Enhancing Women's Reproductive Health Education through Virtual Patient Simulations: Design and Outcomes

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Background and Research Questions

Background

- Healthcare inequity is evident in women's reproductive health (WRH) services, with patients reporting symptom dismissal, discrimination, and suboptimal educational services
- Health equity promotion begins in academia with clinical exposure and training; however advanced practice nursing programs continue to struggle securing clinical placements
- Virtual patient simulations (VPS) can provide learners with equitable experiences to practice patient-centered care for the WRH population.

Research Questions

- How can we highlight diverse patients and healthcare equity in creating WRH VPS?
- Does exposure to WRH VPS improve learner knowledge, skills, and abilities (KSA)?

Methods

- Simulation development: ADDIE design framework
- KSA evaluation: student post-sim survey (de-identified, graduate nursing 08/22)
- Education and Equity Opportunity Recognition: item and topic analysis on student reflection responses
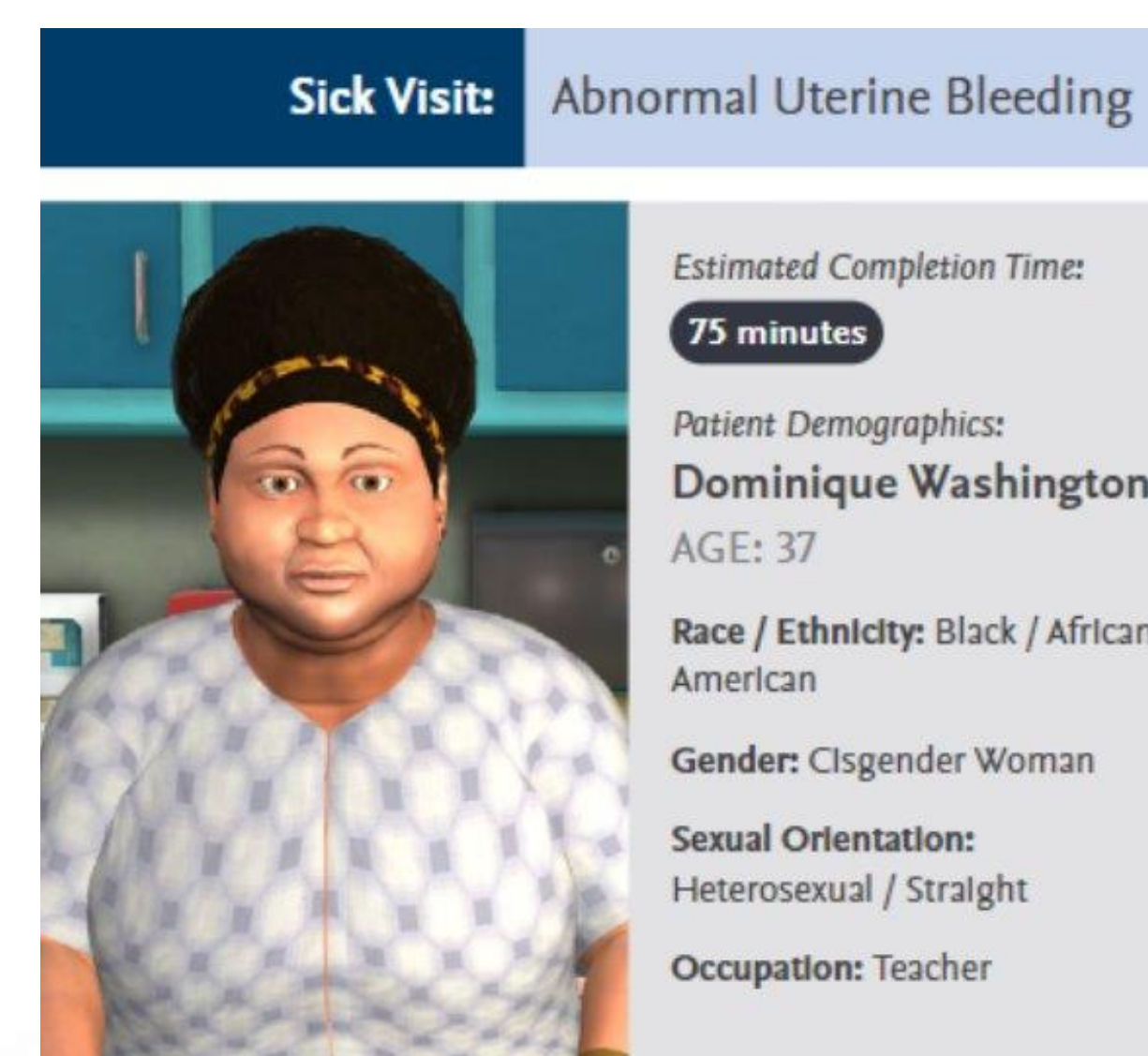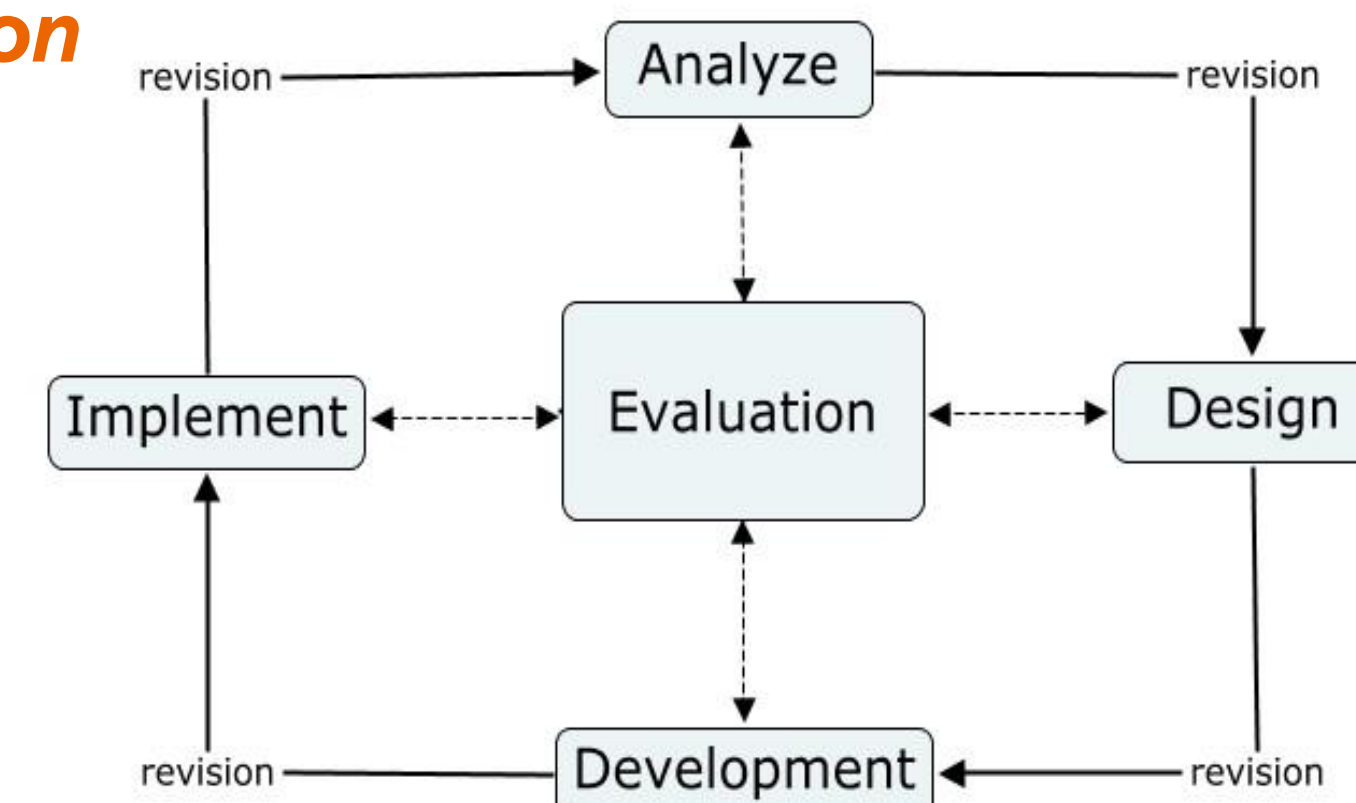
ADDIE Framework and Patient Creation

ADDIE Framework: Analyze, Design, Development, Implement, Evaluation

- ✓ Competency maps and assessments
- ✓ Learning objectives and outcomes
- ✓ Alignment with diverse curriculum

Patient Creation

Characters were created to:

- ✓ Represent a diversity of age and race/ethnicity
- ✓ Express unique interests and personal histories to encourage person-centered care
- ✓ Express unique healthcare goals and problems to foster clinical judgement skills
- ✓ Encourage self-reflection through explicit discussion of bias in healthcare settings


