

Tipping the Scales in Obesity and Nutrition Education: A Needs Assessment for Curriculum Development

Jesse Lynch

Wake Forest University School of Medicine

Jamie Means

Wake Forest University School of Medicine

Heidi Bleyer

Wake Forest University School of Medicine

Jaden Seman

Wake Forest University School of Medicine

Justin Kramer

Wake Forest University School of Medicine

Erin Saner

erin.saner@wfusm.edu

Wake Forest University School of Medicine

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Abstract

Background

Obesity prevalence has escalated worldwide into a public health crisis. Despite multiple calls from various governing organizations, the landscape of obesity and nutrition education has persistently demonstrated poor prioritization and representation in medical school curricula and examinations.

Objective

A targeted evaluation of the current state of obesity and nutrition education at Wake Forest University School of Medicine was performed to identify actionable areas of curriculum improvement.

Methods

Student learners (AY 24–25) and key faculty stakeholders completed focused surveys to assess perspectives on existing curriculum and perceived feasibility and integration of novel obesity and nutrition didactics. Likert scale item responses were analyzed using percentages, and open-ended responses were analyzed by a secure Microsoft AI Copilot utilizing Braun and Clarke's six-step process.

Results

MD Students (92%) and faculty (97%) perceived obesity education of particular importance for clinical practice. They identified relevant exposure to obesity medicine content; however, content often had variable depth and was frequently elective. Within this content, 20–30% of students endorsed effective teaching on obesity-focused communication and navigating weight bias, 18% agreed the current model taught effective patient counseling skills in obesity management, and only 8% agreed the curriculum was effective in teaching physical exam skills for patients with obesity. These themes were echoed in open-ended responses with many students wanting more training in bias mitigation, patient communication, and physical exam skills. Given this, both students and faculty agreed that obesity content integration was feasible, though faculty (62%) were concerned about significant time constraints, particularly among preclinical course directors (80%). Half of faculty respondents ultimately agreed they would be willing to add obesity medicine content if given more space, while 38% agreed they would be willing to share or substitute curricular hours.

Conclusion

Learner and institutional priorities appear to be shifting towards improving obesity and nutrition education. While gaps clearly still exist, students and faculty are generally open to creating focused instructional time, particularly for direct application. The results of this needs assessment suggest clinically focused curriculum interventions would be most feasible, highlighting a clear actionable entry point for content integration.

Introduction

Obesity education is currently at the forefront of many clinicians', educators', and policymakers' minds. According to the World Health Organization (WHO), the prevalence of obesity has nearly tripled worldwide since 1975.¹ This coincides with an evolving public health crisis in the United States, currently ranked 11th in adult obesity prevalence.² Medical education is uniquely positioned to change the trajectory of this crisis but has been slow to adopt enduring changes. The first call for obesity education reform came in 2007 from the American Association of Medical Colleges (AAMC),³ yet the first competency-based framework for obesity education wasn't released until 2019 by the Obesity Medicine Education Collaborative (OMEC).⁴ In further recognition of the need for educational reform, the Department of Health and Human Services (DHHS)⁵ and the National Institutes of Health (NIH)⁶ released their own competencies to promote improved exposure to nutrition-related concepts for prevention and management of chronic diseases.

Several studies have captured the evolving landscape of obesity and nutrition education over the past twenty years. Poor prioritization of this content in medical school curricula and standardized licensing exams remain a persistent challenge.^{7,8} Downstream effects have become increasingly evident as practicing clinicians show varying attitudes toward obesity and lifestyle management.⁹ This highlights the urgency for closing the educational chasm through concerted efforts in academia that create a more effectual strategy for chronic disease education and management.

The purpose of this study is to assess learner and faculty perspectives on obesity and nutrition education in the existing learning environment at Wake Forest University School of Medicine (WFUSM) utilizing Kern's Model of Curriculum Development.¹⁰ The targeted needs assessment aims to identify strengths as well as actionable areas of improvement in curriculum design and inform development of focused didactics to fill existing gaps in obesity and nutrition education.

General Needs Assessment- Curricula and Barriers at Large:

The Kern Model of Curriculum Development is a six-step framework used in medical education to identify relevant problems in the learning environment and iteratively evaluate and develop curricula to address these problems.¹⁰ A PubMed review was conducted as the first step in the general needs assessment to evaluate the current nature of obesity education using the following key terms: “obesity”, “medical education”, “medical student”, and “United States”. Of 245 articles identified, 26 abstracts were reviewed for relevance, and 10 were included in our assessment. Those focused on nutrition education only (8), international medical schools (1), and curriculum interventions prior to 2017 (7) were excluded.

