

**Residency Education**

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## Women's Health Content Validity of the Family Medicine In-training Examination

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**Background:** *Women's health is the field of medicine that addresses the special health care needs of women. It includes conditions more common, different, or unique to women. The primary means of knowledge assessment for family medicine residents is the Family Medicine In-training Examination (FMITE). This study describes the degree to which the FMITE tests residents for knowledge of women's health.* **Methods:** *This was a content validity study using item analysis to identify FMITE women's health questions. The curriculum standard was the 2004 American Academy of Family Physicians (AAFP) Women's Health Curriculum Guidelines. Two independent reviewers verified the method of identifying women's health questions. The test sample included 3,460 questions (1996–2005 FMITEs).* **Results:** *Women's health questions made up 23% of the sample. Content areas and topics from the AAFP curriculum were sampled unevenly. The exam emphasized reproductive health and failed to assess knowledge of older women's health.* **Discussion:** *The FMITE does test resident knowledge of the traditional subjects of obstetrics and gynecology but does not provide an adequate assessment of the breadth of knowledge of women's health.*

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Family physicians are the primary providers of health care for women in the United States<sup>1</sup> and the only physicians who provide care to women across the lifespan. In addition, the majority of the patients seen by family physicians are female.<sup>2</sup> To provide optimal care to these women, family physicians should be knowledgeable about women's health.

Women's health is a field of medicine that includes the screening, diagnosis, and treatment of conditions that are unique to women (gynecologic disorders), more common in women (eg, autoimmune disorders), or require different treatment in women (eg, myocardial infarction).<sup>3</sup> Women's health is an essential content area for family medicine residents, but residency training may or may not include focused training in women's health. Due to the importance of women's health to family medicine and the variability of training, it is imperative for family medicine educators to assess resident knowledge of women's health.

Most residency programs use the Family Medicine In-training Examination (FMITE) developed by the American Board of Family Medicine (ABFM) for resident knowledge assessment.<sup>4</sup> The FMITE fills the Accreditation Council for Graduate Medical Education (ACGME) requirement for periodic formal resident evaluation.<sup>5</sup> FMITE results provide information not only for the evaluation of individual residents but also for residency programs. Low scores in a content area often prompt curriculum revision. Thus, the FMITE is a driving force for residency training in family medicine. Due to the importance placed on this examination, it is essential that the FMITE contain women's health content. While women's health is not a defined question category on the FMITE, questions about women's health can be asked in any of the major disciplines. Whether the FMITE measures knowledge of women's health has not been determined.

The validity of a test concerns what the test measures and how well it does so.<sup>6</sup> The medical education literature includes many examples of validity studies of in-training exams. Most studies address predictive criterion-related validity, namely the ability of the in-training examination to predict performance on board certification exams.<sup>7-10</sup> Leigh demonstrated

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that the FMITE has predictive validity with respect to the ABFM Board Examination.<sup>11</sup> Content validity of in-training examinations is less-often studied. Content-related validity evidence refers to the extent to which the test questions characterize the specified subject area.<sup>12</sup> Only two content validity studies were located in the medical literature: one study examined psychiatry residency in-training examination (PRITE) and the other looks at the pediatrics in-training exam (PreTest).<sup>13,14</sup> Both of these studies compared test items to a curriculum standard to determine content validity. This study's purpose is to investigate the content validity of the FMITE, specifically addressing the women's health content validity.

## Methods

### *Data Source*

The ABFM provided, on request, a 10-year sample (1996–2005) of past in-training examinations, totaling 3,460 questions. Each annual examination contained 340–360 multiple-choice questions divided between two books. Book 1 had 180–200 single-response multiple-choice questions, and Book 2 contained set problems with 160 questions. The set problems each begin with a case presentation followed by a series of about 10 true or false questions. FMITE questions are drawn from the disciplines of internal medicine, surgery, obstetrics, community medicine, pediatrics, psychiatry, geriatrics, and gynecology. No information was available to the examiner as to which of these major disciplines each test item was assigned.