Problem Visit: Contraceptive Care
Estimated Completion Time: 75 minutes
Patient Demographics:
Jasmine Santos
AGE: 16
Race / Ethnicity: Filipino American
Gender: Assigned Female at Birth

Sick Visit: Abnormal Uterine Bleeding
Estimated Completion Time: 75 minutes
Patient Demographics:
Dominique Washington
AGE: 37
Race / Ethnicity: Black / African American
Gender: Cisgender Woman
Sexual Orientation: Heterosexual / Straight
Occupation: Teacher

Well Woman Exam
Estimated Completion Time: 75 minutes
Patient Demographics:
Melanie Bishop
AGE: 45
Race / Ethnicity: White
Gender: Cisgender Woman
Sexual Orientation: Heterosexual / Straight
Occupation: Police Officer

Results
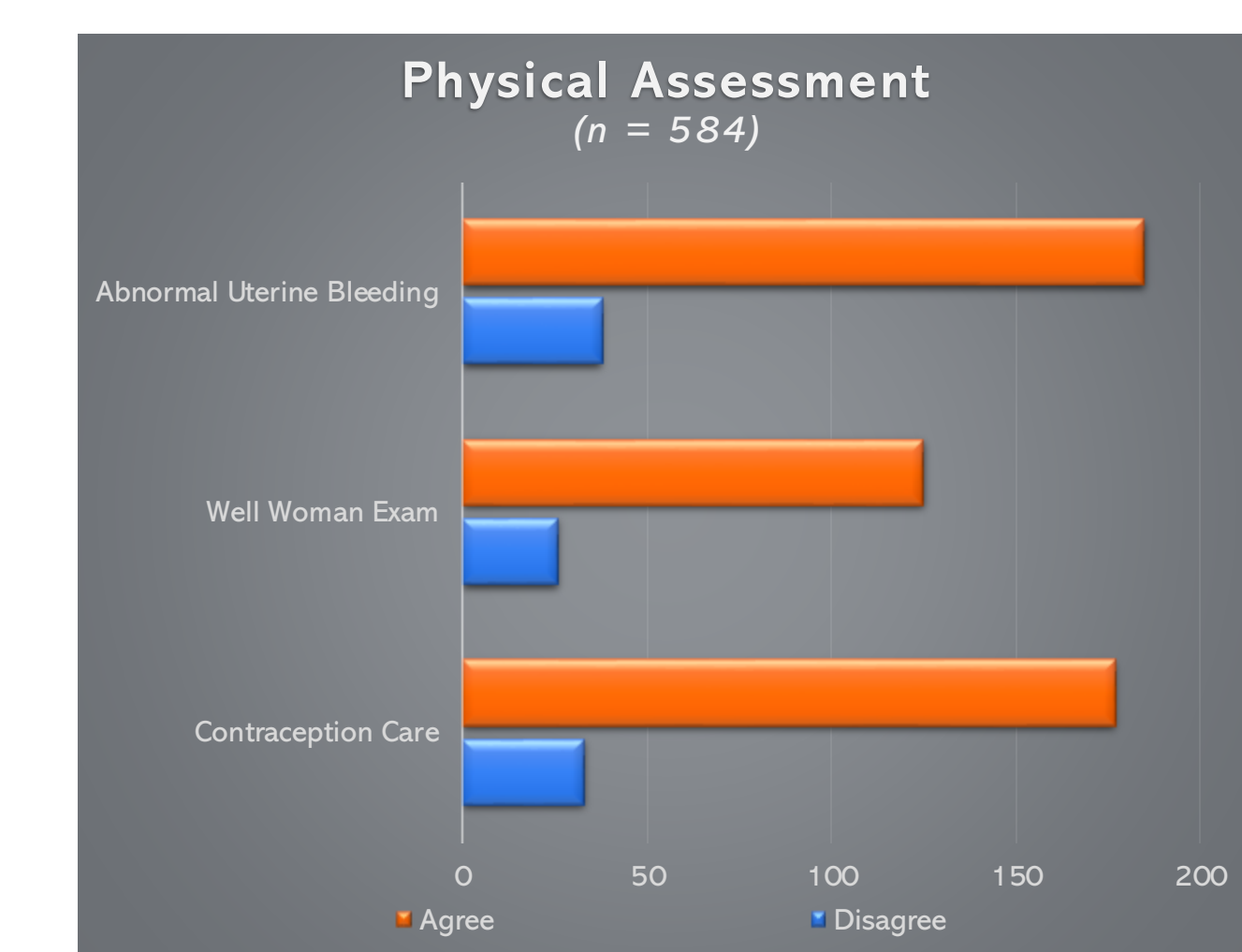
Post-sim Student surveys (n=584-592)

