Medical Student Self-Efficacy With Family-Centered Care During Bedside Rounds

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Abstract

Purpose
Factors that support self-efficacy in family-centered care (FCC) must be understood in order to foster FCC in trainees. Using social cognitive theory, the authors examined (1) how three supportive experiences (observing role models, practicing for mastery, and receiving feedback) influence self-efficacy with FCC during rounds and (2) whether the influence of these supportive experiences was mediated by self-efficacy with three key FCC tasks (relationship building, information exchange, and decision making).

Method
Researchers surveyed third-year students during pediatric clerkship rotations during the 2008–2011 academic years. Surveys assessed supportive experiences and students’ self-efficacy both with FCC during rounds and with key FCC tasks. Researchers constructed measurement models via exploratory and confirmatory factor analyses. Composite indicator structural equation models evaluated whether supportive experiences influenced self-efficacy with FCC during rounds and whether self-efficacy with key FCC tasks mediated any such influences.

Results
Of 184 eligible students, 172 (93%) completed preclerkship surveys. Observing role models and practicing for mastery supported self-efficacy with FCC during rounds (each \( P < .01 \)), whereas receiving feedback did not. Self-efficacy with two specific FCC tasks—relationship building and decision making (each \( P < .05 \))—mediated the effects of these two supportive experiences on self-efficacy with FCC during rounds.

Conclusions
Both observing role models and practicing for mastery foster students’ self-efficacy with FCC during rounds, operating through self-efficacy with key FCC tasks. Results suggest the importance both of helping students gain self-efficacy in key FCC tasks before rounds and of helping educators implement supportive experiences during rounds.

The goal of family-centered care (FCC) is to engage families in three key tasks of a health care visit: (1) building relationships with care providers, (2) exchanging information, and (3) deliberating about decisions.\(^1,2\) The benefits of FCC include improved resource utilization as well as increased patient and staff satisfaction.\(^3,5\) The American Academy of Pediatrics (AAP), the Accreditation Council for Graduate Medical Education (ACGME), and the Joint Commission each endorse family-centered rounds so that students may acquire FCC skills through observing and practicing communication skills and through observing professionalism and bedside manner in their role models.\(^6,9\)\(^–\)\(^12\) However, learner experiences with family-centered rounds are not always positive,\(^13\)\(^–\)\(^17\) and as yet no formal curricula for teaching this rounding technique exist.

To facilitate the learning process during family-centered rounds so that students eventually implement an FCC approach, it is imperative to understand the factors that may influence medical students’ adoption of FCC during rounds.

Social cognitive theory (SCT)\(^18\) provides a useful framework for understanding mechanisms that may influence students’ behaviors during clinical experiences, including family-centered rounds. SCT posits that knowledge and skills alone are not always good predictors of behavior because the beliefs that individuals possess about their capabilities significantly affect their behavior. Thus, self-efficacy, defined as an individual’s beliefs about her or his capabilities to organize and execute a behavior, is an important prerequisite to that behavior.\(^19\) Bandura\(^20\) proposes three specific experiences that can support self-efficacy: (1) observing role models performing the behavior, (2) having opportunities to practice the behavior (mastery experiences), and (3) receiving feedback on one’s performance. Further, self-efficacy is context specific; thus, self-efficacy with FCC during rounds must be measured in that context.

