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Original Research Paper

The Mentorship Paradox in Military Medical Education: A Comprehensive Mixed-methods Evaluation

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Abstract

Introduction: This study provides the first systematic evaluation of the mentorship program at Myanmar's Defence Services Medical Academy (DSMA). It assesses mentorship's role in cadet development and examines how systemic challenges constrain its effectiveness in a dual academic–military setting.

Methods: A mixed-methods (MM) sequential explanatory design was employed. A cross-sectional quantitative survey was conducted, followed by qualitative semi-structured interviews to explore cadets' experiences and perceptions of mentorship.

Results: Cadets valued mentorship highly (career guidance: 79.5%; personal development: 81.0%). However, significant challenges emerged, including balancing dual academic–military duties (66.1%), communication barriers (65.2%), and lack of mentor availability (58.2%). Analysis of variance (ANOVA) showed significant differences across academic years in career guidance, personal development, communication barriers, balancing dual roles, and mentor availability (all $p \leq .022$; $\eta^2 = .05–.09$). Effects across years were small-to-moderate ($\eta^2 \approx .05–.09$). Male cadets reported greater difficulty balancing roles than female cadets ($t(249) = 2.16$, $p = .032$, $d = 0.34$). Qualitative interviews confirmed that hierarchical structures and limited mentor access were the most pervasive barriers.

Conclusion: The DSMA mentorship program is highly valued but constrained by structural and cultural barriers. Effective mentorship in dual-role contexts must integrate academic guidance with robust psychosocial support while addressing issues of mentor availability, hierarchical communication, and gender sensitivity. Tailored, evidence-based mentorship models are needed to strengthen resilience and professional development in future military physicians.

Keywords: Mentorship, Military Medical Education, Mixed-methods Research, Personal Development, Cadets

Introduction

Mentorship supports academic and professional development by strengthening critical thinking, resilience, and professional skills, particularly in demanding fields such as medical education (Ali *et al.,* 2024).

In military medical education, these benefits are especially important because academic intensity is compounded by military discipline and expectations (Griffin, 2017). Mentoring relationships can support cadets' adjustment and well-being, and can also develop mentors' leadership and facilitation skills (Zachary & Fain, 2022). In uniformed training contexts, mentorship may additionally buffer cumulative stressors—sleep loss, operational tempo, and public-facing responsibility—that can

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undermine self-efficacy if unaddressed (Bandura & Walters, 1977; Kelley *et al.,* 2023). Although mentorship is widely studied in medical education, less is known about how mentorship functions in "dual-role" environments where medical training is embedded within military structures. Such settings introduce distinctive pressures (e.g., fatigue, sleep deprivation, competing duties) and high power distance that can shape help-seeking, communication, and goal setting. At the Defence Services Medical Academy (DSMA) in Yangon, Myanmar, cadets complete a six-year medical curriculum alongside intensive military training, creating persistent time and energy constraints (Kelley *et al.,* 2023; Moore II, 2024).

DSMA introduced a structured mentorship program in 2017 as part of its outcome-based integrated curriculum, aiming to support cadets' academic and personal development through more interactive and student-focused learning (Milner, 2018). However, this shift can be challenging in hierarchical environments, particularly when mentors were trained under more traditional models and when communication norms discourage candid discussion (Riggs, 2023; Schwerdtle *et al.,* 2017). These issues may be further amplified for female cadets admitted in 2023, whose experiences in this setting remain underexplored and may be influenced by gender bias within male-dominant military contexts (Willis-Frazier, 2024).

This study therefore examines mentorship at DSMA using theoretical lenses of career and psychosocial mentoring functions (Kram, 1988) and Social Cognitive Theory (Bandura & Walters, 1977), to assess perceived benefits, identify barriers, and generate evidence-based recommendations for strengthening mentorship in military medical education.

The quantitative objective of this study was to assess cadets' perceptions of mentorship and examine differences by academic year and gender. The qualitative objective was to explore cadets' and mentors' experiences of mentorship, including perceived benefits, barriers, and contextual influences. The mixed-methods objective was to integrate quantitative and qualitative findings to generate evidence-based recommendations for strengthening mentorship in military medical education.

Methods

Study design and setting

This study employed a mixed-methods sequential explanatory design, in which quantitative data collection and analysis were conducted first, followed by a qualitative phase designed to explain and contextualize the quantitative findings (Ivankova & Stick, 2007; Creswell & Plano Clark, 2018). This design was selected to capture both measurable patterns in mentorship perceptions and in-depth experiential insights within a military medical education context. The quantitative and qualitative phases were integrated during interpretation to enhance explanatory depth, in accordance with established mixed-methods reporting standards (Creswell, 2015).

