Integrating Peripartum Mental Health Education into the Psychiatry Clerkship: a Multimodal Approach

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Mental illness during and following pregnancy is remarkably common, which should not be surprising, given 1 in 5 Americans experience mental illness each year [1]. In fact, pregnancy itself is recognized as a risk factor for developing psychiatric symptoms, particularly among people with psychiatric histories, even those who are asymptomatic at the time of conception [2, 3]. Recent studies suggest nearly 20% of all people who are pregnant will suffer from mental illness during the peripartum period [4].

Not only is peripartum mental illness common, but when untreated, it can be serious. Among those who do not receive treatment for a depressive episode during pregnancy, 15% will attempt suicide, while more than 50% will continue to suffer from depression in the postpartum period [5]. Although the negative maternal [6, 7] and neonatal [8, 9] health outcomes of untreated mental illness have been well documented, many patients still are untreated or undertreated, likely due, in part, to lack of education about treatment for these conditions. As Robinson wrote in 2015, “The use of any medication during pregnancy is, to most people, including health care professionals, something to be avoided” [10]. Patients and providers alike continue to overestimate the risks of psychiatric medication use during pregnancy while underestimating the risks of untreated peripartum mental illness [11, 12].

Despite how common and potentially serious mental illness is during the peripartum period, there are currently no standardized educational requirements to expose medical students to topics in reproductive psychiatry. Thus, many medical students obtain their diplomas and begin residencies with-

out understanding the basic tenets of assessing risk for, diagnosing, and treating peripartum mental illness. These tenets make up a competency that all physicians must possess to work toward improving outcomes for peripartum patients and their newborns. The reasons for the ongoing suboptimal management of mental illness in pregnancy are multifactorial, but lack of standardized education in medical school is undoubtedly a key factor.

Unfortunately, the situation is not much improved at the level of residency training. A web-based survey conducted by Osborne and colleagues in 2015–2016 [13] found only slightly over half of the surveyed residency training programs required reproductive psychiatry didactic curricula at all. Even among programs with a required didactic curriculum, the variation in depth and composition of curricula was considerable. Osborne and colleagues responded to the dearth of standardized residency curricula by developing the National Curriculum in Reproductive Psychiatry (NCRP) [14]. Davisson and colleagues have also addressed this issue through creating a curriculum for internal medicine residents [15]. Residency-level educational interventions, however, miss the opportunity to target *all* learners before specialization. Early exposure is essential for changing the landscape surrounding how providers think about screening, diagnosing, and treating their peripartum patients, regardless of specialty.

As far as we are aware, there has yet been similar interest in developing a women’s mental health curriculum for medical students. This educational case report seeks to begin addressing this unmet need by describing the development, implementation, and evaluation of a multimodal medical student curriculum covering risk assessment, diagnosis, treatment, and management of perinatal psychiatric illness embedded in the psychiatry clerkship of a medical school. In doing so, we hope to provide a model for the expansion and standardization of reproductive psychiatric education into medical student curricula across the USA.

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Curriculum Development and Composition

A three-pronged, multimodal curriculum covering basic topics in reproductive psychiatry was designed to be carried out over the 6-week required psychiatry clerkship. Content was designed by two psychiatrists (VD, CK): one with extensive clinical and educational experience in reproductive psychiatry who is the current program director for the women's mental health fellowship (CK) and the other who is the current director of the psychiatry clerkship (VD). A fourth-year medical student (AH) provided near-peer feedback on curriculum design and facilitated implementation of the curriculum's electronic components. Educational materials were compiled from pre-existing resources created for psychiatry residents and fellows and subsequently adapted to the appropriate level for clerkship students. Because the medical school has a condensed 18-month preclinical didactic curriculum, the majority of students who piloted the curriculum did so between the 18th and 30th months of their medical school education.

Current neuropsychiatric research on memory consolidation and retrieval indicates that spaced repetition, with repeated opportunities for reactivation and reconsolidation of newly learned material, increases the strength of long-term memory storage [16, 17]. With this in mind, a curriculum was designed to expose clerkship students to key learning objectives multiple times throughout their 6-week required rotation, using three different formats to enhance memory retention.