Third-year clerkships often represent medical students’ first clinical experiences, and these clerkships often entail numerous stressors.\(^9,21\)\(^,\)\(^22\) Many students experience difficulty with prioritizing competing demands, managing time, and coping with the emotional intensity of caring for patients.\(^23\)\(^,\)\(^24\) Students may also encounter personal problems (e.g., a change in their own health status or that of a loved one),\(^25\) medical errors, and tension among care team members.\(^25\) These stressors may disrupt students’ abilities to implement a family-centered approach.\(^26\)

Identifying the factors that support students’ self-efficacy with FCC during family-centered rounds and the mechanisms through which these supporting factors act may help inform...
Table 1
Factor Loadings for Indicators* of Self-Efficacy With Family-Centered Care During Rounds, as Self-Reported by 172 Third-Year Medical Students, 2008–2009 to 2010–2011

<table>
<thead>
<tr>
<th>Indicators by factor: When ..., I can provide family-centered care during bedside rounds</th>
<th>Unstandardized* (standard error)</th>
<th>Standardized‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1: Self-efficacy under everyday stressors†</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>there is time pressure</td>
<td>0.91 (0.03)</td>
<td>0.87</td>
</tr>
<tr>
<td>I am stressed</td>
<td>0.98 (0.02)</td>
<td>0.94</td>
</tr>
<tr>
<td>I am tired</td>
<td>—</td>
<td>0.96</td>
</tr>
<tr>
<td><strong>Factor 2: Self-efficacy under situational stressors§</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>other team members do not support family-centered care</td>
<td>0.69 (0.06)</td>
<td>0.55</td>
</tr>
<tr>
<td>it is time to go to lunch</td>
<td>0.81 (0.05)</td>
<td>0.65</td>
</tr>
<tr>
<td>there is tension between the primary team and consultants</td>
<td>0.86 (0.05)</td>
<td>0.69</td>
</tr>
<tr>
<td>the health care team has made a mistake</td>
<td>0.89 (0.05)</td>
<td>0.72</td>
</tr>
<tr>
<td>patients and families are given bad news</td>
<td>0.91 (0.05)</td>
<td>0.73</td>
</tr>
<tr>
<td>families are difficult</td>
<td>—</td>
<td>0.81</td>
</tr>
<tr>
<td>or after experiencing personal problems</td>
<td>1.02 (0.04)</td>
<td>0.82</td>
</tr>
<tr>
<td>I am feeling nervous</td>
<td>1.05 (0.04)</td>
<td>0.84</td>
</tr>
</tbody>
</table>

*All indicators on a scale of 1 = strongly disagree to 7 = strongly agree.
†Unstandardized factor loadings are on the original item scale, reflecting the extent to which the domain covaries with the indicator item.
‡Standardized factor loadings reflect the extent to which the domain is correlated with the indicator item.
§Everyday stressors include time constraints, stress, and fatigue; situational stressors are specific occurrences, such as personal problems or the detection of a medical error.
†The base item in the scale with a fixed value of 1.00 is indicated with a dash.

the development of FCC curricula. Guided by SCT, we hypothesized that supportive experiences including observing role models, practicing for mastery, and receiving feedback would foster medical students’ self-efficacy with FCC during rounds. We also anticipated that the effects of these supportive experiences during rounds would be mediated by medical students’ self-efficacy with key FCC tasks (relationship building, information exchange, and decision making); that is, we hypothesized that students’ self-efficacy with key FCC tasks would serve as an intermediary step between supportive experiences and students’ beliefs about their abilities to perform FCC in the clinical setting.

**Method**

**Study context, participants, and procedures**

Over the course of 17 pediatric clerkship rotations during the 2008–2009, 2009–2010, and 2010–2011 academic years, 184 students experienced three-week blocks of inpatient care at the 88-bed, freestanding children’s hospital affiliated with a large, midwestern academic health center. At this medical center, faculty members (primarily hospitalists) round with a multidisciplinary care team at the bedside with the family in attendance unless precluded by family preference. The care team typically includes an attending, a senior resident, two interns, up to four medical students, the patient’s nurse, and other care team members as appropriate (e.g., social worker or respiratory therapist). Family-centered rounds are conducted similarly across the pediatric clerkships. Students present up to four patients under their care each day, and they never round alone. The rounds contain a presentation of the patient’s diagnosis, progress, and care plan as well as bedside teaching and the opportunity for any member of the team or family to raise questions or concerns. The institution has routinely conducted family-centered rounds since 2007. Some attending physicians, residents, nurses, and medical students have received limited formal training in FCC. The pediatric clerkship represents the only consistent opportunity for students to participate in family-centered rounds during their medical school training.