Phase I: Quantitative Methods:

Participants and Setting

The study was conducted at the Defence Services Medical Academy (DSMA) in Yangon, Myanmar. DSMA delivers an integrated curriculum that combines medical education with mandatory military training, creating a dual academic–military learning environment. All medical cadets enrolled in the six-year undergraduate medical program were invited to participate in the quantitative phase.

Instrument Development

The survey instrument was developed based on Kram's (1988) model of career and psychosocial mentoring functions and Social Cognitive Theory, which emphasizes observational learning and self-efficacy (Bandura & Walters, 1977). Questionnaire items were designed to assess key mentorship domains, including career guidance, personal development, communication, mentor accessibility, and the ability to balance academic and military responsibilities.

To ensure linguistic and conceptual equivalence, the questionnaire underwent forward–backward translation (Burmese ↔ English) by bilingual experts. A pilot test was conducted with six cadets to assess clarity, cultural appropriateness, and rank-sensitive wording. Cognitive debriefing during piloting focused on minimizing social desirability bias and fear of reprisal in hierarchical contexts (Alvesson & Sköldberg, 2017).

Content validity was evaluated by an expert panel with backgrounds in medical education, clinical leadership, and military training. Reliability and validity indices were acceptable, including a content validity index (CVI) of 0.85, an intraclass correlation coefficient (ICC[2,1]) of 0.82, and Cronbach's α of 0.79, indicating satisfactory internal consistency.

Data Collection

Quantitative data were collected using a self-administered paper-based survey. Surveys were distributed and collected in classroom settings by non-teaching staff to reduce perceived coercion. Completed questionnaires were returned in sealed envelopes to ensure confidentiality.

Statistical Analysis

Quantitative analyses were performed using IBM SPSS Statistics (SPSS) version 25. Descriptive statistics summarized cadet characteristics and mentorship perception scores. Independent-samples t-tests were used to examine gender differences, and one-way analysis of variance (ANOVA) with Bonferroni post-hoc comparisons was applied to assess differences across academic years. Statistical assumptions were evaluated using the Shapiro–Wilk test for normality and Levene's test for homogeneity of variance; where assumptions were violated, Welch's corrections were applied.

Effect sizes were reported using Cohen's d for t-tests and η^2 for ANOVA to support interpretation of practical significance (Creswell, 2015). Missing data (<5%) were handled through list-wise deletion after inspection for non-random patterns.

Phase II: Qualitative Methods:

Participants and Sampling

The qualitative phase employed purposive sampling to select participants from Phase I respondents. Sampling aimed to capture variation across academic year, mentoring experience, and gender, consistent with maximum variation sampling principles (Creswell, 2015). Participants included both mentors and mentees to provide complementary perspectives on mentorship processes.

Interview Guide Development

A semi-structured interview guide was developed using Kram's mentoring framework (Kram, 1988) and Social Cognitive Theory (Bandura & Walters, 1977). The guide was informed by preliminary quantitative findings and refined through expert review. Interview questions explored mentorship experiences, communication dynamics, mentor availability, hierarchical influences, and gender-related challenges. The guide was piloted with mentors to ensure clarity and relevance.

Data Collection

Individual semi-structured interviews were conducted in private settings to protect confidentiality. Interviews were conducted in Burmese, audio-recorded with consent, and transcribed verbatim. Interviews continued until data saturation was achieved, defined as the point at which no new themes or subthemes emerged related to the core research questions (Creswell, 2015).

To enhance reflexivity and trustworthiness, interviews were conducted by non-supervisory faculty, and interviewer–interviewee pairings avoided direct hierarchical relationships. Field notes were maintained to document contextual factors and analytic reflections (Alvesson & Sköldberg, 2017).

Qualitative Data Analysis

Qualitative data were analyzed thematically following the approach described by Braun and Clarke (2006). Coding was conducted iteratively using a shared codebook. Discrepancies were discussed and resolved through consensus, and an audit trail was maintained to enhance analytic rigor. Trustworthiness was further strengthened through analyst triangulation, reflexive memoing, and examination of discrepant cases.

Integration of Quantitative and Qualitative Phases

Integration occurred at the interpretation stage using joint displays to compare and connect quantitative and qualitative findings. This process followed the Good Reporting of a Mixed Methods Study (GRAMMS) framework to examine convergence, complementarity, and divergence between data strands (Creswell & Plano Clark, 2018). Integration enabled qualitative insights to explain quantitative patterns and supported the development of context-specific recommendations.

