

# An Initial Evaluation of a Peer Mentorship Program in a Medical School Clinician Educator Scholarly Concentration

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## ABSTRACT

**Introduction:** Traditional faculty mentorship in medical education is limited by availability and specificity of advice. Peer mentorship may complement this model by supporting mentees' transition into medical school while promoting mentors' teaching and leadership skills. We implemented a peer mentorship program within an experiential learning course at a private Midwestern medical school to enhance students' understanding of core course components.

**Methods:** First-year mentees were randomly assigned second- and third-year mentors. Six required sessions were embedded into course meetings across the academic year. A pre-implementation survey (pre-1, N=65) and 2 post-surveys at the end of each semester (post-1, N=31; post-2, N=11) assessed students' understanding of course components and perceptions of the program. Survey outcomes were compiled as a total understanding score (TUS).

**Results:** Comparing pre-1 to post-1 and post-2, understanding ( $P = .0026$ ;  $P = .001$ , respectively) and development ( $P = .0037$ ;  $P = .0019$ , respectively) of course competencies improved significantly. Scholarly project understanding and TUS improved significantly from pre-1 to post-1 ( $P = .0001$ ;  $P = .0005$ , respectively) but not from pre-1 to post-2 ( $P = .0739$ ;  $P = .0665$ , respectively). Understanding and development of individualized learning plans did not significantly improve across either interval. Consistent mentor groupings and integration into required sessions were rated most favorably among design components.

**Conclusions:** Participation positively affected students' self-assessed success in competency-based learning. Structured peer mentorship embedded in existing curricula may address limitations of hierarchical models by providing scalable support for students in longitudinal medical education settings.

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## INTRODUCTION

Mentorship plays a foundational role in undergraduate medical education, supporting both academic growth and professional identity formation.<sup>1</sup> According to Kram's dual function model, effective mentorship provides both psychosocial support and career development, offering unique benefits depending on whether the relationship is hierarchical (eg, faculty-student) or peer-based (eg, senior-junior student).<sup>2,3</sup> Faculty mentorship remains the dominant model in most academic settings, often embedded within research, specialty guidance, or formal advising structures.<sup>1,4</sup>

Hierarchical mentorship models are limited by faculty availability, competing clinical responsibilities, and inconsistent access, which may prevent students from building meaningful longitudinal relationships.<sup>5,6</sup> These limitations are particularly impactful as students face increasing pressure to distinguish themselves on residency applications through scholarly activities and leadership roles—especially

since the transition of the United States Medical Licensing Examination (USMLE) Step 1 and many preclinical curricula to pass/fail grading.<sup>7</sup> Differences in curricular models and evaluation systems further limit the specificity of advice faculty can offer students navigating a rapidly evolving academic environment. This trend has heightened the need for effective support systems that guide students through self-directed and extracurricular academic work.

To address these challenges, many medical schools have

implemented scholarly concentrations (SCONs)—structured longitudinal programs that connect students with faculty mentors to develop individualized learning plans (ILPs), complete scholarly projects, and pursue focused competency development in fields of interest.<sup>8</sup> While these programs offer structure and opportunities for faculty engagement, they face the same limitations as hierarchical mentorship models and often lack formal peer support systems to help students manage timelines for self-directed learning activities.