To develop measures and respond to our study’s research questions, we administered pre- and postclerkship surveys assessing the following: (1) self-efficacy with FCC during rounds in the clinical setting, (2) self-efficacy with particular FCC tasks, and (3) the supportive experiences that students participating in these rounds encountered. The paper-based questionnaires were anonymous, voluntary, and independent of evaluation. We did not offer incentives for participation, nor did we send reminders to nonresponders. Completion of the survey implied consent. The study received approval from the University of Wisconsin–Madison’s health sciences institutional review board.

**Survey items**

To generate items for each measure, we gathered potential items from the literature, pilot tested them with third-year medical students and faculty, and iteratively revised them as appropriate. The outcome of interest was self-efficacy with FCC during rounds—that is, the student’s belief that she or he can successfully provide FCC during rounds on the pediatric inpatient service.
Table 2

<table>
<thead>
<tr>
<th>Indicators by factor</th>
<th>Unstandardized† (standard error)</th>
<th>Standardized‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1: Observing role models</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending physicians treated patients and families with respect</td>
<td>0.91 (0.07)</td>
<td>0.70</td>
</tr>
<tr>
<td>I learned how to provide family-centered care</td>
<td>0.99 (0.06)</td>
<td>0.75</td>
</tr>
<tr>
<td>or senior residents model how to interact with patients and families during family-centered bedside rounds.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The care team provided family-centered care</td>
<td>1.00 (0.06)</td>
<td>0.86</td>
</tr>
<tr>
<td>Attending physicians were sensitive to the emotional, economic, social, and cultural aspects of patients’ illnesses.</td>
<td>1.09 (0.05)</td>
<td>0.82</td>
</tr>
<tr>
<td>The care team modeled incorporating the best evidence from the literature with the unique circumstances and preferences of patients and families.</td>
<td>1.10 (0.05)</td>
<td>0.84</td>
</tr>
<tr>
<td>During family-centered bedside rounds, the attending physician and/or senior resident was explicit about his or her reasoning when discussing clinical decisions with patients and families.</td>
<td>1.10 (0.05)</td>
<td>0.84</td>
</tr>
<tr>
<td>During family-centered bedside rounds, the attending physician and/or senior resident was explicit about the care team’s reasoning when discussing clinical decisions with the care team.</td>
<td>1.10 (0.05)</td>
<td>0.84</td>
</tr>
<tr>
<td><strong>Factor 2: Practicing for mastery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attending physicians encouraged me to be an active decision maker in patient care.</td>
<td>0.97 (0.06)</td>
<td>0.71</td>
</tr>
<tr>
<td>Teaching sessions (i.e., at least five minutes devoted to education) with the team and the attending took place during family-centered bedside rounds.</td>
<td></td>
<td>0.74</td>
</tr>
<tr>
<td>Attending physicians expected me to incorporate the best evidence from the literature with the unique circumstances and preferences of patients and families.</td>
<td>1.05 (0.06)</td>
<td>0.77</td>
</tr>
<tr>
<td>Attending physicians encouraged me to consider patients and families as active decision makers in their care.</td>
<td>1.05 (0.06)</td>
<td>0.77</td>
</tr>
<tr>
<td>I was successful in my attempts to provide family-centered care.</td>
<td>1.13 (0.05)</td>
<td>0.88</td>
</tr>
<tr>
<td><strong>Factor 3: Receiving feedback</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I received feedback from attending physicians and/or residents about my ability to communicate information to patients and families.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I received feedback from attending physicians and/or residents about my ability to engage patients and families in the decision-making process about their care.</td>
<td>1.13 (0.05)</td>
<td>0.84</td>
</tr>
<tr>
<td>I received feedback from attending physicians and/or residents about my ability to build relationships with patients and families.</td>
<td>1.16 (0.06)</td>
<td>0.86</td>
</tr>
<tr>
<td>I received constructive feedback from attending physicians and/or residents about my performance on family-centered bedside rounds.</td>
<td>1.30 (0.06)</td>
<td>0.97</td>
</tr>
<tr>
<td>I received positive feedback from attending physicians and/or residents about my performance on family-centered bedside rounds.</td>
<td>1.32 (0.07)</td>
<td>0.98</td>
</tr>
</tbody>
</table>