The first component of the curriculum consisted of a case-based, interactive online eBook structured to provide students with a general overview of basic topics in reproductive psychiatry, including links to seminal papers in the field and important databases and resources for obtaining up-to-date information on topics related to the management of mental illness in the peripartum period (e.g., LactMed). Following the general overview, the eBook was broken into case-based discussions. Cases were supplemented with video clips from expert discussants and links to primary resources.

The second component of the curriculum was an objective structured clinical examination (OSCE) case on postpartum depression using standardized patients in the medical school's simulation center. The case was developed through an iterative process in conjunction with the director of the women's mental health fellowship (CK). The clerkship director (VD) participated in trainings for the OSCE standardized patients at the beginning of the clerkship year and then in refresher trainings staggered over the year. Each student on the psychiatry clerkship completed the OSCE during week 5 of the clerkship rotation, after having had access to the eBook for at least 1 to 2 weeks. Students were informed ahead of time that the OSCE case would stem from one of the three eBook cases to promote student engagement with the eBook. The OSCE provided an opportunity for students to practice skills, demonstrate knowledge, and receive formative feedback on their management of

a case of postpartum depression. Following the OSCE, students underwent a debriefing session focused on risk assessment.

The final component of the curriculum was a graded question assessing psychopharmacology knowledge embedded in a pre-existing psychopharmacology quiz administered in week 5 of the 6-week clerkship. The quiz provided an opportunity for students to demonstrate their clinical reasoning by completing long-answer responses to a case involving the management of a woman with concurrent mental illness during different phases of her reproductive lifespan. The open-ended format of the quiz encouraged students to engage with the real-life scenario of "risk-risk" analysis. Quizzes were graded by the clerkship director (VD) and used as a component of each student's final grade for the clerkship.

While the curriculum was developed and rolled out before the onset of the COVID-19 pandemic, the curriculum translated well into a virtual learning landscape. The eBook allowed for independent learning to continue via remote learning. We continued the OSCE in the pandemic with precautions in place such as appropriate social distancing and personal protective equipment.

Evaluation

We collected data to evaluate the effectiveness of the pilot curriculum between February 2019 and March 2020. During this time, eight blocks of clerkship students engaged with the curriculum. We evaluated curriculum effectiveness by asking students to complete an anonymous, three-question survey at the beginning of the psychiatry clerkship. The survey asked students to rate their comfort level with assessing risk, evaluating and diagnosing, and treating mental illness in peripartum patients using a 4-point Likert scale ("not at all," "somewhat," "fairly," and "very" comfortable). Students, acting as their own controls, completed an identical, anonymous survey at the end of the clerkship, after engaging with all three components of the pilot curriculum. Responses to the pre- and post-surveys were quantified (not at all=1, somewhat=2, fairly=3, very=4) and subjected to statistical analysis using a two-tailed t-test, with $\alpha = 0.05$.

Student Responses to Pre- and Post-Curriculum Surveys and OSCE Assessment

As of January 2020, 108 students had completed the pilot clerkship curriculum in reproductive psychiatry. Pre-curriculum surveys were completed by 89 students (82% response rate) and post-curriculum surveys were

completed by 97 students (90% response rate). Results of students' confidence scores before and after engagement with the curriculum are detailed in Fig. 1 Reference source not found.. A significant improvement was noted across all three parameters (Q1: $t(184) = 15.77$, p (two-tailed) < 0.0001 ; Q2: $t(184) = 19.13$, $p < 0.0001$; Q3: $t(184) = 19.28$, $p < 0.0001$). Whereas 89% of medical students reported feeling “not at all” or “somewhat” comfortable assessing risk in the peripartum period (“Q1”) before the curriculum, a significant change was noted on the post-curriculum surveys, with 92% reporting feeling “fairly” or “very” comfortable assessing risk. Regarding clerkship student comfort level in evaluating and diagnosing psychiatric illness in the peripartum period, the findings were similarly significant: 97% of students reported feeling “not at all” or “somewhat” comfortable pre-curriculum, while 90% rated themselves as “fairly” or “very”

comfortable post-curriculum. Finally, a significant change was noted in students' comfort levels in formulating treatment plans for this patient population, with 99% of students reporting feeling “not at all” or “somewhat” comfortable pre-curriculum and 80% reporting feeling “fairly” or “very” comfortable post-curriculum. The simulated patient interview and accompanying student note were assessed. The mean interview score was 94% (STD 7.4) and the mean note score was 85% (STD 7.9).