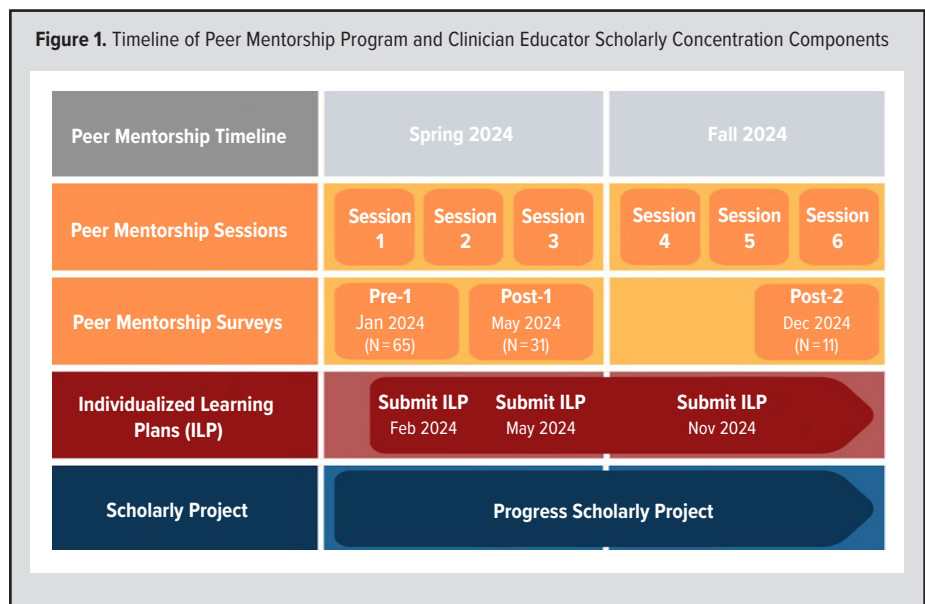
Peer mentorship offers a promising complement to traditional faculty-led models.<sup>2</sup> Compared with hierarchical relationships, peer mentors may provide increased accessibility, psychological safety, and similarity of perspectives and identities, leading to higher perceived mentor credibility and mentee receptiveness to advice.<sup>3,9</sup> Mentors themselves benefit through the development of teaching skills, leadership confidence, and a stronger professional identity.<sup>3,10</sup> Despite these advantages, few peer mentorship programs have been formally evaluated in undergraduate medical education.<sup>3,5,11-13</sup>

To address this gap, we implemented a structured peer mentorship program within the clinician educator (CE) SCON at the Medical College of Wisconsin (MCW) and sought to understand students' perceptions of its impact. The program was designed to foster shared learning, support mentees in navigating this customized curricular thread, and promote professional development among both mentors and mentees. We hypothesized that participation would positively affect students' understanding of and confidence in the required components for successful completion of this longitudinal course, which emphasizes competency development and scholarly output across preclinical and clinical years of medical school.

## METHODS

### Setting and Program Design

All medical students at MCW self-select into 1 of 8 SCONs, each a 2- to 3-year longitudinal experiential learning course. Students select a faculty scholarly advisor and design ILPs to structure their extracurricular time around completion of a scholarly project and competency-based skill development. Scholarly projects are a required, longitudinal, self-directed component of the curriculum intended to encourage exploration and advancement in a field of interest within medicine. Project opportunities are diverse, encompassing international work, peer-reviewed research, community engagement, program development, and formal quality improvement initiatives within academic and



clinical settings. To graduate, projects must satisfy Glassick's criteria for scholarship and culminate in both a written manuscript and an oral presentation.

Within the CE SCON, we implemented a student-led peer mentor program during the 2024 academic year. This launch coincided with a major curricular transition in the medical school curriculum, including a shift to systems-based course organization and a shortened preclinical phase (from 2 to 1.5 years) to allow more time for clinical electives. As a result, incoming students entered the CE SCON under a different curricular model than their continuing peers. Notably, the SCON curriculum and scholarly project requirements did not change.

Because mentorship is a core CE SCON competency, program participation was mandatory for all students, which precluded assessment of a contemporaneous control group. New students to the CE SCON were considered "student mentees" (N=44) and were randomly paired by course administrative staff with student mentors who had at least 1 year of CE SCON experience (N = 27). CE SCON cohort size varies annually based on student self-selection. Although rare, students may switch between SCONs after 1 year; therefore, only students with more than 1 year of enrollment in CE SCON were eligible to serve as mentors. Those with less than 1 year enrollment were mentees. To account for differences in cohort size, some mentors were assigned 2 mentees.