*a All indicators on a scale of 1 = never, 2 = rarely, 3 = occasionally, 4 = usually, 5 = always.
† Unstandardized factor loadings are on the original item scale, reflecting the extent to which the domain covaries with the indicator item.
‡ Standardized factor loadings reflect the extent to which the domain is correlated with the indicator item.
§ The base item in the scale with a fixed value of 1.00 is indicated with a dash.

Recognizing that medical students in the clinical setting face many stressors that can impede self-efficacy with FCC, we developed 11 items assessing self-efficacy with FCC during rounds while under various stressors of the clinical environment. Relevant literature and interviews with medical students informed identification of these stressors.21,26 Examples include fatigue, morning rounds lasting until (or even through) lunch, and, as mentioned, personal problems and tensions among care team members.

Students reported self-efficacy on these items using a seven-point, Likert-type scale (1 = strongly disagree; 7 = strongly agree). See Table 1 for items assessing students’ self-efficacy with FCC during rounds.

To assess students’ exposure to supportive experiences (observing role models, practicing for mastery, and receiving feedback), we either adapted items from the Cook County Inpatient Attending Evaluation27 or created items based on SCT.28 We measured all 19 items on a frequency-based, five-point scale (1 = never; 5 = always). See Table 2 for items assessing students’ exposure to supportive experiences.

To develop items to assess self-efficacy with specific FCC tasks, we began with the definition of FCC. Specifically, as mentioned, FCC is care that supports relationship building between providers and families, optimizes information sharing, and includes families in decision making so that decisions reflect their values and preferences.12 Thus, self-efficacy items focused on the following three specific FCC tasks during rounds: (1) building a relationship with families (four items), (2) exchanging information with families (three items), and (3) engaging families in decision making (four items).
Table 3

Factor Loadings for Indicators* of Self-Efficacy With Key Family-Centered Care Tasks During Rounds, as Self-Reported by 172 Third-Year Medical Students, 2008–2009 to 2010–2011

<table>
<thead>
<tr>
<th>Indicators by factor</th>
<th>Unstandardized† (standard error)</th>
<th>Standardized‡</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor 1: Building a relationship with the family</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can handle patient and family emotions during family-centered bedside rounds.</td>
<td>0.73 (0.07)</td>
<td>0.70</td>
</tr>
<tr>
<td>I can be open with patients and families during family-centered bedside rounds.</td>
<td>0.93 (0.07)</td>
<td>0.79</td>
</tr>
<tr>
<td>I can build trust with patients and families during family-centered bedside rounds.</td>
<td>0.89 (0.07)</td>
<td>0.78</td>
</tr>
<tr>
<td>I can encourage patients and families to share their feelings during family-centered bedside rounds.</td>
<td>1.05 (0.07)</td>
<td>0.84</td>
</tr>
<tr>
<td><strong>Factor 2: Exchanging information with the family</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can answer patient and family questions fully and carefully during family-centered bedside rounds.</td>
<td>0.97 (0.12)</td>
<td>0.61</td>
</tr>
<tr>
<td>I can explain patients’ conditions and what they need to do in easily understandable terms during family-centered bedside rounds.</td>
<td>0.89 (0.07)</td>
<td>0.73</td>
</tr>
<tr>
<td>I can encourage patients and families to ask questions during family-centered bedside rounds.</td>
<td>1.13 (0.11)</td>
<td>0.78</td>
</tr>
<tr>
<td><strong>Factor 3: Engaging families in decision making</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I can provide patients and families with choices and options during family-centered bedside rounds.</td>
<td>—</td>
<td>0.65</td>
</tr>
<tr>
<td>During family-centered bedside rounds, I can listen to how patients and families would like to do things.</td>
<td>1.29 (0.13)</td>
<td>0.88</td>
</tr>
<tr>
<td>I can involve patients and families in the decision-making process during family-centered bedside rounds.</td>
<td>1.30 (0.13)</td>
<td>0.89</td>
</tr>
<tr>
<td>During family-centered bedside rounds, I can try to understand how patients and families see things before suggesting a new way to do things.</td>
<td>1.31 (0.13)</td>
<td>0.93</td>
</tr>
</tbody>
</table>