Ethical Considerations

Ethical approval was obtained from the Ethics and Research Committee of DSMA (DSMA/ERB07/2025/C-006). Participation was voluntary, and written informed consent was obtained from all participants. Measures were implemented to minimize coercion and protect confidentiality, including non-supervisory data collection and private interview settings.

Results

Phase I: Quantitative Results:

Of 255 eligible cadets, 251 completed the survey (98.4% response rate). The 251 respondents (88.8% male, 11.2% female; mean age=21.2 years, SD=1.4) represented all six academic years. Assumption checks supported the primary analyses, with no severe violations of normality; where heterogeneity was detected, Welch's tests confirmed the robustness of results.

Quantitative findings are summarized in Tables 1–3, which present mentorship perception scores by gender and academic year, together with associated effect sizes.

Table 1: Mentorship perception scores across academic years (n = 251)

Category	Total (n=251)	FY (n=70)	Y1 (n=20)	Y2 (n=47)	Y3 (n=43)	Y4 (n=38)	Y5 (n=33)
Student Expectations	4.0±0.7	4.1±0.5	4.3±0.5	4.1±0.5	3.9±0.8	3.8±1.0	3.9±0.8
Academic Support	3.9±0.7	3.9±0.7	4.1±0.5	4.2±0.5	3.8±0.7	3.9±1.1	3.8±0.7
Career Guidance	4.0±0.7	4.1±0.6	4.2±0.4	4.2±0.5	3.8±0.7	3.7±0.8	3.8±0.7
Personal Development	4.1±0.7	4.2±0.7	4.2±0.4	4.3±0.6	3.9±0.8	3.7±1.0	3.9±0.8
Balancing Med & Military	3.3±0.9	3.3±0.9	2.8±0.8	3.7±0.8	3.2±0.7	3.3±1.1	3.2±0.7
Communication Barriers	3.3±1.1	3.5±0.9	2.8±1.1	3.7±1.0	3.0±1.0	2.9±1.3	3.0±1.0
Lack of Mentor Availability	2.9±1.1	3.1±1.0	2.4±1.3	3.1±1.0	2.9±0.9	2.6±1.2	2.9±0.9
Career Aspirations	3.8±0.7	3.9±0.7	4.0±0.6	3.8±0.7	3.8±0.6	3.6±0.7	3.8±0.6

Values are mean±SD.
Responses were measured on a 5-point Likert scale (1=strongly disagree to 5=strongly agree). FY= Foundation Year; Y1–Y5=Academic Years 1–5.

Table 2: Comparison of Mentorship Outcomes by Gender

Category	Male (n=223)	Female (n=28)	t(df)	p	Cohen's d (95% CI)
Student Expectations	4.03 (0.69)	3.96 (0.33)	0.89(249)	.374	0.12 [-0.25, 0.49]
Academic Support	3.96 (0.75)	3.79 (0.50)	1.58(249)	.115	0.24 [-0.13, 0.61]
Career Guidance	3.97 (0.68)	4.00 (0.27)	-0.44(249)	.660	-0.05 [-0.42, 0.32]
Personal Development	4.06 (0.76)	4.00 (0.54)	0.52(249)	.604	0.09 [-0.28, 0.46]
Balancing Med & Military	3.34 (0.91)	3.07 (0.90)	**2.16(249)**	**.032***	**0.34 [0.01, 0.67]**
Communication Barriers	3.27 (1.10)	3.14 (0.89)	0.71(249)	.478	0.12 [-0.25, 0.49]
Lack of Mentor Availability	2.91 (1.07)	2.86 (1.04)	0.24(249)	.811	0.05 [-0.32, 0.42]
Career Aspirations	3.83 (0.68)	3.79 (0.42)	0.44(249)	.661	0.07 [-0.30, 0.44]

** p < .05, ** p < .01, *** p < .001.*
Values are means ± SD. Effect sizes reported as Cohen's d (95% CI). SD = standard deviation; CI = confidence interval

Table 3: ANOVA across Academic Years (Corrected)

Category	df (B/W)	F	p	η^2	Significance
Student Expectations	5/245	2.07	.070	.04	No
Academic Support	5/245	1.65	.148	.03	No
Career Guidance	5/245	4.49	**<.001**	**.08**	**Yes**
Personal Development	5/245	4.24	**<.001**	**.07**	**Yes**
Balancing Med & Military	5/245	3.16	**.009**	**.06**	**Yes**
Communication Barriers	5/245	4.97	**<.001**	**.09**	**Yes**
Lack of Mentor Availability	5/245	2.68	**.022**	**.05**	**Yes**
Career Aspirations	5/245	1.83	.108	.02	No