To minimize burden and maximize engagement, 6 peer mentorship sessions were embedded into existing monthly CE SCON meetings. Each session included a 10-minute didactic presentation followed by a 20-minute small-group discussion. Sessions were designed and facilitated by CE SCON student leaders with at least 1 year of prior program experience. Faculty course directors' involvement was limited to reviewing and providing feedback on student-prepared didactic presentations before each session,

analogous to reviewing slides for guest faculty presenters. Didactic content addressed mentorship dynamics, and discussion prompts focused on completion of SCON course requirements and development of 10 core CE competencies.<sup>14</sup> Although general prompts were provided, peer mentor groups were encouraged to individualize each discussion to mentees' goals.

### Survey Development and Implementation

Assessment of the peer mentorship program through student self-assessment surveys was approved by the MCW Institutional Review Board (PRO00050710). Informed consent was collected at the start of the survey, emphasizing that program participation was required but survey participation was voluntary. Surveys were adapted from an existing clinician educator (CE) SCON survey used for educational quality improvement by faculty and student authors (Box). Additional items assessed perceived helpfulness of program components and overall strengths and weaknesses. The survey was piloted with subject experts and students to collect evidence of content and response process validity per Messick's framework.<sup>15</sup>

All CE SCON students received an electronic invitation to complete a pre-survey (pre-1) prior to program launch, a post-survey (post-1) after the first semester, and a second post-survey (post-2) after a full year of participation (Figure 1). Surveys were administered via Qualtrics (Qualtrics, LLC, 2024) and closed 2 weeks after the initial invitation. One follow-up email reminder was sent 1 week before the survey closed. All responses were de-identified.

The pre-survey and post-surveys collected demographic information, including duration of CE SCON participation. Respondents used a 5-point Likert scale (1=strongly disagree, 5=strongly agree) to rate their understanding of 5 CE SCON domains: ILP purpose, ILP development and maintenance, CE competencies, competency development, and scholarly project requirements. To inform future program iterations, post-surveys included additional 5-point Likert items (1=very unhelpful, 5=very helpful) assessing perceived usefulness of pilot design components: random assignment, consistent groups across each semester, discussion prompts, session length, and student-led facilitation. Respondents also answered free-response questions soliciting feedback on helpful and unhelpful elements of the program and suggestions for improvement. Survey text is shown in the Box.

### Data Analysis

Statistical analysis compared survey responses before and after program participation. Only responses with all quantitative questions completed were included. Quantitative analyses were performed using Stata, version 19 (StataCorp LLC). Cronbach's alpha was used to evaluate inter-item reliability of pre- and post-surveys to demonstrate evidence of internal structure validity. Composite total understanding scores (TUS) were calculated by summing Likert

#### Box. Peer Mentorship Program Survey Evaluation

Select your current academic year in medical school.  
How long have you been in the CE SCON?  
Rate your level of agreement with the following statements:<sup>a</sup>

- I understand the purpose of an ILP.
- I understand how to create and maintain an ILP.
- I understand the CE SCON competencies.
- I understand how to seek out activities to develop CE SCON competencies.
- I understand how to meet the scholarly project requirement.

Rate the helpfulness of these components of the peer mentorship program:<sup>b</sup>

- Peer mentorship groups assigned at random.
- Using dedicated time during core sessions for peer mentorship conversations.
- Suggested prompts provided for peer mentorship discussion.
- Student leadership of peer mentorship program.
- Consistent peer mentorship group assignment throughout the semester.

Did the dedicated core session time for peer mentorship conversation feel appropriate in duration?  
How likely is it that you would recommend a SCON peer mentorship program to a friend or colleague?  
What 2 to 3 components of the peer mentorship experience were not helpful to your development?  
Please share with us any additional thoughts related to the SCON peer mentorship program.

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Abbreviations: CE, clinician educator; SCON, scholarly concentration; ILP, individualized learning plan.  
<sup>a</sup>5-point Likert scale: 1=strongly disagree, 5=strongly agree.  
<sup>b</sup>5-point Likert scale: 1=very unhelpful, 5=very helpful.