Metcalfe et al. were among the first to assess single-institution student and faculty perspectives on curriculum representation of obesity medicine.¹¹ While most students in this study were familiar with obesity medicine, the majority felt inadequately prepared to interview, assess, or treat patients with obesity. The existing curriculum demonstrated specific gaps for improvement, including a need for opportunities to practice clinical skills. A 2020 benchmark study¹² examined curricula across multiple medical schools and found that one-third of schools had no programmed obesity education or no future curriculum development plans, with half of schools identifying this area as low priority. Furthermore, only 10% of schools surveyed believed their students were “very prepared” to manage patients with obesity, with the largest educational gaps in lifestyle interventions, patient counseling, and pharmacotherapy management.

Three systematic reviews of educational interventions in obesity and their efficacy were identified in our search.^{13,14,15} All reported various effective educational strategies including hands-on training, lectures, and simulated encounters, however significant gaps remained in successful implementation.^{14,15} Four additional, more recent studies^{16,17,18,19} evaluated a variety of educational modalities including online modules, patient experience panels, in-person lectures, and standardized patient encounters [Additional File 1]. A common theme was the reduction in bias and negative attitudes toward patients with obesity.^{16,17,18} One randomized controlled trial that matched students with either a multi-model weight management education (MME) intervention or traditional weight management education found that MME students had significantly higher weight management Objective Structure Clinical Examination (OSCE) scores and self-reported motivational interviewing skills.¹⁹

In 2016, the OMEC was formed to promote and disseminate comprehensive, competency-based obesity education.⁴ They subsequently developed the first obesity medicine competency framework based on the six Accreditation Council for Graduate Medical Education (ACGME) domains [Additional File 2]. This has yet to, though, translate into content on licensing examinations. According to a 2017 study, while 36% of questions identified by the National Board of Medical Examiners (NBME) were relevant to obesity, the majority pertained to diagnosis and management of obesity-related comorbidities rather than obesity as its own chronic and distinct clinical disease.⁸ Similarly, a 2023 review reported no substantive changes in the United States Medical Licensing Examination (USMLE) testing model with regard to direct testing of obesity-specific knowledge on Step-1 examination.²⁰

While there has been some success with implementing small scale educational interventions,^{16,17,18,19} our review has demonstrated that standardized curricula at large have not shown sustainable integration of this critical content. Commonly cited barriers to filling this educational gap include lack of faculty expertise and lack of space in the existing curriculum for new content, with the latter consistently reported as the greatest barrier.^{21,22} As priorities continue to shift, we seek to demonstrate an organized, need-based, feasible model for curriculum reform that overcomes these barriers and improves the learning environment as well as future clinical care.

Current Curriculum Model at WFUSM:

The “Wake Ready” curriculum at WFUSM is divided into three phases: “Foundations”, “Clinical Immersion”, and “Career Exploration”, striving to integrate basic and clinical sciences longitudinally.²³ The 18-month “Foundations” phase includes anatomy, biochemistry, microbiology, immunology and specialty specific courses like gastroenterology, renal, and endocrine/reproduction. There are also clinical skills (CS), medical ethics (MAPS), and case-based learning courses (iCRIT). The clinical “Immersion” phase includes core 3rd-year clerkship rotations including Pediatrics, Obstetrics/Gynecology, Internal Medicine, Surgery, Neurology, Emergency Medicine, Psychiatry, and Family Medicine.²³ See Additional File 3 for courses. During the “Individualization” phase, 4th-year students tailor their rotations according to their career and clinical interests.²³

To audit the curriculum for relevant content, we reviewed course-specific learning objectives for the terms: “obese”, “obesity”, “nutrition”, “weight”, “exercise”, “lifestyle”, and “health promotion”. See Additional File 3 for full outline. In the preclinical coursework, there were references to metabolism in the biochemistry focused course (MAD), biochemical processes and treatment of endocrine disorders such as obesity in Endocrinology, and nutrition in the Gastroenterology and Renal courses. Multiple preclinical courses, including those addressing medical ethics and clinical skills, made no specific obesity medicine references. Several courses reference topics like physical exam skills, history taking, communication skills, and socioeconomic barriers, but obesity was not specifically referenced. Within the clinical curriculum, Internal Medicine, both Ambulatory and Inpatient, and Family Medicine required student observations of at least one obesity-focused encounter. Pediatrics and Internal Medicine had learning objectives focused on health promotion, wellness, and preventative medicine. The Family Medicine clerkship addressed obesity medicine through lectures on exercise and integrative medicine.