** p < .05, ** p < .01, *** p < .001.*
Values are means ± SD. Effect sizes reported as η^2. Bonferroni post-hoc tests used for ANOVA

Expectations and Perceived Benefits of Mentorship

Cadets reported high overall expectations of mentorship, with a mean score of 4.0 (SD=0.7). The most highly valued mentorship benefits were career guidance (M=4.0) and personal development (M=4.1). These findings indicate that cadets perceived mentorship as an important source of academic direction and psychosocial support throughout their training.

Challenges and Barriers to Mentorship

Three major challenges were identified. Balancing academic and military duties was reported by 66.1% of cadets (M=3.3), followed by communication barriers affecting 65.2% (M=3.3), and lack of mentor availability cited by 58.2% (M=2.9). These findings suggest that structural and organizational factors significantly constrain mentorship effectiveness within the dual academic–military environment.

Gender Differences

Independent-samples t-tests showed no significant gender differences across most mentorship domains. However, male cadets reported significantly greater difficulty balancing academic and military roles compared with female cadets (M=3.34 vs. 3.07), t(249)=2.16, p=.032, d=0.34. Given the relatively small number of female cadets (n=28), this result should be interpreted with caution.

Differences across Academic Years

Analysis of variance (ANOVA) revealed significant differences across academic years in career guidance ($p<.001$, $\eta^2 = .08$), personal development ($p<.001$, $\eta^2 = .07$), balancing dual roles ($p=.009$, $\eta^2=.06$), communication barriers ($p<.001$, $\eta^2=.09$), and mentor availability ($p=.022$, $\eta^2=.05$). Post-hoc analyses indicated higher perceptions of career guidance and personal development in early academic years, with increased concerns regarding mentor availability in senior years. Effect sizes were small to moderate ($\eta^2 \approx .05–.09$), indicating practically meaningful variation across the curriculum.

Impact on Career Aspirations

Overall, 76.6% of cadets agreed that mentorship positively influenced their career aspirations (M=3.8). This suggests that mentorship plays a meaningful role in shaping cadets' professional goals and future career planning.

Phase II: Qualitative Results:

Qualitative analysis of interview data yielded three overarching themes that expanded upon and contextualized the quantitative findings: (1) perceived value of mentorship, (2) structural and relational barriers to effective mentorship, and (3) mentorship-informed career development. Figure 1 illustrates the thematic framework derived from qualitative analysis, demonstrating how mentorship roles and structural challenges interact within the dual academic–military context.

Theme 1: Perceived Value of Mentorship

Both cadets and mentors described mentorship as essential for navigating academic demands and emotional stress. Cadets emphasized the importance of having an approachable mentor who could provide reassurance, guidance, and motivation, particularly during the early years of training. Mentors similarly viewed their role as extending beyond academic instruction to include emotional support and professional role modeling.

Theme 2: Structural and Relational Barriers

Participants consistently identified hierarchical rank structures, time constraints, and competing military duties as significant barriers to effective mentorship. Cadets reported reluctance to initiate conversations with higher-ranked mentors, limiting open communication. Mentors acknowledged that heavy clinical and military workloads reduced their availability. These qualitative insights closely aligned with quantitative findings related to communication barriers and mentor accessibility.

Theme 3: Mentorship and Career Development

Mentorship was perceived as influential in shaping cadets' career aspirations. Cadets often described modeling mentors' clinical behaviors, specialty choices, and professional attitudes. However, inconsistent mentor contact—particularly in senior academic years—was reported to hinder sustained career planning and mentorship continuity.

Integration of Quantitative and Qualitative Findings

Integration of findings demonstrated strong convergence between quantitative and qualitative data. Quantitative patterns showing increased communication barriers and reduced mentor availability in senior years were explained qualitatively by heightened clinical workload and hierarchical constraints. Together, these findings provide a comprehensive understanding of mentorship dynamics within the Defence Services Medical Academy (Table 4).

