previous study involving a different cohort of DSMA internship students also found a generally positive educational environment during implementation of OBME [10]. That study identified difficulties associated with transition from traditional education, self-directed learning, assessment, faculty support, workload, peer interaction, and expectations regarding the programme. The present 25th Intake study demonstrates that several of these issues remain relevant to a subsequent cohort.

The recurrence of themes involving assessment clarity, workload, faculty accessibility, and transition to learner-centred education is particularly important. Rather than being interpreted only as individual student difficulties, repeated findings across cohorts may indicate aspects of curriculum implementation requiring systematic institutional attention. Successive-cohort evaluation therefore has an important quality-assurance function. Repeated DREEM assessment can help determine whether changes introduced in response to earlier evaluations are reflected in subsequent students' experiences. At the same time, cohort comparisons should be interpreted carefully because educational experiences may be influenced by different clinical rotations, faculty members, assessment schedules, and other contextual factors.

4.2. Learning and Transition to Student-Centred Education

Students' Perceptions of Learning were favourable, indicating that participants generally recognised positive aspects of the learning opportunities offered within OBME. The qualitative findings nevertheless showed that greater responsibility for learning created considerable adjustment during the transition. Outcome-based education requires movement towards clearly defined educational outcomes, constructive alignment, and active learner participation [2-4]. These principles can promote independence and professional responsibility but may be challenging for students accustomed to highly structured teacher-led education.

The experience of being initially overwhelmed but gradu-

ally appreciating greater flexibility suggests that student-centred learning should be viewed as a developmental process. Students may require explicit preparation in self-directed learning, time management, use of feedback, identification of learning needs, and monitoring of progress. Providing academic independence without sufficient educational scaffolding may create avoidable uncertainty. Conversely, structured support during transition can allow students gradually to develop autonomy while maintaining confidence.

4.3. Teachers, Feedback, and Faculty Accessibility

Students' perceptions of teachers were generally favourable, while qualitative findings demonstrated the importance of faculty support. Participants described approachable and supportive teachers as helping them manage the transition to OBME and understand unfamiliar requirements. However, variability in faculty accessibility was repeatedly noted.

Faculty members retain a central role in student-centred education. The transition away from traditional teacher-centred approaches does not reduce the importance of educators; instead, it changes the nature of their responsibilities. Faculty members must increasingly facilitate learning, provide feedback, clarify expectations, support reflection, and assist students in assessing their own progress. Evidence from faculty-development research indicates that structured professional development can enhance teaching effectiveness, feedback, educational competence, and learner engagement [13]. A recent evaluation of DSMA's Educator Training Programme similarly identified facilitator support, responsiveness, participant engagement, and interactive learning as major strengths of effective educational practice [11]. These institutional findings are relevant to the present study because students' experiences of OBME depend substantially on faculty members' ability to translate curriculum principles into everyday teaching and assessment.

4.4. Academic Self-Perception

Students demonstrated academic self-perception that was generally on the positive side. This is encouraging given the substantial educational changes associated with OBME. Although participants described difficulties adapting initially, qualitative findings suggested that students gradually developed greater confidence in managing their own learning. Clear educational outcomes may contribute to this process by allowing students to understand what they are expected to achieve. However, outcomes alone are insufficient. Students also require opportunities to assess their progress and receive meaningful feedback. Feedback has an important role in professional learning and performance development [14]. Regular formative feedback may therefore help students develop accurate academic self-perception while identifying areas requiring further improvement.

4.5. Educational Atmosphere

Students' Perceptions of Atmosphere indicated a generally positive learning environment. Qualitative findings identified modernised facilities, educational resources, and a supportive environment as favourable characteristics. However, atmosphere extends beyond the physical environment. It is also shaped by workload, organisational structures, assessment demands, faculty-student relationships, communication, and students' sense of predictability and security within the curriculum. Students in the present study described uncertainty regarding workload and assessment. These factors may influence educational atmosphere even when teaching resources and physical facilities are satisfactory. Clear communication about curriculum expectations should therefore be considered part of the educational environment rather than merely an administrative responsibility.