Survey items (6-item Likert) in analysis (KSAs):

- Improved my ability to conduct a patient interview
- Improved my physical assessment skills
- Challenged me to think critically
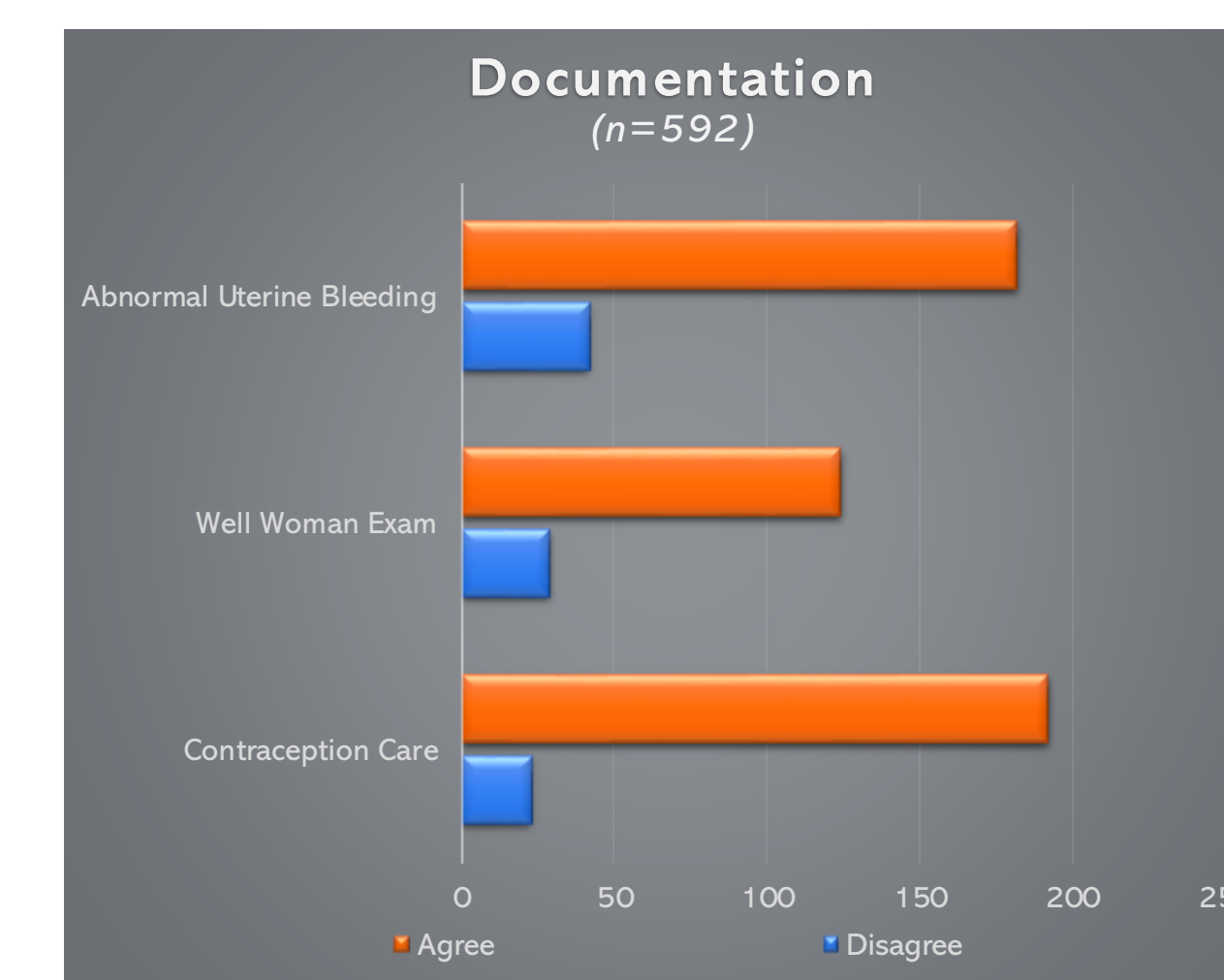- Improved my documentation skills
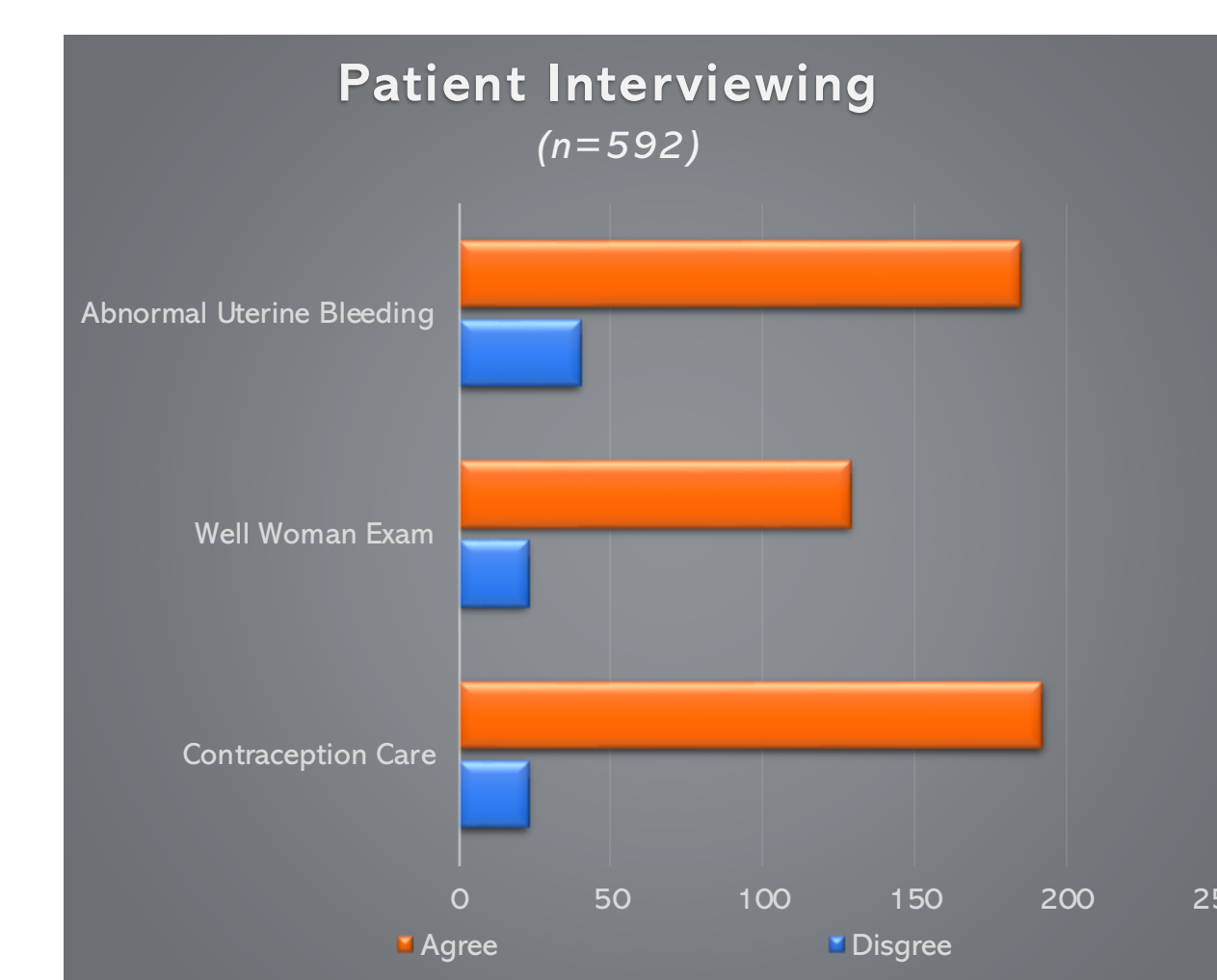
Patient Interviewing (n=592)