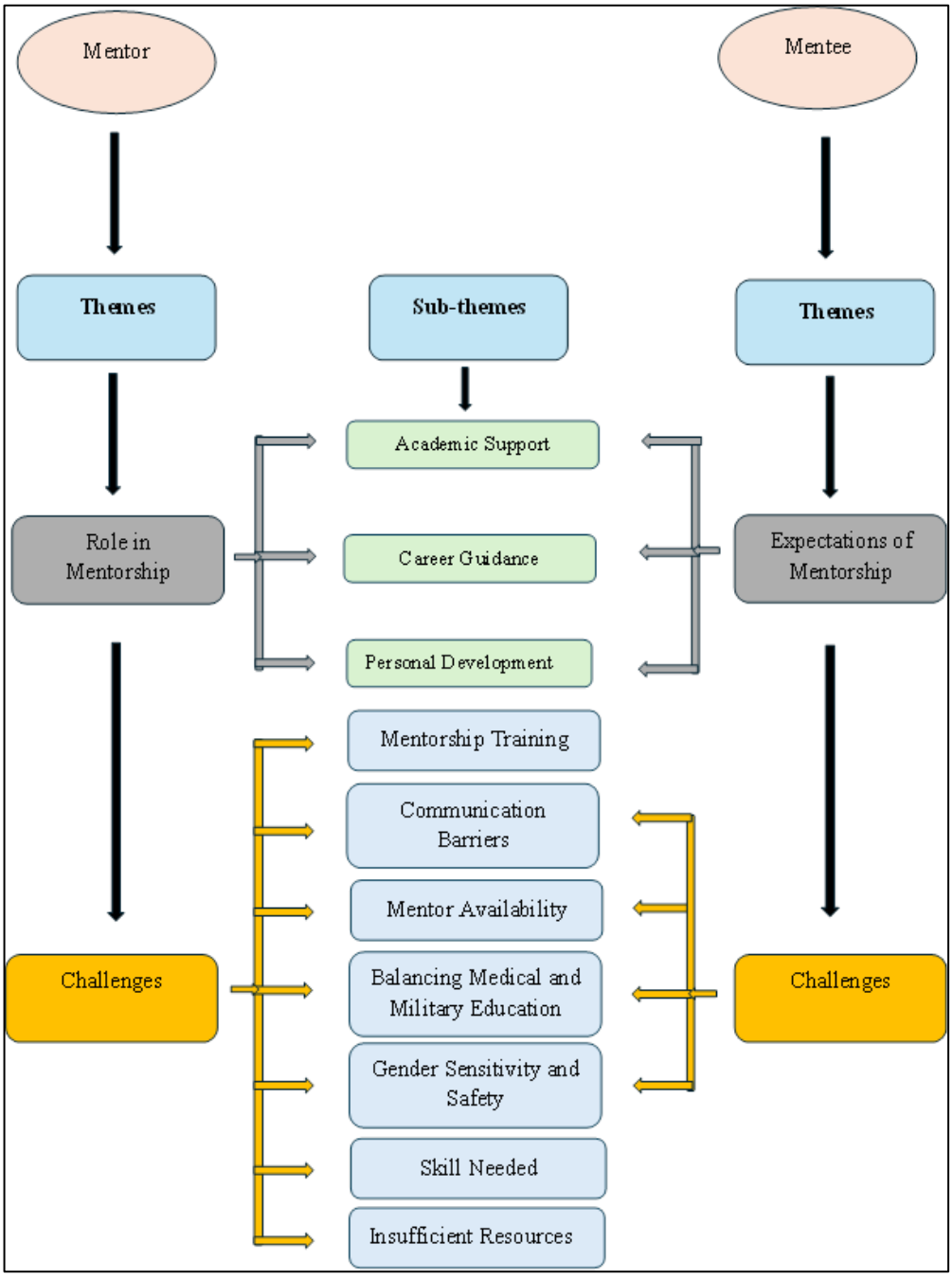

Figure 1: Thematic framework of mentorship at the Defence Services Medical Academy (DSMA)

The framework illustrates key mentorship roles (academic support, career guidance, and personal development) and challenges (balancing medical and military duties, communication barriers, mentor availability, insufficient resources, and gender sensitivity), highlighting their bidirectional influence on mentor–mentee expectations and the overall effectiveness of mentorship within DSMA's dual academic–military environment.