4.6. Social Self-Perception and Collaborative Learning

The social self-perception findings suggested that students' social experiences were acceptable but represented an area requiring continued attention. Qualitative findings demonstrated an important contrast. On one hand, peer learning was highly valued. Students described study groups, collaborative discussions, and shared problem-solving as major sources of academic support. On the other hand, some students described limited social interaction and feelings of isolation resulting from demanding academic schedules and an emphasis on individual progression.

This distinction suggests that academic collaboration and social connectedness are related but not identical. Students may collaborate successfully on academic activities while still experiencing insufficient opportunities for informal interaction, emotional support, and belonging. Structured peer mentoring could help address both educational and social needs. Senior or more experienced students may assist peers in interpreting curriculum expectations, managing workload, preparing for assessments, and adapting to clinical learning. Similarly, small-group learning and collaborative activities could be designed deliberately to promote both academic engagement and supportive peer relationships.

4.7. Expectations, Workload, and Assessment

The gap between expectations and experience was one of the strongest qualitative findings. Students reported greater workload, less traditional structure, greater self-directed learning, and more demanding assessment than anticipated. Assessment is particularly significant because it strongly influences what students prioritise and how they approach learning [8].

One participant's concern that assessment appeared more theoretical than expected despite expectations of practical

learning raises an important issue regarding alignment. Outcome-based education requires consistency among intended competencies, teaching and learning activities, clinical experience, and assessment [3, 4]. If students perceive that assessment does not reflect the practical competencies emphasised by the curriculum, confidence in the coherence of the programme may be reduced. Assessment review should therefore examine not only technical reliability but also perceived alignment with intended outcomes. Orientation should additionally communicate the purpose and structure of OBME, expected competencies, students' responsibilities for independent learning, assessment formats, progression requirements, workload expectations, mechanisms for obtaining feedback, and available academic support.

4.8. Integration of Quantitative and Qualitative Findings

Integration of the two components provided a more comprehensive understanding of the educational environment. The quantitative findings indicated a generally favourable educational environment across learning, teaching, academic self-perception, atmosphere, and social experience. Qualitative findings explained how these perceptions were generated. Positive perceptions of learning were supported by accounts of increasing independence and collaborative learning. Positive perceptions of teachers were reflected in descriptions of helpful faculty guidance. Positive perceptions of atmosphere were reinforced by favourable comments regarding resources and facilities. At the same time, qualitative evidence identified limitations that were not immediately apparent from the overall score, particularly inconsistency in faculty accessibility, assessment concerns, workload, and social isolation. The two data strands were therefore complementary rather than contradictory.

4.9. Implications for Curriculum Improvement

Several practical implications emerge from the findings. Students should receive structured orientation before entering major phases of the OBME curriculum, with clear explanation of both the educational philosophy and the practical implications of the programme. Faculty development should continue to strengthen mentoring, feedback, student-centred teaching, assessment literacy, and accessibility. Assessment practices should be reviewed periodically to ensure clear alignment with intended learning outcomes and clinical competencies [15]. Peer-support systems should be strengthened through formal peer mentoring, structured collaborative learning, and accessible study groups. Workload should be monitored across rotations and assessment periods to reduce unnecessary clustering of demands. Finally, evaluation of the educational environment should be repeated regularly across subsequent cohorts as part of a continuous quality-improvement cycle.

5. Limitations

Several limitations should be considered when interpreting the findings. First, the study was conducted at a single military medical academy. Organisational characteristics, student demographics, curriculum structure, and institutional culture may differ from those of civilian medical universities. The findings should therefore not be generalised automatically to all medical education settings.