There are additional elective rotations, extracurricular scholar programs, and student organizations that provide opportunities for students to interact with obesity-related content. “Doctors in the Kitchen” is a hands-on course that teaches basic cooking skills and nutrition. The Culinary Medicine Scholar Program is a 2-year elective program that integrates cooking and recipe skill development, community cooking class participation, nutrition and diet-and-disease instruction. There is also a Culinary Medicine Elective for fourth year learners. Other opportunities include the Lifestyle and Integrative Medicine Scholar Program and student interest groups, Body Image, Food Relationships, and Health and Food for Thought, which offer students the opportunity to explore the relationship between food and body image or culture. Lastly, an Obesity Medicine elective and Bariatric Surgery elective are offered for fourth year students with opportunities for direct clinical practice and observation.

Targeted Needs Assessment- Faculty and Learner Perspectives:

The current study aims to evaluate the existing obesity medicine curriculum at WFUSM to identify translational gaps and areas of improvement. Additionally, the study aims to evaluate key faculty stakeholder perspectives to inform opportunities for feasible curriculum innovation and development. Specific aims include:

1. Evaluate effectiveness of existing longitudinal curriculum and online learning interfaces to meet learner educational needs
2. Evaluate effectiveness of the existing curriculum model/content in teaching key concepts related to evidence-based standards of care in obesity medicine
3. Capture self-identified learner-specific knowledge gaps in obesity medicine to help shape future curriculum development
4. Evaluate learner and faculty perceptions on the feasibility and potential impact of an integrated obesity medicine curriculum on their educational experience

Methods

Study Participants & Setting: Medical students at WFUSM during AY 24–25 and key preclinical and clinical faculty stakeholders were surveyed to evaluate obesity education. Two REDCAP surveys based on the general needs assessment were administered. This study was approved by the Wake Forest University Health Sciences Institutional Review Board (#IRB00101240). Students and faculty were recruited via email and completed their respective surveys anonymously. All medical students at WFUSM under the curricular model as of AY 24–25 were emailed to participate in the student survey. Faculty who held the following positions, deans of education, course directors, course Facilitators, and clerkship directors, were emailed to participate in the faculty survey. The student survey instrument included 23 questions overall: 7 on demographics, 14 multi-choice (5-point Likert scale from strongly agree to strongly disagree), and 2 open-text responses. The faculty survey instrument included 11 questions overall: 1 on demographics, 3 on curricular hour estimates, 4 multi-choice (5-point Likert scale), and 3 open-text responses.

Evaluation & Outcomes: For each survey item, the percentage of survey responses in each Likert response category (strongly agree, agree, neutral, disagree, strongly disagree) was calculated. All quantitative data analysis was conducted in RStudio including figure creation. Some responses were grouped to report the percentage of respondents that generally favored/did not favor the statement in question. Medical student responses were compared between grade-level and those with and without obesity elective exposure. Stakeholder responses were analyzed between type of stakeholder: deans, course directors, course facilitators, and clerkship directors.

Open ended responses were analyzed using Braun and Clarke's six phase approach to thematic analysis²⁴ and in accordance with established standards for conducting AI-assisted qualitative analyses.²⁵ Analysis was conducted using a secure Microsoft Copilot Business Chat environment, bizchat.20260701.51.8, available through the health system's network. A custom Copilot agent was developed for thematic analysis using prompts adapted from published examples²⁵ and tailored to the study objectives [Additional File 4]. Throughout the analysis, the lead researcher (JM) reviewed AI-generated outputs for accuracy, completeness, and faithfulness to the data.