Table 4: Integration of quantitative and qualitative findings on mentorship at the Defence Services Medical Academy (DSMA)

Category	Quantitative Findings (Mean ± SD)	Qualitative Themes	Supporting Quotes
Expectation: Student Support	4.0 ± 0.7	High expectations for mentorship to overcome academic and personal challenges	"I expect to receive both academic support and personal development guidance from my mentor." (Mentee 1) "Foundation-year students require substantial support, not just academically but also emotionally, to cope with military and medical demands." (Mentor 4)
Benefit: Academic Support	3.9 ± 0.7	Mentorship helps address academic difficulties and motivates learning	"My mentor provided academic support that not only helped me succeed but also boosted my motivation." (Mentee 2) "Cadets in early years particularly need close academic and emotional support." (Mentor 4)
Benefit: Career Guidance	4.0 ± 0.7	Career exploration and guidance toward professional growth	"Thanks to my mentor's support, I am more capable of handling stress and clear about my ambitions to become a cardiologist." (Mentee 5) "Some mentees aspire to become clinicians, while others pursue teaching, influenced by their mentors' skills and approachability." (Mentor 2)
Benefit: Personal Development	4.1 ± 0.7	Growth in leadership, resilience, and stress management	"Personal development is essential, focusing on building resilience and emotional well-being." (Mentor 6) "My mentor encouraged me to improve not only academically but also in discipline and leadership." (Mentee 7)
Challenge: Balancing Medical & Military Roles	3.3 ± 0.9	Difficulty managing dual responsibilities	"Balancing my academic responsibilities with military duties has been incredibly difficult. At one point, I even considered withdrawing." (Mentee 8) "Many cadets struggle to balance training schedules with study time, and this is where mentors must step in." (Mentor 5)
Challenge: Communication Barriers	3.3 ± 1.1	Hesitancy to communicate due to rank and hierarchy	"Some mentors treat meetings as just another duty, showing a lack of genuine interest." (Mentee 3) "Mentees hesitate to approach mentors due to differences in rank and generational gaps." (Mentor 6)
Challenge: Mentor Availability	2.9 ± 1.1	Limited mentor time due to workload and competing responsibilities	"Sometimes my mentor was unavailable when I needed guidance most." (Mentee 6) "Mentors juggle clinical, academic, and administrative duties, leaving little protected time for mentorship." (Mentor 3)
Impact on Career Aspirations	3.8 ± 0.7	Mentorship shapes long-term career goals and ambitions	"My mentor guided me in setting my specialty goals, which kept me motivated despite stress." (Mentee 5) "One of my mentees, previously struggling, is now on track to become an intern because of steady mentorship support." (Mentor 2)
Recommendation: Program Improvement	3.7 ± 0.7	Value of structured feedback and mentor training	"Effective mentorship requires proper training and orientation for both mentors and mentees." (Mentor 1) "Mentees need safe spaces to express concerns without fearing rank or hierarchy." (Mentee 4)

Discussion

This study provides a comprehensive evaluation of mentorship within a military medical education context, demonstrating that mentorship is highly valued for academic, psychosocial, and career development, yet is constrained by structural and cultural features inherent to dual academic–military environments. By integrating quantitative and qualitative findings, this study advances existing mentorship literature by situating well-established theoretical models within a high power-distance, high-demand institutional setting (Kram, 1988; Bandura & Walters, 1977; Creswell & Plano Clark, 2018).

Mentorship as Academic and Psychosocial Support

Consistent with prior research in medical and professional education, mentorship emerged as a critical mechanism for supporting academic adjustment, emotional resilience, and professional growth (Ali *et al.,* 2024; Eller *et al.,* 2014; Johnson, 2015). In military medical education, these functions are amplified due to the cumulative demands of academic rigor, military discipline, and public-facing responsibility (Griffin, 2017; Kelley *et al.,* 2023). The present findings align with Kram's (1988) conceptualization of mentorship as encompassing both career-related and psychosocial functions, highlighting that effective mentorship extends beyond academic guidance to include emotional reassurance, confidence-building, and identity development.

Role Modeling and Career Development

Mentorship was perceived as influential in shaping cadets' career aspirations, particularly through professional role modeling. This observation is consistent with Social Cognitive Theory, which emphasizes observational learning and the role of credible models in the development of self-efficacy and goal orientation (Bandura & Walters, 1977). Prior studies have similarly demonstrated that mentees often internalize mentors' professional behaviors, values, and decision-making strategies when forming career trajectories (Kay *et al.,* 2009; Zachary & Fain, 2022). In the military medical context, such modeling may be especially salient, as mentors embody both clinical competence and military professionalism.

Structural Constraints and Hierarchical Dynamics

Despite the recognized value of mentorship, structural barriers limited its effectiveness. Hierarchical rank structures, time constraints, and competing clinical and military responsibilities constrained open communication and consistent mentor–mentee engagement. These findings echo previous work demonstrating that mentorship in hierarchical or resource-constrained environments is particularly vulnerable to organizational pressures (Schwerdtle *et al.,* 2017; Riggs, 2023). High power distance may discourage help-seeking and candid dialogue, thereby weakening the relational foundation necessary for effective mentorship (Zachary & Fain, 2022). These dynamics highlight the need to adapt mentorship models to institutional cultures rather than assuming that frameworks developed in civilian academic settings will transfer seamlessly.