**Table 1.** Comparison of Student Pre-survey Responses by Duration of Time in Clinician Educator Scholarly Concentration

| Primary Outcomes                                | P value            | Direction of Difference |
|---|--------------------|-------------------------|
| Understanding of CE core competencies           | .018 <sup>a</sup>  | (>1 year) > (<1 year)   |
| Developing CE core competencies                 | <.001 <sup>a</sup> | (>1 year) > (<1 year)   |
| Understanding the purpose of an ILP             | .058               | No difference           |
| Maintaining an ILP                              | .002 <sup>a</sup>  | (>1 year) > (<1 year)   |
| Understanding of scholarly project requirements | 0.002 <sup>a</sup> | (>1 year) > (<1 year)   |

Abbreviations: CE, clinician educator; ILP, individualized learning plan.  
>1 year = mentors; <1 year = mentees.  
Statistically significant:  $P < .05$ .

scale items assessing understanding of CE SCON domains and were compared using Wilcoxon rank-sum testing (Mann-Whitney U). Student mentorship scoring was assessed using descriptive statistics. Pre- to post-item score comparisons were performed using Wilcoxon rank-sum testing with a significance level of 0.05. Differences in pre-survey baseline scores were analyzed against time spent in the course. Analysis was then conducted between mentee students (<1 year in the course) and mentor students (>1 year in the course) using Wilcoxon rank-sum testing, which served as a proxy for mentee versus mentor role. The research team reviewed free-text responses to inform potential future program changes but were not thematically coded in this analysis.

## RESULTS

### Overall Survey Demographics

In the first-semester cohort, 43 students had been enrolled in the CE SCON for less than 1 year and 22 students for more than 1 year. Of 70 total students, 65 completed the pre-1 survey and 31 completed the post-1 survey. Within pre-1, 43 students had less than 1 year CE SCON experience and 22 students had more than 1 year. Within post-1, 26 students had less than 1 year of experience and 5 had more than 1 year. In the second-semester cohort, 25 had less than 1 year of CE SCON experience and 48 had more than 1 year. Of 73 total students, 11 completed the post-2 survey, all of whom had more than 1 year of CE SCON experience. Overall survey response rates were 93% for pre-1, 44% for post-1, and 15% for post-2.

### Survey Validity and Baseline Differences by SCON Experience

Cronbach's  $\alpha$  values were .8809 for the pre-survey and .8003 for the post-survey, indicating appropriate and credible measures for survey items. Pre-1 results for students with and without prior CE SCON experience were compared to assess knowledge as a metric for subject "expertise" or understanding. Students with more than 1 year of CE SCON experience had significantly higher baseline scores for understanding CE competencies ( $P=.018$ ), development of those competencies ( $P<.001$ ), development and maintenance of an ILP ( $P=.002$ ), and scholarly project requirements ( $P=.002$ ). These results are shown in Table 1.

### Impact of Peer Mentorship on Primary Outcomes

Comparison of student understanding and confidence in course components across the intervention is shown in Table 2. When comparing pre-1 to post-1, significant increases were observed in understanding CE competencies ( $P=.0026$ ), development of CE competencies ( $P=.0037$ ), and scholarly project requirements ( $P=.0001$ ). TUS also increased significantly ( $P=.0005$ ). Conversely, understanding of the purpose of an ILP ( $P=.0491$ ) and ILP development and maintenance ( $P=.0248$ ) decreased significantly.

When comparing pre-1 with post-2, statistically significant increases were observed in understanding CE competencies

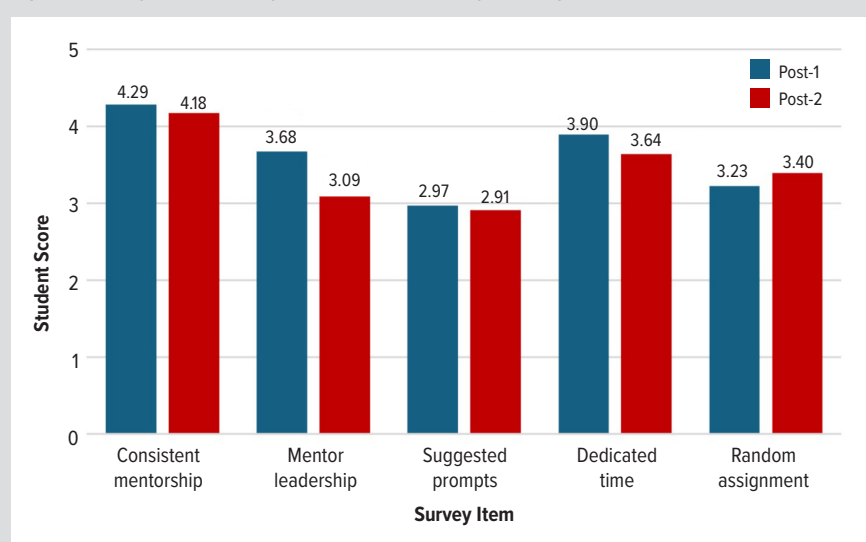
**Table 2.** Comparison of Student Responses and Composite Total Understanding Scores Across Pre-survey and Two Post-surveys