The analytic process followed six phases²⁶:

1. **Familiarization:** Response data were reviewed in sections. Copilot generated reflexive memos that included quotations, initial observations, and potential assumptions or biases for consideration by the lead researcher.
2. **Generating initial codes:** Copilot was prompted to identify up to three codes per text segment and provide brief code definitions supported by participant quotations. Initial coding produced 86 faculty codes and 504 student codes. These outputs were subsequently reviewed by the lead researcher, who merged redundant codes, resulting in two codebooks containing 48 faculty codes and 242 student codes.
3. **Searching for themes:** Using the finalized codebooks, Copilot assisted in identifying potential themes that captured patterns across related codes. Faculty and student datasets were analyzed independently. Potential themes and associated codes were reviewed and refined by the lead researcher.
4. **Reviewing themes:** Themes were evaluated iteratively, with Copilot used to support comparisons between themes and underlying coded data to ensure coherence and accurate representation of participant perspectives.
5. **Defining and naming themes:** Theme names and definitions were refined to ensure conceptual distinctiveness and alignment with the data. Representative quotations were selected and assigned by the lead researcher.
6. **Writing the report:** Final themes were synthesized to evaluate perceptions of curriculum effectiveness, identify strengths and limitations, and inform recommendations for curricular improvement.

Results

Demographics

Eighty-nine students (n = 89) and twenty-nine key faculty stakeholders (n = 29) completed their respective surveys. See demographics summarized in Fig. 1. Five key stakeholders held multiple positions in the medical school. Among students, nine (10.11%) reported completing an elective rotation in obesity medicine during medical school.

Importance of Obesity Education

Students and faculty agreed on the importance of obesity education. 92% of students agreed or strongly agreed that understanding obesity and treatment strategies is important for future clinical practice. Those who completed an obesity elective were less likely to strongly agree with this statement, however (33% with training vs. 55% without). Thematic analysis demonstrated similar student attitudes toward learning practical concepts related to obesity medicine and lifestyle interventions. For faculty, 97% agreed or strongly agreed that competency-based obesity education is relevant for preparing future physicians for clinical practice. Faculty identified this importance in open-ended responses, particularly within Themes 10 and 13 (Table 1).

Table 1
Thematic Analysis of Student and Faculty Open-ended Responses

Theme 1:	Theme:
	Knowing About Obesity Is Not the Same as Knowing How to Care for Patients
Theme 2:	How Future Physicians Talk about Obesity is Important
Theme 3:	Lifestyle Medicine Must Be Practical to Be Useful
Theme 4:	Obesity Exists Within Systems, Not Individuals Alone
Theme 5:	In-person, Integrated Obesity Education is Welcome
Theme 6:	Opportunities for Obesity Medicine Training are Often Variable
Theme 7:	There are Opportunities Within Current Curriculum for Obesity Medicine Content, but Lacking Depth
Theme 8:	Faculty support obesity medicine education, but curricular overcrowding shapes what is perceived as feasible.
Theme 9:	Obesity education is viewed as most valuable when embedded throughout the curriculum rather than isolated in a standalone course or thread.
Theme 10:	Preparing students for obesity care requires practical competencies that extend beyond knowledge of disease mechanisms.
Theme 11:	The quality of obesity care is shaped by how clinicians communicate with and relate to patients.
Theme 12:	Successful curriculum change depends on engagement and cultural buy-in from both learners and educators.
Theme 13:	Faculty conceptualize obesity as a health issue that cuts across specialties, systems, and clinical contexts.

Current Curriculum Opportunities

Students indicated most obesity medicine content was housed in the courses, MAD, gastroenterology, and endocrinology, with gastroenterology accounting for an estimated 5–6 hours. Other respective courses were estimated to have 1–2 hours allocated to obesity medicine topics. Although students reported receiving some obesity medicine content, it was often variable or elective, with students describing the curriculum as “lacking” in open-ended responses. Students reported personal interest as a driving force to seek additional opportunities to improve their understanding of obesity outside the standard curriculum.

Curriculum Efficacy: Approximately 50% of students agreed or strongly agreed that the current curriculum is effectively emphasizing obesity as a chronic disease or driver of multi-organ disease (Fig. 2A). Both M2s and M3s were slightly more supportive of these statements, with 50–60% agreeing. Completion of an obesity medicine elective did not significantly change student perspectives. Conversely, patient-facing skills were quite lacking according to students with only 20–30% agreeing or strongly agreeing that the current curriculum effectively addresses communication skills, navigating bias and stigma, and diagnostic approaches in patients with obesity. M1 students (10%) were less likely to agree or strongly agree than upper classmen [Additional File 6: Table 2]. Students who did not complete an obesity medicine elective were more likely to strongly disagree/disagree they were effectively taught these three skills [Additional File 6: Table 3]. In the thematic analysis, students emphasized a desire for more bias training; specifically, more training on comprehensive obesity management and socioeconomic factors.