Mentor Availability and Institutional Workload

Limited mentor availability was a recurrent concern, reflecting broader challenges documented in medical education and healthcare systems globally (DuBois *et al.,* 2011; Schwerdtle *et al.,* 2017). Faculty members at DSMA, like those in other military and clinical institutions, balance multiple roles, including patient care, teaching, and administrative or military duties. Without protected mentorship time and institutional recognition of mentoring as core academic work, mentorship programs risk becoming symbolic rather than functional (Sadowski *et al.,* 2018; Koop, 2024).

Gender and Equity Considerations

Gender-related dynamics merit careful consideration, particularly given the recent

admission of female cadets to DSMA. Although conclusions must remain cautious, existing literature suggests that women in military and male-dominated professional environments may experience mentorship differently due to visibility, role expectations, and implicit bias (Willis-Frazier, 2024). Mentorship programs that fail to account for such dynamics risk reproducing inequities rather than mitigating them. Prior research emphasizes the importance of intentional, inclusive mentorship structures to support underrepresented groups in professional training environments (DuBois *et al.,* 2011; Johnson, 2015).

Programmatic and Educational Implications

Taken together, the findings suggest that effective mentorship in military medical education requires deliberate institutional design. Programs should incorporate structured mentor preparation, emphasizing psychosocial mentoring skills, reflective practice, and communication strategies that reduce hierarchical distance (Milner, 2018; Rhoney *et al.,* 2024). Regular feedback mechanisms and continuous evaluation are essential to align mentorship practices with cadets' evolving needs and institutional realities (DuBois *et al.,* 2011). Embedding mentorship within outcome-based education frameworks may further support professional identity formation and long-term career development (Milner, 2018; Rhoney *et al.,* 2024).

Strengths, Limitations, and Future Directions

This study contributes to the limited empirical literature on mentorship in military medical education by employing a mixed-methods design that integrates cadet and mentor perspectives (Ivankova & Stick, 2007; Creswell, 2015). However, findings are drawn from a single institution and may not be generalizable to other military academies or national contexts. Additionally, the relatively small number of female cadets limits gender-specific analyses. Given the small female sample, estimates may be imprecise; findings are exploratory. Future research should include multi-institutional studies, longitudinal designs, and outcome measures such as burnout, retention, and academic performance to further elucidate the long-term impact of mentorship in dual-role training environments (Koop, 2024; Moore II, 2024).

Conclusion

This study demonstrates that mentorship is highly valued within military medical education and plays a critical role in supporting cadets' academic development, psychosocial well-being, and career formation. However, the effectiveness of mentorship at the Defence Services Medical Academy is constrained by structural and cultural factors inherent to dual academic–military training, including hierarchical communication, competing responsibilities, and limited mentor availability. By integrating quantitative and qualitative findings, this study highlights the need for a structured, context-sensitive mentorship model that explicitly addresses these challenges. Key implications include the importance of protected mentorship time, targeted mentor training focused on psychosocial support and rank-sensitive communication, and continuous program evaluation to ensure equitable access and sustained impact.

Future efforts should focus on strengthening institutional support for mentorship and evaluating long-term outcomes related to professional development, well-being, and retention. Implementing evidence-informed mentorship strategies tailored to military medical settings may enhance resilience and prepare future military physicians to navigate the complex demands of their dual professional roles.

References

Ali, F. D. A., Amir, M. M., Hussein, K., Khairundin, S. A. A. & Bakar, B., 2024. Bridging academic horizons: Deciphering the empowering potential and intrinsic obstacles in today's mentorship ecosystems. *International Journal of Advanced Research in Education Society*, 6(4), pp. 74–84. Available at: https://doi.org/10.55057/ijares.2024.6.4.7.

Alvesson, M. & Sköldberg, K., 2017. Reflexive methodology: New vistas for qualitative research. *Sage Publications*.

Bandura, A. & Walters, R. H., 1977. Social learning theory. 1 ed. *Prentice Hall*, pp. 141-154.

Braun, V. & Clarke, V., 2006. Using thematic analysis in psychology. *Qualitative research in psychology*, 3(2), pp. 77-101.