Second, the quantitative component included 34 students. Although this represented the study cohort under investigation, the relatively small sample limits the range of statistical analyses that can be performed. Third, all quantitative participants were male and were within a narrow age range. The study therefore could not examine differences in educational perceptions associated with sex or broader age variation. Fourth, the research was cross-sectional. The findings represent students' perceptions during a particular period of their internship and cannot determine how perceptions change throughout training.

Fifth, DREEM evaluates students' perceived educational environment. It does not independently measure curriculum effectiveness, academic achievement, clinical competence, or graduate outcomes. Finally, qualitative findings reflect participants' accounts and may be influenced by individual experiences and the particular rotations they had completed. Despite these limitations, combining quantitative DREEM assessment with qualitative exploration provided a more comprehensive account of the educational environment than either method would have provided alone.

6. Conclusions

This mixed-methods evaluation demonstrated that 25th Intake internship students at the Defence Services Medical Academy generally perceived the educational environment within Outcome-Based Medical Education positively. The overall DREEM score of 130/200 indicated an environment that was more positive than negative. Students reported generally favourable perceptions of learning, teachers, their academic development, educational atmosphere, and social experiences.

Qualitative findings provided greater insight into these results. Students valued increased educational responsibility, faculty guidance, collaborative learning, learning resources, and supportive aspects of the environment. However, adaptation to self-directed learning, workload, unfamiliar assessment approaches, inconsistency in faculty accessibility, differences between expectations and experience, and limitations in social interaction remained important concerns.

The findings support continued implementation and development of OBME while identifying targeted priorities for improvement. More comprehensive student orientation, ongoing faculty development, clearer communication regarding assessment, improved alignment between competencies and as-

assessment, structured peer-support mechanisms, and monitoring of workload could strengthen the educational environment. The similarity of several challenges identified across successive student cohorts also reinforces the value of regular educational-environment evaluation as part of a continuous quality-improvement cycle.

Abbreviations

DREEM	Dundee Ready Education Environment Measure
DSMA	Defence Services Medical Academy
FGD	Focus Group Discussion
MAXQDA	Qualitative Data Analysis Software
OBME	Outcome-Based Medical Education
SASP	Students' Academic Self-Perception
SPA	Students' Perceptions of Atmosphere
SPL	Students' Perceptions of Learning
SPSS	Statistical Package for the Social Sciences
SPT	Students' Perceptions of Teachers
SSSP	Students' Social Self-Perception
SD	Standard Deviation

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Author Contributions

Ye Phyo Aung: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Methodology, Project administration, Supervision, Validation, Writing – original draft, Writing – review & editing

Tun Tun Naing: Conceptualization, Methodology, Project administration, Resources, Visualization

Tayzar Hein: Data curation, Formal Analysis, Investigation, Software, Writing – original draft

Zaw Phyo: Data curation, Formal Analysis, Methodology, Software, Visualization, Writing – review & editing

Soe Thu Ya: Data curation, Formal Analysis, Investigation, Software, Writing – original draft

Pyi Hein Kyaw: Data curation, Formal Analysis, Investigation, Software, Writing – original draft

Tin Tun: Conceptualization, Methodology, Supervision, Validation

Data Availability Statement

The data are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

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Biography



Ye Phyto Aung is a senior lecturer and head at Defence Services Medical Academy, Department of Medical Education, Yangon, Myanmar. He acquired his M. H. P. E in Medical Education from Maastricht University in 2017, and his fellowship from the International Association of Medical Science Educators in 2023. He participated as a reviewer in Medical Science Educator (MSE), The Asia Pacific Scholar (TAPS), and Medical Education (online) since 2021. He has participated in an international research collaboration in the medical education field in recent years. He currently serves as Secretary, Chair, Speaker, and Judge at national and international conferences.