Most notable, only 8% agreed that the current curriculum is effective at teaching physical exam skills, and only 18% agreed on curriculum efficacy in teaching counseling approaches in patients with obesity. M1 students were mostly neutral on these points, whereas upperclassman strongly disagreed/disagreed regarding learning physical exam skills (80%) and patient counseling (70%). Those who completed an obesity elective, however, were more positive regarding these skills [Additional File 6: Table 3]. This aligns with the thematic analysis, Themes 1 and 3 (Table 1), as students reported a strong desire for improved clinical and counseling skills.

Curriculum Design: Students were also asked about their perspectives on integrating obesity education into the current curriculum (Fig. 2B). 83% agreed or strongly agreed that learning concepts through longitudinal threads have been beneficial in preparing them for clerkships and 76% agreed that implementing a longitudinal integrated obesity curriculum would be beneficial. Few agreed that integrating a longitudinal obesity education curriculum would detract from their education. There were some differences between those who completed an obesity medicine elective. Only 67% agreed that longitudinal threads were beneficial, though none endorsed that a longitudinal obesity curriculum would detract from their education [Additional File 6: Table 3]. In the thematic analysis, both faculty and students supported the integration of some type of obesity medicine content, however many

highlighted concerns of longitudinal threads including being viewed as “busy work” or “detracting from core curriculum or clinical work”. The majority stated that integration into the existing curriculum would be more effective. Regardless, faculty emphasized the importance of including a student design team in curriculum development to improve the chances of student “buy-in”.

When asked about online learning, while 64% of students agreed that online learning has enhanced their educational experience, only 30% agreed that learning more about obesity through an online module would be beneficial. This was especially highlighted by those who completed an obesity medicine elective, with 11% agreeing. There were some differences between classes [Additional File 6: Table 2]. 80% of M1 students agreed or strongly agreed that online learning has enhanced their experience compared to 50% of M4 students. M1 students were also more likely to agree or be neutral that learning about obesity through online modules would be efficacious. In comparison, only 24% of M3 students and 28% of M4 students agreed with this statement with no M4s strongly agreeing. Students overall preferred in-person material in the thematic analysis; one student indicating students may “not care” if provided material through online modules.

Curriculum Constraints: While both students and faculty emphasized that obesity education content is important, both acknowledged implementation constraints. 62% of faculty agreed that there are currently significant time constraints preventing the implementing of new obesity content [Additional File 7: Table 1]. This was heavily emphasized by preclinical course directors and facilitators, with approximately 80% agreeing compared to only 38% of clinical clerkship directors. 14% of students agreed with a similar statement [Additional File 7: Table 2].

This was a common theme in the thematic analysis, particularly within Theme 8 (Table 1). Faculty expressed a limited amount of time within their respective courses already and were fairly worried about substituting existing material. Only 38% overall agreed they would be willing to share/substitute current curricular hours, (Fig. 3A) with 20–30% of preclinical course directors agreeing compared to 50% of clinical clerkship directors. More seemed willing to add curricular hours, 48% among both groups, if time was added to their calendar (Fig. 3B).

Discussion

Current Curriculum

Students and faculty at WFUSM appreciate the importance of obesity education for future clinical practice. However, the existing curriculum has minimal content specifically mapped to obesity education. Only 4 out of 14 preclinical courses have obesity-related learning objectives, and few clinical courses have activities or lectures specific to obesity.

There are several elective opportunities which allow exposure to obesity medicine content, but students must individually pursue these. When students do pursue these activities, unsurprisingly their perception of curriculum effectiveness increases in almost all topics. Furthermore, these students are more likely to support in-person obesity medicine instruction. Clearly, these opportunities provide excellent student opportunities for additional obesity medicine curriculum engagement. However, without integration into the standard curriculum, all students do not have equal access to this critical knowledge. This creates a system in which students may graduate with vastly differing levels of competency, potentially limiting their ability to achieve the obesity medicine competencies established by OMEC.⁴