Creswell, J. W., 2015. Educational research: Planning, conducting, and evaluating quantitative and qualitative research. 4th ed. *Pearson*.

Creswell, J. W. & Plano Clark, V. L., 2018. Revisiting mixed methods research designs twenty years later. In: Handbook of mixed methods research designs. 1(1). pp. 21-36. Available at: https://doi.org/10.4135/9781529614572.n6.

DuBois, D. L., Portillo, N., Rhodes, J. E., Silverthorn, N. & Valentine, J. C., 2011. How effective are mentoring programs for youth? A systematic assessment of the evidence. *Psychological Science in the Public Interest*, 12(2), pp. 57–91. Available at: https://doi.org/10.1177/1529100611414806.

Eller, L. S., Lev, E. L. & Feurer, A., 2014. Key components of an effective mentoring relationship: A qualitative study. *Nurse education today*, 34(5), pp. 815-820. Available at: https://doi.org/10.1016/j.nedt.2013.07.020.

Griffin, S., 2017. Military innovation studies: Multidisciplinary or lacking discipline? *Journal of Strategic Studies*, 40(1-2), pp. 196–224. Available at: https://doi.org/10.1080/01402390.2016.1196358

Ivankova, N. V. & Stick, S. L., 2007. Students' persistence in a distributed doctoral program in educational leadership in higher education: A mixed methods study. *Research in Higher Education*, 48, pp. 93–135. Available at: https://doi.org/10.1007/s11162-006-9025-4.

Johnson, W. B., 2015. On being a mentor: A guide for higher education faculty. *Routledge*. Available at: https://doi.org/10.4324/9781315669120.

Kay, F. M., Hagan, J. & Parker, P., 2009. Principals in practice: The importance of mentorship in the early stages of career development. *Law & Policy*, 31(1), pp. 69–110. Available at: https://doi.org/10.1111/j.1467-9930.2008.00285.x.

Kelley, B., Fox, E. & Smith, J., 2023. Preparing your campus for veterans' success: An integrated approach to facilitating the transition and persistence of our military students. *Taylor & Francis*.

Koop, K., 2024. Positive youth development through initiation and sustainment of effective mentoring in youth-adult partnerships. [Unpublished doctoral dissertation]. Saint Mary's College of California.

Kram, K. E., 1988. Mentoring at work: Developmental relationships in organizational life. *University Press of America*.

Milner, D. M., 2018. Situated mentoring: A multiple descriptive case study of mentor teachers and their teacher candidates. [Unpublished doctoral dissertation]. *Mercer University*.

Moore II, J. W. (2024). Unseen battles, academic frontlines: The impact of military experience on student veteran persistence in private higher education. *Doctoral dissertation* https://doi.org/10.3435/3183.

Pathan, H., Memon, R. A., Memon, S., Khoso, A. R. & Bux, I., 2018. A critical review of Vygotsky's socio-cultural theory in second language acquisition. *International Journal of English Linguistics*, 8(4), p. 232. Available at: https://doi.org/10.5539/ijel.v8n4p232.

Rhoney, D. H., Chen, A. M., Churchwell, M. D., Daugherty, K. K., Jarrett, J. B., Kleppinger, E. L. *et al.,* 2024. The need for competency-based education. *American Journal of Pharmaceutical Education*, 100, p. 706. Available at: https://doi.org/10.1016/j.ajpe.2024.100706.

Riggs, P., 2023. A phenomenological study to assess the attributes of military veterans transitioning into professional teaching. [Unpublished doctoral dissertation]. *Gardner-Webb University*.

Sadowski, B., Cantrell, S., Barelski, A., O'Malley, P. G. & Hartzell, J. D., 2018. Leadership training in graduate medical education: A systematic review. *Journal of Graduate Medical Education*, 10(2), pp. 134–148. Available at: https://doi.org/10.4300/JGME-D-17-00194.1.

Schwerdtle, P., Morphet, J. & Hall, H., 2017. A scoping review of mentorship of health personnel to improve the quality of health care in low and middle-income countries. *Global Health Action*, 13, pp. 1–8. Available at: https://doi.org/10.1186/s12992-017-0301-1.

Willis-Frazier, B., 2024. Gender diversity in the military: Women leadership and overcoming challenges. [Unpublished doctoral dissertation]. *Youngstown State University*. Available at: http://rave.ohiolink.edu/etdc/view?acc_num=ysu1711449662238 21.

Zachary, L. J. & Fain, L. Z., 2022. The mentor's guide: Facilitating effective learning relationships. *John Wiley & Sons*.