### *Research Design*

This study examined the FMITE examination questions to determine the women's health content of the test. As a content validity study, like those previously described, the study examined item-congruence with a curriculum standard to determine content validity; that is, whether the examination covers a given topic. The curriculum standard selected for this study was the 2004 American Academy of Family Physicians (AAFP) Recommended Core Curriculum for Women's Health.<sup>15</sup> Test items were individually examined to determine whether they deal with a topic in the women's health curriculum. This type of item-by-item analysis is an accepted means of determining content validity.<sup>16</sup>

The researcher selected the AAFP curriculum from five published women's health curricula for medical education.<sup>3,15,17,18</sup> Of the five, the AAFP curriculum was moderate in length, with 13 knowledge components (Table 1) and specific women's health topics for most, totaling 73 women's health topics. The AAFP curriculum covered women's health across the lifespan, covering reproductive health along with psychosocial and general medical areas.

Table 1

### American Academy of Family Physicians Women's Health Curriculum Knowledge Areas

1. Normal growth and development and variants
2. Menstruation
3. Reproductive tract infections/diseases
4. Reproduction
5. Sexuality
6. Prevention, screening, and immunization guidelines
7. Menopause
8. Pelvic floor dysfunction
9. Psychosocial issues
10. Mental health and behavioral medicine
11. Community issues
12. Family-centered maternity care
13. Medical diseases in women

Although the AAFP curriculum is not required for family medicine residencies, it was "tailor-made" for them. The FMITE questions were compared to this AAFP curriculum to determine content validity for women's health.

### *Data Collection*

The author analyzed each of the 3,460 test items to determine whether it was a women's health question. A question was identified as a "women's health question" if it met both of the following criteria. First, the main topic of the question dealt with one of the 13 knowledge components in the curriculum guidelines. Second, the patient, if depicted in the question, was an adult female, 18 years or older.

To determine the consistency of this method, two independent reviewers acquainted with the field of women's health reviewed a randomly selected subset of 100 questions. The overall level of agreement using the criteria above was 90%.

## Results

Each of the 10 FMITEs contained women's health questions, ranging from 65 (19%) to 98 (27%) questions per year. The number of women's health questions for Book 1 ranged from 33 (18%) to 61 (30%), while Book 2 items varied from 28 (18%) to 58 (36%). Of the 3,460 FMITE questions examined, 801 (23%) were women's health questions (Table 2).

The 2004 AAFP Core Curriculum contains 13 curriculum knowledge components providing specific women's health topics for most components. Table 3 displays the frequency of questions related to each of the 13 components. The number of questions related to each knowledge component and women's health topic varied considerably. Many questions appear for the components maternity care, menstruation, and reproductive

Table 2

Women's Health Questions  
on the FMITE: 1996–2005

Exam Year	Exam Total	Book	Book Total
1996	79 (23%)	1	39 (22%)
		2	40 (25%)
1997	75 (22%)	1	38 (21%)
		2	37 (23%)
1998	65 (19%)	1	37 (21%)
		2	28 (18%)
1999	92 (27%)	1	34 (19%)
		2	58 (36%)
2000	67 (20%)	1	37 (21%)
		2	30 (19%)
2001	80 (24%)	1	40 (22%)
		2	40 (25%)
2002	70 (21%)	1	33 (18%)
		2	37 (23%)
2003	85 (24%)	1	53 (26%)
		2	32 (20%)
2004	98 (27%)	1	51 (26%)
		2	47 (29%)
2005	90 (25%)	1	61 (30%)
		2	29 (18%)
Total	801 (23%)		

FMITE—Family Medicine In-training Exam

tract disease with all (or nearly all) of these component topics tested on each exam. These three components make up approximately three fourths of all women's health questions on the examination. The reproduction, prevention, and mental health curriculum components were each tested with three or more questions per annual exam, covering many but not all component topics. Only one or two questions per year tested medical diseases in women, sexuality, menopause, pelvic floor dysfunction, or psychosocial issues. Finally, no exam questions addressed normal growth and development or community issues. Thus, the coverage of the women's health components was unequal.