Curriculum Efficacy

Student testimony emphasizes that the current WFUSM curriculum is not efficaciously teaching obesity medicine concepts. While some emphasize effectiveness in teaching topics in the preclinical curriculum, particularly in pharmacology and surgical interventions, large gaps still exist in the clinical curriculum. Upperclassman felt strongly they were missing hands-on skills like physical exams or practical counseling strategies for patients with obesity; skills which are directly outlined in the OMEC core competencies.⁴ Students also emphasized a strong desire for more education on bias and stigma, another core competency.⁴ This mindset was reflected in previously established literature where students felt they were not prepared to interview, assess, or treat patients with obesity,^{11,12} with poorest outcomes in counseling, obesity specific interventions, and pharmacotherapy.¹² Students at WFUSM appear to receive notable training in pharmacology but are similarly still lacking in interventions, counseling, and physical exam skills.

Curriculum Design

Medical students and faculty agree that increasing obesity content within the WFUSM curriculum should be a priority. However, there were mixed opinions on ideal implementation strategies. Nevertheless, faculty noted that students should be involved and committed to the process of curriculum development.

Although students indicated that implementing a new obesity medicine curriculum through a longitudinal course thread would be beneficial, in open-ended responses both students and faculty agreed that content would be better vertically integrated into the existing curriculum. Students also agreed that online learning has enhanced their educational experiences, but few desired to learn more about obesity through online modules. Upperclassman were understandably more hesitant to agree to online modules as they have likely seen additional benefits from direct patient care experiences. This push for in-person, targeted training aligns well with the obesity education interventions discussed in our general needs assessment, including hands-on experiences like didactic lectures, role playing, and standardized patient interactions.¹⁴ These strategies represent a potential integration strategy for obesity content to achieve the objectives students and faculty desire.

Curriculum Constraints

Faculty acknowledge significant time constraints that may affect the implementation of an obesity medicine curriculum. Faculty were especially concerned about sacrificing other important content to add additional information on obesity medicine, especially among preclinical faculty. Faculty were more willing to add curricular hours than share or substitute but questioned where these additional curricular hours would come from, a commonly cited barrier in our literature review.²¹

Strengths

Strengths of this study include the breadth of students and faculty represented, similarities to established literature, and the collection and analysis of qualitative data. In our population, all four years of medical school and all types of faculty leadership (preclinical and clinical) were represented. Our results also resemble the limited published research on this topic. Our students similarly felt they were not prepared to treat patients with obesity and had very limited exposure to these topics across their four years of training. Lastly, the most significant strength of this study was the collection of both quantitative and qualitative data. Specifically, gathering testimony from students and key faculty stakeholders has allowed us to identify specific areas of focus for future curriculum development.

Limitations

We identified a few limitations of this study. First, out of 300 + students emailed, we had 89 students respond to the survey voluntarily. This makes our results susceptible to self-selection bias skewing the assessment in a more positive direction. Responses from multiple classes also provide the opportunity for bias. M4 students may have recall bias, especially in relation to the preclinical curriculum whereas M1 students have minimized curriculum exposure.

Another possible limitation to our analysis was the use of AI. Although all final themes were reviewed for accuracy, the AI system had to be reprompted several times to achieve adequate results. Copilot struggled to analyze large batches of data at one time, and thus we subsequently began submitting data in smaller batches. To help minimize error, we chose a step-by-step approach throughout the analysis rather than allowing Copilot to complete the entire task independently. This, however, made the back-and-forth conversation much more tedious and difficult to track every response/interaction. Lastly, our curriculum audit of the WFUSM curriculum was limited based on difficulty with electronic mapping. We relied upon independent review of each course, which was time consuming and potentially incomplete.

Future Directions

This study provides a good foundation for the remaining steps of Kern's Model of Curriculum Development including identifying goals and objectives, selection of curriculum content and educational methods, implementation, and evaluation.¹⁰ WFUSM has already established an institutional committee to develop a more robust obesity and nutrition curriculum. Our results lay a foundation for continued collaboration on curriculum mapping and revision to support relevant competencies. Following discussions of goals and objectives, the next steps include pilot implementation of brief curriculum interventions through identified high-yield courses. A top-down approach through expansion in clerkship clinical activities and didactics is feasible, scalable, and adaptable approach to improving the current learning environment and educational landscape for WFUSM medical students and to improve development of these critical competencies in preparation for future practice.