85% of all students surveyed reported improved patient interviewing skills

*CC: 89%; WW: 84%; AUB: 82%

Physical Assessment (n = 584)

83% of all students surveyed reported improved physical assessment skills

*CC: 84%; WW: 82%; AUB: 82%

Documentation (n=592)

89% of students surveyed reported the simulations challenged them to think critically

*CC: 91%; WW: 86%; AUB: 89%

Critical Thinking (n = 586)
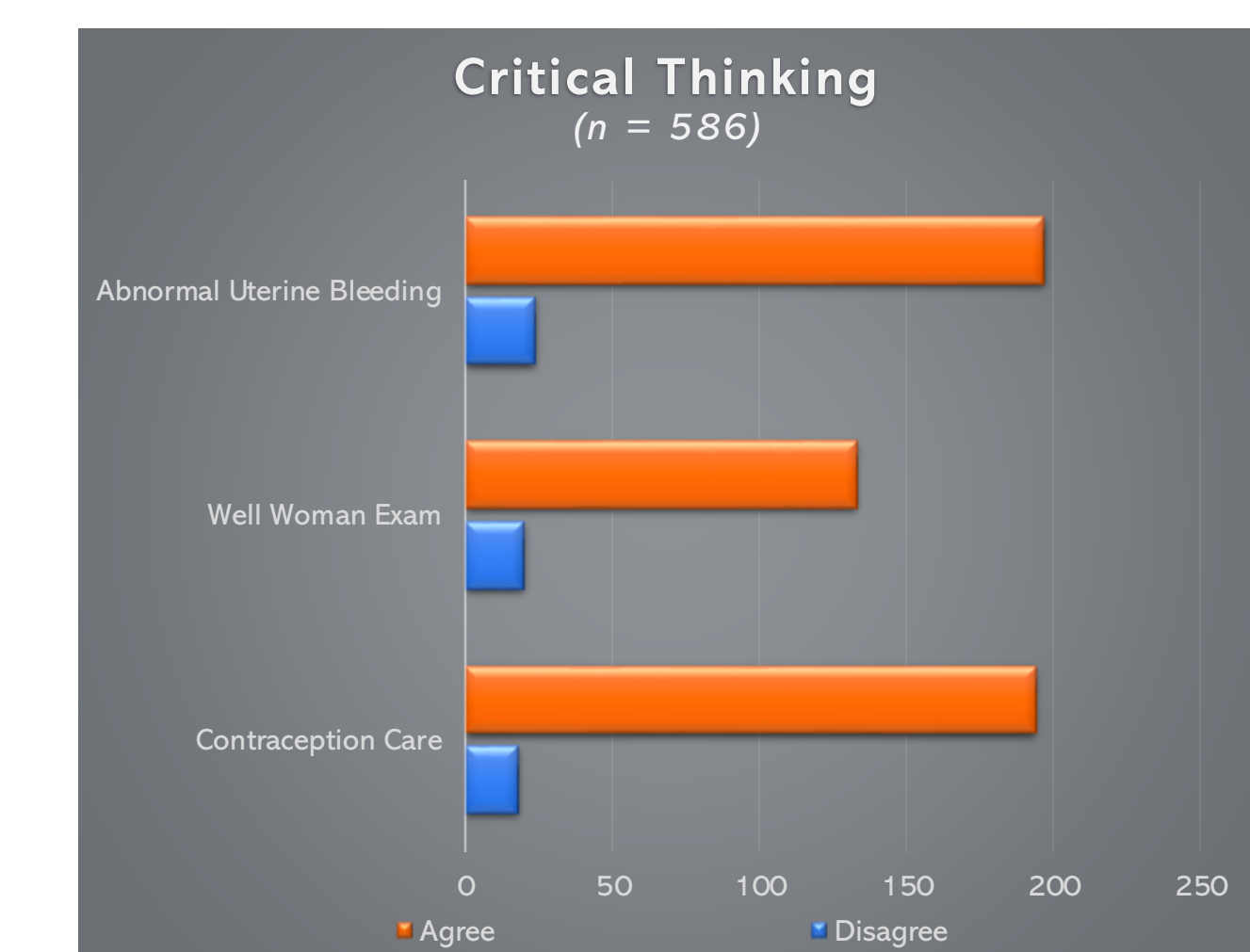
84% of students surveyed reported improved documentation skills

*CC: 89%; WW: 81%; AUB: 81%

*CC: Contraceptive Care; WW: Well Woman Exam; AUB: Abnormal Uterine Bleeding

Gensim's LDA Topic modeling:

- Preventative Services and Guidelines
- CDC Resources and Screening Programs
- Cancer Screening and Preventative Care
- Health Prevention Programs
- Medical Guidelines and Information Provision
  [Coherence score: 0.47 (moderate)]

Implications

- Virtual patient simulations (VPS) can fill clinical knowledge gaps in specialty areas struggling with placement, like WRH, providing students with equitable clinical experiences, diverse patient populations, and a learning environment to increase KSAs based on current practice guidelines
- Well-designed VPS can afford learners the opportunity to encounter diverse populations that require the use of cultural awareness and patient-centered care