*All indicators on a scale of 1 = strongly disagree to 7 = strongly agree.
† Unstandardized factor loadings are on the original item scale, reflecting the extent to which the domain covaries with the indicator item.
‡ Standardized factor loadings reflect the extent to which the domain is correlated with the indicator item.
§ The base item in the scale with a fixed value of 1.00 is indicated with a dash.

We adapted items representing these domains from either the Health Care Climate Questionnaire (HCCQ) or the Medical Interview Satisfaction Scale. See Table 3 for items assessing self-efficacy with specific FCC tasks.

In addition, all students provided information about their age (<30 versus ≥30 years), their gender and ethnicity (white, Hispanic/Latino, African American/black, American Indian/Alaskan Native, Asian/Pacific Islander, or other), and their previously completed core clerkships (psychiatry, medicine, surgery, primary care, obstetrics–gynecology).

**Analyses**

For the descriptive analysis of participating students, we determined means with standard errors and proportions. Preclerkship survey data (see Results) informed our development and evaluation of the three scales measuring (1) self-efficacy with FCC during rounds, (2) supportive experiences, and (3) self-efficacy with FCC key tasks.

We used exploratory factor analysis to examine the underlying constructs of both self-efficacy with FCC during rounds and supportive experiences. We used confirmatory factor analysis to verify the three-factor conceptual model of self-efficacy with three key FCC tasks. We assessed factor solutions with eigenvalues followed by model fit indices using standard criteria for $\chi^2$ ratio, standardized root mean square residual (SRMR), comparative fit index (CFI), and Tucker-Lewis index (TLI).

To ensure that measurement models derived from preclerkship responses were appropriate post clerkship, we established appropriate clerkship equivalence to examine whether the association between supportive experiences and self-efficacy during rounds is mediated through self-efficacy with key FCC tasks, we used composite indicator structural equation (CISE) models (Figure 1). CISE modeling, in which the measurement error for the composite indicator is fixed based on reliability estimates, provides a valid method of addressing measurement error that arises in multiple regression. To evaluate both (1) the relationships between supportive experiences and self-efficacy with FCC during rounds and (2) whether the association between supportive experiences and self-efficacy during rounds is mediated through self-efficacy with key FCC tasks, we used composite indicator structural equation (CISE) models (Figure 1). CISE modeling, in which the measurement error for the composite indicator is fixed based on reliability estimates, provides a valid method of addressing measurement error that arises in multiple regression. We present the results as path coefficients with $P$ values where significant. Path coefficients represent the direction and magnitude of the relationships between variables. We regarded a two-tailed $P < .05$ as significant. We used Mplus (Version 6.1, Los Angeles, California) and STATA (SE 9, College Station, Texas) for the analyses.
Results
Baseline characteristics
Of 184 pediatric clerkship students, 172 (93%) provided preclerkship data, and 162 (88%) provided postclerkship data. Of the 172 who provided data, 91 (53%) were female, 42 (24%) were from racial/ethnic minorities, and 19 (11%) were at least 30 years of age. As would be expected of students at different points in their third year of medical school, the students’ prior clerkship experiences varied considerably: Of the 162 students who responded to the postclerkship survey, 21 (13%) had no prior clerkship experience, 26 (16%) had rotated through one clerkship, 31 (19%) had rotated through two clerkships, 26 (16%) had rotated through three, 35 (21%) had rotated through four, 10 (6%) had rotated through five, and 13 (8%) did not respond to this question. (One student reported rotating through two different numbers of clerkships.)