Conclusion

While learner and institutional priorities appear to be shifting toward recognizing the importance of obesity and nutrition education, implementation is lagging. With so few instructional hours in each course, there does not appear to be enough time to adequately address all topics. However, students and faculty are open to additional instructional time focused on obesity medicine topics. There seem to be fewer time constraints for implementing proposed content in clinical clerkships, which aligns well with the identified gaps. This presents a feasible strategy to start with clinically focused interventions and collect iterative feedback. This would create an environment to focus efforts on highest yield concepts and eventually allow for additional places of vertical integration.

Abbreviations

- WHO: World Health Organization
- AAMC: American Association of Medical Colleges
- OMEC: Obesity Medicine Education Collaborative
- DHHS: Department of Health and Human Services
- NIH: National Institutes of Health
- WFUSM: Wake Forest University School of Medicine
- MME: Multi-model weight management education
- OSCE: Objective Structure Clinical Examination
- ACGME: Accreditation Council for Graduate medical Education
- NBME: National Board of Medical Examiners
- USMLE: United States Medical Licensing Examination

- CS: Clinical Skills
- MAPS: Medicine and Patients in Society – Medical Ethics
- ICRT: Introduction to Clinical Reasoning and Integrative Thinking – Case-based Learning
- MAD: Metabolism and Defense – Biochemistry, Microbiology, Immunology
- IRB: Institutional Review Board
- M1: Medical Student, year 1
- M2: Medical Student, year 2
- M3: Medical Student, year 3
- M4: Medical Student, year 4

Declarations

Ethics approval and consent to participate:

This study was approved by the Wake Forest University Health Sciences Institutional Review Board (#IRB00101240). Informed consent was obtained from all participants at the start of the survey in accordance with the Nuremberg Code of Ethics. A questionnaire item prompted the participant to opt in to participate in the study, which allowed subsequent items to be recorded. If the participant opted out, the remainder of the questions did not appear. Written consent was not obtained; the requirement for written informed consent was waived by the Institutional Review Board.

Consent for publication:

Not applicable

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Author Contribution

JL*: investigation, formal analysis, visualization, writing – original draft, review and editing JM*: investigation, formal analysis, writing – original draft, review and editing HB: investigation JS: investigation JK: formal analysis, writing – review and editing ES: conceptualization, investigation, writing – review and editing, supervision

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Data Availability

Availability of data and materials: The student datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request. The faculty datasets are not publicly available to maintain individual privacy of our faculty stakeholders.

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Figures

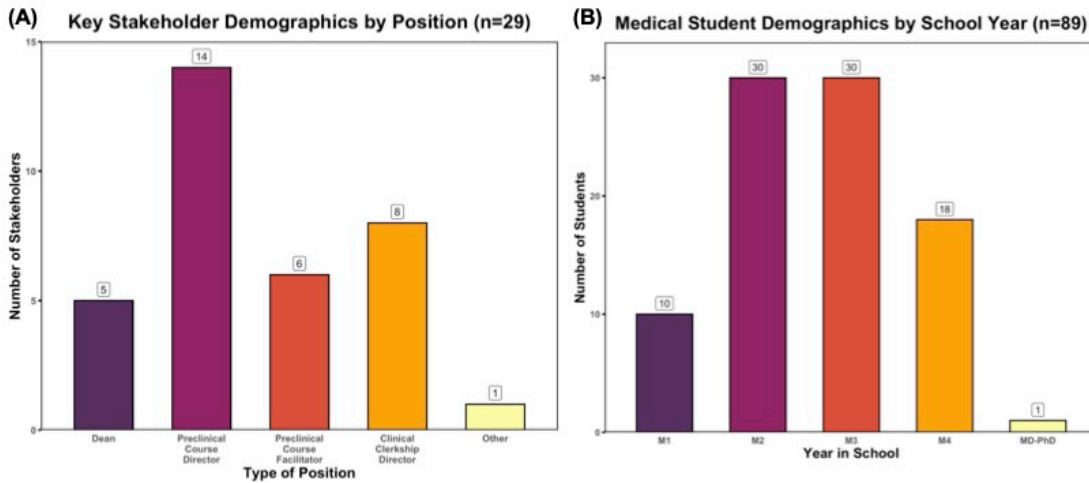


Figure 1

Demographics of Survey Participants

(A) Number of faculty per stakeholder group: Dean, Preclinical Course Director, Preclinical Course Facilitator, Clinical Clerkship Director, Other (B) Number of students per year of medical school: First year (M1), Second Year (M2), Third Year (M3), Fourth Year (M4), MD-PhD