Table 3

AAFP Core Curriculum Women's Health  
Content Areas on the FMITE

Women's Health Content Areas	Test Items (% of Exam)
Menstruation	130 (3.8)
Reproductive tract disease	186 (5.4)
Reproduction	30 (.9)
Sexuality	6 (.2)
Prevention	48 (1.4)
Menopause	18 (.5)
Pelvic floor dysfunction	3 (.1)
Psychosocial issues	7 (.2)
Mental health	70 (2.0)
Maternity care	294 (8.5)
Medical diseases in women	9 (.3)
Normal growth and development	0
Community issues	0
Total	801 (23.1%)

AAFP—American Academy of Family Physicians  
FMITE—Family Medicine In-training Exam

The final characteristic of the FMITE test items considered in this study was the proportion of questions addressing reproductive and genital health versus other areas of women's health. Five of the 13 Core Curriculum content areas relate to reproductive health: menstruation, reproductive tract disease, reproduction, pelvic floor dysfunction, and maternity care. The eight other women's health components are sexuality, prevention, menopause, psychosocial issues, mental health, general medical problems, normal growth and development, and community issues. As detailed in Table 4, 80.2% of the 801 women's health questions relate to genital and reproductive health; nearly half of these questions address maternity care. The remaining 19.2% of questions deal with other women's health questions (non-reproductive health questions).

Figure 1 provides a visual display characterizing the test items on the FMITE. Of the 3,460 FMITE questions evaluated, 76.8% did not address women's health. Of the 23.2% of all FMITE questions examined that deal with women's health, reproductive health questions made up 18.6% of the exam questions, and 4.6% dealt with other women's health.

Table 4

Women’s Health Questions:  
Reproductive Health and Other

Component	Percentage
Genital and reproductive health	
Menstruation	16.2
Reproductive tract disease	23.2
Reproduction	3.7
Pelvic floor dysfunction	.4
Maternity care	36.7
Total	80.2
Other women’s health	
Sexuality	.8
Prevention	6.0
Menopause	2.2
Psychosocial issues	.9
Mental health	8.7
Medical diseases of women	1
Normal growth and development	0
Community issues	0
Total	19.6

Discussion

This study examined the women’s health content validity of the FMITE. The exam contains many questions on women’s health topics, but the coverage of topics is uneven.

To complete this content validity study, we must ask if the women’s health questions make up a representative sample of the AAFP Women’s Health Curriculum. No rule exists for determining a representative sample except that all major aspects of the content domain should be covered and in the correct proportions.<sup>6</sup> The AAFP Curriculum does not prioritize topics. Thus, selecting a representative sample is a subjective determination.

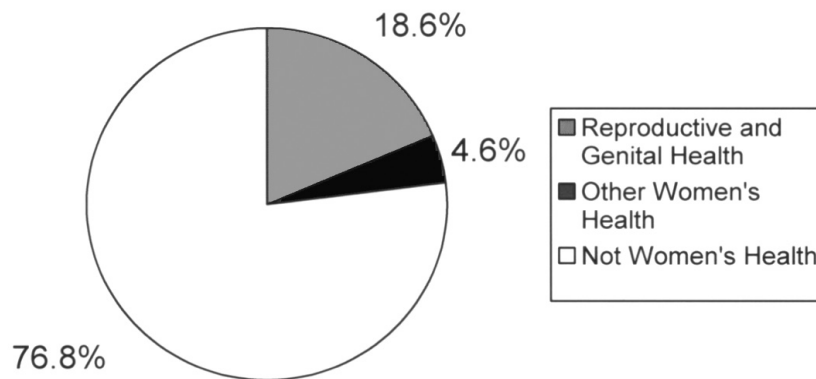
For this study, the author selected a representative sample from the AAFP women’s health curriculum to include important women’s health topics for training in family medicine. This sample consists of the most-frequent reasons women consult a family physician, the leading causes of death for women, and topics related to preventive health. In addition, exam questions should consider the health issues of women of all ages. These components of a representative sample of the curriculum will be considered separately below.