Validation of measures
For medical students’ self-efficacy with FCC during rounds, exploratory factor analysis of preclerkship survey items yielded a two-factor solution (eigenvalues of 6.15 and 1.00), with good model fit ($\chi^2$ ratio = 5.62, CFI = 0.96, TLI = 0.93, SRMR = 0.06). Three items loaded on

Figure 1 Unstandardized path coefficients for the mediation of the influences of supportive experiences on self-efficacy with family-centered care (FCC) during rounds by self-efficacy with key FCC tasks under (A) everyday stressors and (B) situational stressors. Everyday stressors include time constraints, stress, and fatigue; situational stressors are specific occurrences, such as personal problems or the detection of a medical error. For ease of reading, Figure 1 displays model results for the two outcomes of interest separately and omits indicator items, error terms, correlations between latent constructs, and the nonsignificant direct influences of supportive experiences on self-efficacy with FCC during rounds. Parameter estimates for all terms in the model are available from the authors. Bolded paths are significant. *$P < .05$. †$P < .001$. 
Factor 1 (Cronbach α = 0.90), and eight items loaded on Factor 2 (Cronbach α = 0.86). Table 1 presents these items and factor loadings for students’ self-efficacy with FCC during rounds while under various stressors. Factor loadings indicated the extent to which the domain covaries with the indicator items; in this case, Factor 1’s indicators reflected everyday stressors that students encounter during clinical clerkships (e.g., time constraints, fatigue), whereas Factor 2’s indicators reflected situational stressors that arise either from specific events or at specific times (e.g., personal problems, detection of medical errors).

With regard to the supportive experiences, exploratory factor analysis of precerebral survey items identified a three-factor model (eigenvalues of 10.32, 1.87, and 1.15) using 18 of the 19 indicators with good model fit ($\chi^2$ ratio = 3.23, CFI = 0.98, TLI = 0.97, SRMR = 0.05). Factor 1’s items reflected observing role models (Cronbach α = 0.92), Factor 2’s reflected practicing for mastery (Cronbach α = 0.85), and Factor 3’s reflected receiving feedback (Cronbach α = 0.92). One item (‘Attending physicians gave me the opportunity to answer patient and family questions during family-centered bedside rounds’) did not load on any of the three factors, so we dropped it from all models. Table 2 presents the items and factor loadings for supportive experiences.

Indicators for self-efficacy with key FCC tasks were based on a three-factor conceptual model of FCC, so we performed confirmatory factor analysis, again using standard model fit criteria. Confirmatory factor analysis of the precerebral survey data supported the three-factor conceptual model of key tasks self-efficacy: building a relationship with families (Cronbach α = 0.88), exchanging information with families (Cronbach α = 0.76), and engaging families in decision making (Cronbach α = 0.90). Specifically, $\chi^2$ ratio = 3.6, CFI = 0.923, TLI = 0.896, SRMR = 0.05. Table 3 presents the items and factor loadings for self-efficacy with specific FCC tasks.

**Hypothesis 1: Supportive experiences foster self-efficacy with FCC during rounds**

Two of the three supportive experiences (observing role models and practicing for mastery) predicted students’ self-efficacy with FCC during rounds under both everyday and situational stresses, whereas feedback had no significant influence. Specifically, the total effects revealed that observing role models (path coefficient = 0.67, $P < .01$) and practicing for mastery (path coefficient = 0.72, $P < .01$) supported self-efficacy with FCC during rounds under everyday stress. Similarly, observing role models (path coefficient = 0.55, $P < .01$) and practicing for mastery (path coefficient = 0.64, $P < .01$) supported self-efficacy with FCC during rounds under situational stress.