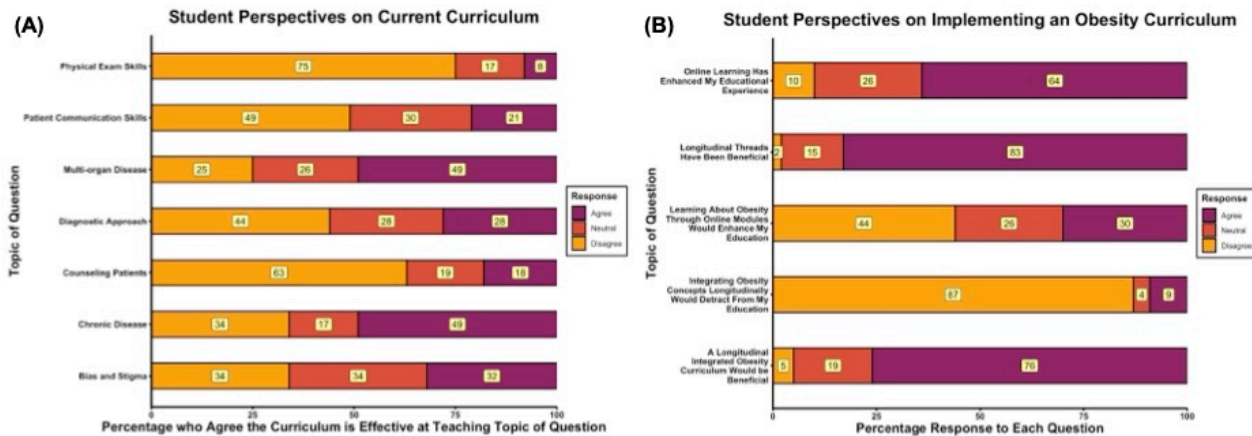


Figure 2

Student Perspectives on Current and Future Curriculum

(A) % of students who agreed (strongly agreed + agreed), were neutral, or disagreed (strongly disagreed + disagreed) regarding the effectiveness of the current curriculum at teaching the topic stated in the survey question (B) % of students who agreed (strongly agreed + agreed), were neutral, or disagreed (strongly disagreed + disagreed) regarding the statements presented focused on implementing an obesity curriculum

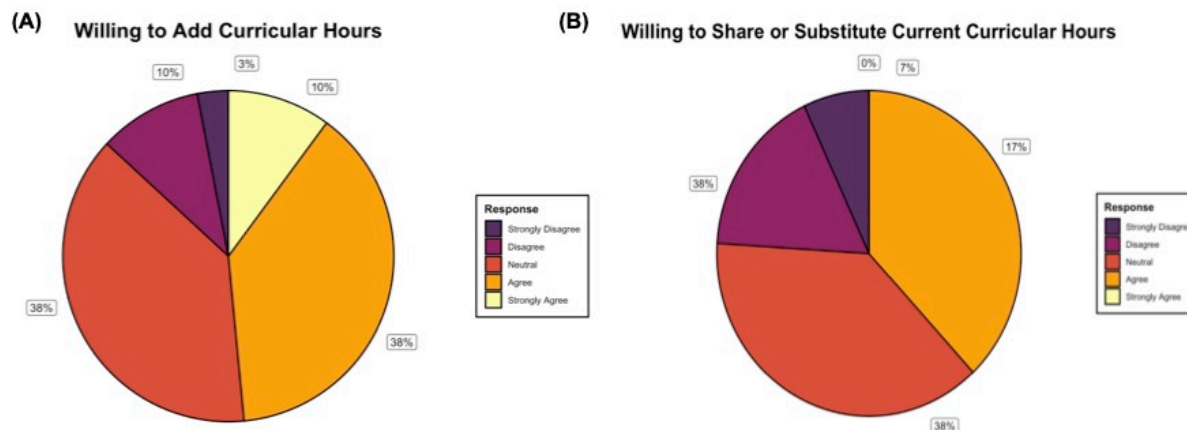


Figure 3

(A) % of faculty willing to add additional obesity medicine curricular hours (B) % of faculty willing to share or substitute current curricular hours to make room for obesity medicine content

Supplementary Files

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