Tun Tun Naing is currently working as an assistant Lecturer at the Department of Medical Education, Defence Services Medical Academy. He received MBBS in 2006, MMedSc (Public Health) in 2009, and a Diploma in Medical Education in 2015. He also got a Master of Public Policy from Meiji University, Tokyo in 2020 through the JICA Scholarship Program. He is also the joint secretariat of the Myanmar Military Medical Conference and now he is also working as a reviewer for The Asia Pacific Scholar (TAPS) and Frontier in Medicine. He also participates in local and international medical education and public health research.



Tayzar Hein is a distinguished medical educator at the Defence Services Medical Academy in Yangon, Myanmar. Beginning his career with an MBBS in 2006, he served in military medical roles. He earned a Master of Disease Prevention and Control (MMedSc) in 2012. Transitioning to education in 2016, he enriched his teaching expertise with a Diploma in Medical Education in 2017 and a Master of Medical Education, focusing on Case-based Learning (CBL) research from the University of Dundee. His work emphasizes the development of innovative teaching and learning methods and aims to improve teaching strategies at his academy and beyond.



Zaw Phyto has been a dedicated lecturer at the Defence Services Medical Academy (DSMA) in Myanmar since 2019. He holds a Master of Medical Science (MMedSc) in Healthcare Management (2013) and a Diploma in Medical Education (2019), both from DSMA. In 2023, he became a Fellow of the FAIMER Regional Institute of Indonesia (FFRI). At DSMA, he actively contributes as the secretary of the Assessment Committee, ensuring high standards in medical education. Additionally, he serves on the Curriculum Committee, where he assists in shaping the educational framework. Dr. Zaw Phyto's commitment enhances the quality of medical training at DSMA.



Soe Thu Ya is an Assistant Lecturer in the of Medical Education at the Defence Services Medical Academy. A physician-scientist specializing in psychiatry, He earned an M. B. B. S. in 2007, followed by a Master of Medical Science (M. Med. Sc.) in Mental Health in 2013 and a Doctorate of Medical Science (Dr. Med. Sc.) in Mental Health in 2023. His primary research interests lie at the intersection of molecular and genetic psychiatry, focusing on the biological mechanisms underlying mental health disorders. And he remain actively engaged in collaborative psychiatric research across both domestic and international platforms.



Pyi Hein Kyaw is an Assistant Lecturer in the Department of Medical Education at the Defence Services Medical Academy (DSMA), Myanmar, joining the department in 2025. He received his MBBS degree in 2009 and earned a Master of Medical Science (M. Med. Sc) in Environmental Health in 2014. He is currently pursuing a Diploma in Medical Education. Prior to his academic appointment, he served as a Battalion Medical Officer and later as a Staff Officer at the Directorate of Medical Services. His interests include medical education, curriculum development, assessment, environmental health, educational research, and the application of artificial intelligence in health professions education.



Tin Tun is a physician-scientist with over 30 years of experience in medical education, biomedical research, and academic leadership. He earned his Doctor of Medical Science (PhD) in Molecular Medicine from Kyoto University, Japan, under the mentorship of Nobel Laureate Professor Tasuku Honjo. He has held prestigious international research fellowships in Japan, the United Kingdom, and the United States, including appointments at the University of Oxford and Memorial Sloan-Kettering Cancer Center. He is currently Professor and Head of the Department of Biochemistry at Melaka Manipal Medical College, Malaysia.

Research Field

Ye Phyo Aung: Medical and Health Sciences, Medical Education, Clinical Research

Tun Tun Naing: Medical and Health Sciences, Preventive and Social Medicine, Public Health, Medical Education

Tayzar Hein: Medical and Health Sciences, Preventive and Social Medicine, Public Health, Medical Education

Zaw Phyo: Medical and Health Sciences, Preventive and Social Medicine, Public Health, Medical Education

Soe Thu Ya: Mental Health, Molecular and Genetic Psychiatry, Medical Education

Pyi Hein Kyaw: Medical and Health Sciences, Preventive and Social Medicine, Environmental Health, Medical Education

Tin Tun: Medical and Health Sciences, Biochemistry, Molecular Cancer Oncology, Medical Education