**Hypothesis 2: Key FCC tasks mediate supportive experiences’ impact on self-efficacy with FCC during rounds**

When we examined the effects of the supportive experiences to see whether they directly affected self-efficacy with FCC during rounds or operated through self-efficacy with key FCC tasks, we found that none of the supportive experiences directly influenced self-efficacy with FCC during rounds, but all operated through their effect on self-efficacy with key FCC tasks. The effects of observing role models on self-efficacy with FCC during rounds under everyday stressors were mediated by self-efficacy with two specific FCC tasks: building a relationship with families (indirect path coefficient = 0.24, $P < .05$) and engaging families in decision making (indirect path coefficient = 0.47, $P < .01$). The effects of practicing for mastery were also mediated by self-efficacy with building a relationship with families (indirect path coefficient = 0.27, $P < .05$) and by self-efficacy with engaging families in decision making (indirect path coefficient = 0.47, $P < .01$). Indirect path coefficients were products of the direct effects of (1) supportive experiences on self-efficacy with key FCC tasks and (2) self-efficacy with key FCC tasks on self-efficacy (with FCC) during rounds (Figure 1A).

With regard to self-efficacy with FCC during rounds under situational stressors, self-efficacy with relationship building mediated the positive effects of the same two supportive experiences: observing role models (indirect path regression coefficient = 0.49, $P < .01$) and practicing for mastery (indirect path regression coefficient = 0.55, $P < .01$; Figure 1B). Feedback had no significant direct or indirect effects on self-efficacy with FCC during rounds under everyday or situational stressors (Figure 1).

**Discussion**

To facilitate the adoption of a family-centered approach to care, it is important not only to educate learners about FCC, but also to bolster their self-efficacy to deliver FCC as it occurs—in the clinical setting. Our findings shed light on factors that support learner self-efficacy with FCC during rounds, highlighting the contributions of both observing role models and practicing for mastery. Our findings did not show, however, that students’ self-efficacy was related to receiving attending/resident feedback regarding their performance. Further, the effects of the supportive experiences’ on self-efficacy with FCC during rounds in the clinical setting were mediated by self-efficacy with key FCC tasks.

Students have often identified exposure to role models as critical to the development of their communication skills and their professional bedside manner, even during the preclinical curriculum. Harrell and colleagues have also found a strong positive relationship between the mastery opportunities afforded in hands-on clinical opportunities and students’ confidence in caring for patients. Their observation supports much of today’s movement toward simulation-based education. For example, students who had more opportunities to observe and take part in discussions with patients who received difficult news and expressed their wishes and values had a greater sense of preparedness to provide end-of-life care than did other students. Thus, allowing students opportunities to observe and practice FCC skills is critical to their self-efficacy with FCC, and faculty may operationalize such opportunities for students through simulation of care as it occurs in the clinical setting, which has been done for other communication skills. In addition, these supportive experiences are congruent with both the ACGME’s and the American Board of Medical Specialties’ moves toward competency-based medical education in that they are learner-centered, formative experiences that faculty do with the learners rather than to the learners.
Contrary to our hypothesis that feedback has a positive influence on self-efficacy, feedback given to students about their performance during rounds did not affect their self-efficacy with FCC during rounds. Moreover, this finding is inconsistent with recent literature concerning both the role of feedback in shaping medical students’ confidence in their abilities to care for patients and the value that students place on feedback in developing their communication skills, especially at the bedside. At least three plausible explanations for our finding arise from the literature. First, the manner in which faculty give feedback could hinder self-efficacy. According to Bandura, feedback that is framed in terms of shortfalls is apt to weaken students’ self-efficacy by highlighting their deficiencies. Using a competency-based approach—that is, advising learners of the next steps needed to advance in their development toward competency, rather than focusing on the gap between current ability and achievement of mastery—could be a way to more positively reframe feedback on performance during family-centered rounds.