| Primary Outcome                                 | Rank Sum Pre-survey | Rank Sum Post-survey | P value            | Direction of Difference |
|---|---------------------|----------------------|--------------------|-------------------------|
| Pre-1 (N=65) to Post-1 (N=31) Item Comparison   |                     |                      |                    |                         |
| Understanding of CE competencies                | 2782.5              | 1873.5               | .0026 <sup>a</sup> | Post>Pre                |
| Developing CE competencies                      | 2715.5              | 1844.5               | .0037 <sup>a</sup> | Post>Pre                |
| Understanding the purpose of an ILP             | 2911                | 1745                 | .0491 <sup>a</sup> | Post>Pre                |
| ILP development and maintenance                 | 2875.5              | 1780.5               | .0248 <sup>a</sup> | Post>Pre                |
| Understanding of scholarly project requirements | 2455.5              | 1915.5               | .0001 <sup>a</sup> | Post>Pre                |
| Total understanding score                       | 2711.5              | 1944.5               | .0005 <sup>a</sup> | Post>Pre                |
| Pre-1 (N=65) to Post-2 (N=11) Item Comparison   |                     |                      |                    |                         |
| Understanding of CE competencies                | 2296.5              | 629.5                | .001 <sup>a</sup>  | Post>Pre                |
| Developing CE competencies                      | 2237                | 613                  | .002 <sup>a</sup>  | Post>Pre                |
| Understanding the purpose of an ILP             | 2499.5              | 426.5                | 1.0                | Not Significant         |
| ILP development and maintenance                 | 2497                | 429                  | .9405              | Not Significant         |
| Understanding of scholarly project requirements | 2181.5              | 519.5                | .0739              | Not Significant         |
| Total understanding score                       | 2378.5              | 547.5                | .0665              | Not Significant         |

Abbreviations: Pre-1, baseline pre-participation survey; Post-1, end of first semester post-participation survey; Post-2; end of second semester post-participation survey; CE, clinician educator; SCON, scholarly concentration; ILP, individualized learning plan.

<sup>a</sup>Statistically significant:  $P<.05$ .

**Figure 2.** Average Student Ratings of Peer Mentorship Program Design Components



Abbreviations: Post-1, end of first semester post-participation survey; Post-2, end of second semester post-participation survey.

( $P=.001$ ) and development of CE competencies ( $P=.0019$ ). However, changes in understanding scholarly project requirements ( $P=.0739$ ) and TUS ( $P=.0665$ ) were not significant. No significant changes were observed in understanding the purpose of an ILP ( $P=.9634$ ) or ILP development and maintenance ( $P=.9405$ ).

### Subjective Value and Appreciation of Peer Mentorship Components

Figure 2 displays participant ratings of various peer mentorship program components. For both post-1 and post-2, highest appre-

ciation scores were for consistent mentor groupings (4.29 and 4.18, respectively) and sessions scheduled during dedicated course time (3.9 and 3.64, respectively).