Considerations for Future Directions

This case report suggests that the intervention of introducing a multimodal reproductive psychiatry curriculum to students during their psychiatry clerkship not only delivers content

Fig. 1 Student self-report comfort ratings before and after curriculum implementation, rated on a 4-point Likert scale. **A** How comfortable are you assessing risk in patients in the peripartum period? **B** How comfortable are you evaluating and diagnosing psychiatric illness in the peripartum period? **C** How comfortable are you formulating treatment plans for patients with psychiatric illness in the peripartum period?

but increases students' subjective comfort level in assessing risk, evaluating and diagnosing, and treating mental illness in the peripartum period.

One key strength of the design of this curriculum was its ease of implementation. While lack of time is a common barrier cited when discussing the implementation of new curricula into pre-existing didactic schedules, the distribution of the eBook was electronic and reviewed on students' own time, which meant the pilot curriculum did not require additional room to be made for live didactic time. Additionally, because each of the three interventions was incorporated into pre-existing components of the clerkship didactic curriculum, moving from curriculum design to implementation was fairly straightforward. For instance, the medical school has access to a simulation center, which the psychiatry clerkship had already been using as a component of the pre-existing clerkship curriculum. The eBook was distributed electronically through the online medical student educational portal, with which all clerkship students were previously familiar, which improved ease of access to this resource. Another strength of this case report was the high rate of completion of the surveys (pre, 82%; post, 90%). In fact, when controlled for only clerkship blocks that received *both* pre- and post-curriculum surveys (the first block in this trial only received the post-curriculum survey, and the final block only received the pre-curriculum survey), completion rates improved to 93% for the pre-curriculum survey and 99% for the post-curriculum survey. These high rates of completion are likely related to the fact that the authors were able to distribute paper surveys during pre-scheduled didactic sessions, which clerkship students are required to attend weekly.

While this case report provides a preliminary model of how to increase access to women's mental health topics for medical students, it does suffer from some limitations. First of all, the key measure reported in this case report was a subjective one. While students' confidence levels may be a proxy for the success of a curricular intervention, these measures fail to distinguish the impact of the curriculum itself from; for example, the simple fact that after 6 weeks on a psychiatry rotation, one would expect a medical student to be more confident in psychiatric clinical skills than before the rotation. While the majority of students were not regularly interacting with peripartum patients during their time on the wards, it is certainly still a confounding variable. An additional limitation is the lack of longitudinality in this preliminary case report. If the goal of this early educational intervention is to increase students' knowledge base in order to improve care for peripartum patients, then more longitudinal data to assess both retention of knowledge and the relative presence or absence of stigmatized beliefs among those who have and have not undergone this intervention would be required. Long-term follow-up of the students who have undergone this curriculum is an important future direction.

With respect to additional future direction, although students were not exposed to a formalized curriculum covering the topics presented in our curriculum during their obstetrics and gynecology clerkship, working with our obstetrics and gynecology colleagues to integrate our peripartum mental health curriculum with theirs would help promote spaced-repetition learning. Finally, with the additional factor of the COVID-19 pandemic, the authors have been considering how to convert an OSCE to a telehealth platform so students can learn and demonstrate telehealth skills. Even in a post-COVID world, telehealth may remain particularly helpful for new parents, who may find it hard to travel to doctor appointments with infants. Thus, we believe incorporating telehealth into the curriculum outlined in this case report is an essential future direction to meet the needs of this patient population.

We hope this preliminary curriculum design encourages those involved in medical student education to begin a dialog on the importance of standardizing early exposure to women's mental health topics in medical school. If the medical community wishes to work toward decreasing the stigma that continues to permeate the treatment of mental illness in the peripartum period and contribute to suboptimal fetal and maternal outcomes, we believe early exposure to topics in reproductive psychiatry is a key intervention.

Declarations

Ethical considerations The NYU Langone Health Office of Science and Research Institutional Review Board (IRB) determined that the activity is not research involving human subjects and IRB review and approval is not required.

Disclosures On behalf of all authors, the corresponding author states that there is no conflict of interest.

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