Second, the timing of the feedback may have undermined self-efficacy. One of the common concerns of trainees about family-centered rounds is being corrected in front of families. Thus, negative feedback delivered by residents or faculty during rounds may have weakened students’ self-efficacy. Third, students report that faculty members’ and residents’ expectations of them during family-centered rounds are unclear. In recent interviews about family-centered rounds experiences (unpublished), students noted that unclear or inconsistent expectations across attendings and residents can lead to unexpected negative feedback. One student noted, for example, how a supervisor had asked her to eliminate medical jargon while presenting during family-centered rounds, only to later receive negative feedback suggesting that she “need[s] to learn and apply the language of medicine.” Faculty (and resident) development regarding family-centered rounds might focus on helping team leaders, first, to develop and articulate a clear, uniform progression of competencies for rounds and, then, to provide private, constructive feedback based on this progression.

The impact of supportive experiences on self-efficacy with FCC during rounds was mediated by self-efficacy with key FCC tasks. Although the supportive experiences increase students’ self-efficacy with FCC during rounds, alone they were insufficient to improve students’ self-efficacy with FCC in real-life clinical conditions (i.e., no direct influence). Strengthening self-efficacy with key FCC tasks is an important middle step. The Dreyfus model of skill acquisition suggests that learners advance through the developmental stages as they gain a sense of competence and experience, which ultimately enable them to perform tasks under varying conditions including everyday or situational stressors. We found that learners’ self-efficacy with FCC in the clinical setting operated through their self-efficacy with specific FCC tasks, highlighting the importance of developing basic FCC skills in students before expecting them to succeed during family-centered rounds. Students in the first and second years of medical school who are learning basic techniques for interacting with patients might benefit from an introduction to key FCC tasks, whereas students in the clinical years may benefit from opportunities to apply these skills. Such an approach would also foster the acceptance of family-centered rounds as a model for inpatient care across all physician specialties.

This study has limitations that should be considered. First, students’ reports of their experiences with family-centered rounds may be subject to recall bias and may not be reflective of actual occurrences. Data from other sources (e.g., recordings of rounding sessions or even the perceptions of families or other health care team members) could begin to validate students’ self-reports. Second, family-centered rounding is a relatively new model at our institution. Our attendings and residents have been providing family-centered rounds consistently for nearly four years, and some have received limited formal training about teaching during bedside rounds; nonetheless, students’ experiences may reflect the challenges of this new process. Still, this model is new to many institutions, suggesting many students may have experiences similar to those of our students. Lastly, our results may not be generalizable to other student populations, although our findings do parallel those of prior studies, and our students are similar to those of medical schools nationally.

In summary, we find that observing role models and practicing for mastery, both of which operate through self-efficacy with key FCC tasks, foster medical students’ self-efficacy with FCC during rounds. Feedback, which often supports self-efficacy and which is highly valued by learners for developing bedside techniques and for developing communication skills, did not foster FCC self-efficacy for these students. Educators might consider providing exposure to FCC early in medical student education and implementing faculty development sessions centered on FCC during rounds.

Acknowledgments: This work would not have been possible without the gracious participation of medical students and the support of our clerkship staff.

Funding/Support: The authors gratefully acknowledge funding from the University of Wisconsin School of Medicine and Public Health Department of Pediatrics Research and Development Fund. Dr. Cox also gratefully acknowledges the support of the Arthur Vining Davis Foundation.

Other disclosures: None.

Ethical approval: Ethical approval has been granted from the University of Wisconsin–Madison’s health sciences institutional review board for studies involving human subjects (protocol number: M-2008-1232).

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