## DISCUSSION

These findings suggest that integrating a structured, student-led peer mentorship program within existing longitudinal curricula is feasible and may positively affect medical student confidence in achieving course objectives. They reinforce existing literature highlighting the potential of peer mentorship to enhance learner development and foster a community of mutual support.<sup>2,3</sup> SCON programs, such as the one in which this peer mentorship model was embedded, are often structured to increase student engagement in scholarly work by pairing students with faculty advisors.<sup>8</sup> While faculty mentorship remains an important component of student development, peer mentorship may address gaps that traditional hierarchical models cannot. Hierarchical faculty-student relationships often involve a power imbalance, which can create barriers to professional development—particularly for students.<sup>1</sup> Our results suggest that students view peer mentorship—alongside faculty mentorship—positively when adapting to a new longitudinal curriculum. This aligns with broader evaluations of ILP usage and efficacy in undergraduate medical education, which emphasize that structured, self-regulated learning initiatives are most effective when guided by mentorship.<sup>16-19</sup>

This study did not find significant improvement in students' understanding of the purpose of an ILP or confidence in ILP development and maintenance after integration of the peer mentorship program. To address this, future iterations could incorporate more discussion prompts focused on learning goals and explore coordination of assignment due dates with mentorship sessions.

Of note, differences in TUS and understanding of scholarly project requirements were not statistically significant in pre-1 to post-1 and pre-1 to post-2 comparisons (Figure 3). This may be attributable to the low response rate for post-2 surveys (15%). However, the primary limitation of this analysis is the absence of a control group (ie, students enrolled in CE SCON without peer mentorship), which prevents distinguishing the impact of peer mentorship from natural student growth during a 2-year longitudinal curriculum. We hypothesize that uncertainty is greatest early in the CE SCON course, when students must rapidly identify which developmental experiences are most valuable to them, establish ILPs, and learn how to engage faculty mentors in project design. Peer mentorship may therefore feel most impactful early in self-directed development.

We also asked respondents to rate perceptions of program design components to inform future refinement. Consistency of peer mentorship groupings receive the highest ratings, suggesting that stable peer relationships may be key to building trust and fostering meaningful dialogue. In contrast, random group assignments received lower ratings, likely due to misalignment of

personality, goals, or expertise. In response, a competency-based assignment process has been implemented to improve rapport and specificity of advice. Scheduling was another strength, with students rating highly the integration of mentorship sessions into existing coursework. This reinforces that embedding mentorship within required sessions can reduce barriers to engagement. Participation was mandatory for all CE SCON students, and this structure may have promoted mentorship as a course expectation rather than an extracurricular burden.

## Limitations

This study faced several limitations that can inform future iterations of this model. First, the absence of a control group limits our ability to account for potential confounders, such as concurrent faculty mentorship or improvements attributable to participation in the CE SCON itself. Second, the post-2 survey response rate was low (15%), limiting statistical power and generalizability. Surveys were distributed immediately following the final session of the semester and closed after 2 weeks; however, this coincided with the start of winter vacation, likely reducing engagement. Future studies should consider survey timing and employ strategies to optimize response rates. Third, the program was launched during a major curricular transition. Compared with mentors, mentees were enrolled in an accelerated preclinical curriculum with a more systems-based structure. This mismatch may have limited the specificity of mentor guidance related to academic success and scholarly project timelines. To address this, peer mentor discussions emphasized broader competency development and explored curricular differences through the lens of a course director. While this barrier is expected to resolve with curriculum alignment in future cohorts, peer mentorship implementations should consider strategies that encourage individualization and adaptability of mentee-mentor dynamics.<sup>20,21</sup> Fourth, survey respondents did not disclose mentor or mentee roles, and responses were deidentified to promote confidentiality, preventing matched pre- and post-survey comparisons. Although duration of SCON participation as a proxy for role, this approach is imprecise. Finally, reliance on self-assessed survey responses allowed exploration of effects on student confidence but not objective outcomes. Future evaluations may benefit from incorporating measures such as research output or educational development experiences.

## CONCLUSIONS

These findings demonstrate that a structured peer mentorship model can feasibly support student engagement in competency-based training in medical education. While participation was mandatory, the program was well received, with students particularly appreciating integration into existing coursework and consistent mentor groupings. Future studies should evaluate role-specific outcomes and explore adaptation of this model to other curricular settings.

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