Information on office visits by female patients to family physicians is available from the National Ambulatory Medical Care Survey (NAMCS).<sup>19</sup> Of the top 20 NAMCS diagnoses across the lifespan, seven are women’s health topics included in the AAFP Women’s Health Curriculum: hypertension, diabetes mellitus, urinary tract infection (UTI), depression, prenatal visit, hypothyroidism, and low back pain. The FMITE contains many questions on depressive disorders and normal pregnancy. The remaining office visit diagnoses are general medical problems with a gender-specific component, either differences in presentation or treatment. Of the general medical problems addressed in office visits, only the topics of UTI and hypertension are addressed with occasional FMITE questions.

The Centers for Disease Control and Prevention (CDC) provides information on mortality statistics for females ages 18–85 in 2001. Five of the top 10—heart disease, cerebrovascular disease, chronic respiratory disease, diabetes mellitus, and Alzheimer’s disease—are included in the AAFP curriculum as medical diseases with gender differences. The FMITE does not contain questions related to the gender differences of any of these diseases related to mortality for women.

Figure 1

Proportion of FMITE Items Related to Women’s Health



FMITE—Family Medicine In-training Examination



Prevention topics for women's health are taken from the Surgeon General's Healthy People 2010 program. Although the health indicators and their objectives are not gender specific, nine prevention topics appear in the AAFP Women's Health Curriculum: exercise, weight disorders, smoking, substance abuse, contraception, sexually transmitted diseases (STDs), human immunodeficiency virus (HIV), access to health care, and depression.<sup>20</sup> The FMITE contains three of these preventive women's health topics: contraception, STDs, and depression.

The representative sample of the AAFP Women's Health Curriculum contained the most-frequent diagnoses for women consulting a family physician: mortality causes and preventive health topics. The topics addressed on the exam were pregnancy, depression, urinary infection, hypertension, contraception, and STDs. Based on this sample, the FMITE has limited women's health content validity.

Family physicians provide continuous care to patients across the lifespan. Most of the women's health questions on the FMITE dealt with reproductive health issues of maternity care, reproduction, reproductive tract disease, or menstruation. For women of reproductive age, roughly ages 18–44, these issues are major health concerns. However, most female patients making office visits to family physicians are over 45 years of age,<sup>2</sup> so the FMITE does not assess the women's health knowledge needed for the care of most family physician's female patients.

### Limitations

As with all research, the findings of this study should be interpreted with regard to the limitations. First, test items were classified using a rigid definition to select women's health questions. This method might well have left out some questions that did address women's health and possibly included others that did not. A second limitation involves the use of the 2004 AAFP recommended core curriculum guidelines for women's health as the standard for women's health content validity. Selection of a different standard would provide different results. Whether the AAFP curriculum or any other adequately addresses the knowledge necessary for the family physician in practice has yet to be determined. Finally, the determination of a representative sample of the curriculum was a subjective determination.

### Conclusions

The FMITE is a valuable assessment tool. Residency programs use information from this examination to guide curriculum revision and to assess progress of the individual resident and program as a whole. However, the FMITE misses many important topics from the AAFP curriculum. By emphasizing reproductive health, the FMITE steers the focus of women's health

education in family medicine toward the care of women of reproductive age. The exam does not measure residency curriculum and resident knowledge base related to care of older women. Therefore, residency programs should not use the FMITE as a measure of women's health knowledge.

It is important to assess resident knowledge of women's health. This study presents the content validity evidence for women's health in the FMITE. This in-training examination provides a limited evaluation of resident knowledge of women's health. Residency programs seeking to assess resident knowledge of women's health will need additional assessment materials beyond the FMITE. Family medicine has reached an important juncture as the board certification examination is changing. To prepare residents for the new certification exam, the FMITE must evolve. As the FMITE is changing, there is opportunity for an infusion of women's health content to better assess resident knowledge of women's health. To paraphrase Abigail Adams, it is time to "remember the women."

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