



mEd, Ed, disruptedEd:
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What's disruption?
What's happening now?
What if?
What's next?

**November
27**
|
**28,
2020**

#FIMHSE2020
Frontiers in Medical and Health Sciences Education

The Impact of Simulation on Pre-Graduated Medical Education of Gynecology and Obstetrics

Cristina Nogueira-Silva, Fábio Viveiros, Vera Trocado, Alexandra Miranda, Vanessa Silva, Ana Raquel Lemos, Jorge Correia-Pinto, Manuel João Costa

INTRODUCTION



- ✓ It is universally accepted that clinical skills constitutes an essential learning outcome
- ✓ Students sometimes complete their educational programs armed with theoretical knowledge but lack vital clinical skills for their work



INTRODUCTION



Increased number of students entering in medical schools



Opportunities for medical students to learn and gain experience performing technical skills on direct physical examinations on patients has decreased.



To develop alternative strategies to overcome the deficit in training and decreased exposure to clinical cases

INTRODUCTION



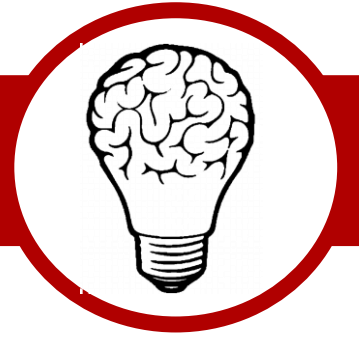
Simulation-based training: a controlled and supervised environment and be able to repeat the same clinical gestures multiple times without risks for the patient

Simulation-based training in Gynecology and Obstetrics



Critical: due to the sensitive nature of examinations on this specialty, medical students may find these examinations particularly challenging and awkward, without prior training

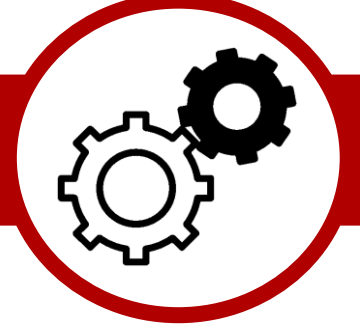
AIMS



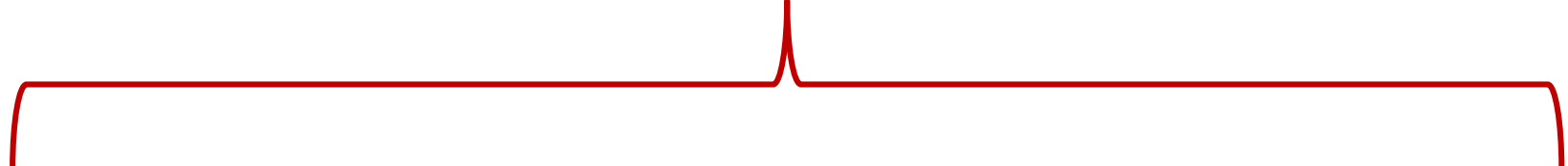
MAJOR AIM: To evaluate the impact of the G&O simulation in student's confidence, self-comfort and performance in undergraduate medical education

MINOR AIM: To evaluate the influence of the G&O simulation in their interest in women's health and interest in choosing this specialty as a future medical career.

METHODS



- ✓ A prospective, observational, descriptive and analytical study



To evaluate the influence of the G&O simulation in student's confidence, self-comfort, performance, their interest in women's health and interest in choosing this specialty as a future medical



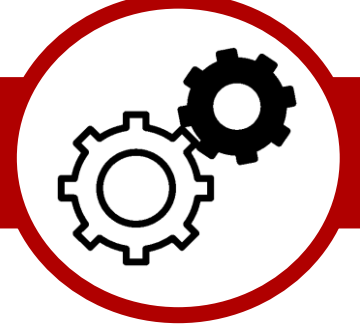
All the **4th year** medical students from the School of Medicine – University of Minho (SM-UM) of two academic years

To compare students exposed to the simulation with the unexposed



6th year medical students from SM-UM from an academic year not exposed and other from an academic year exposed

METHODS



Gynecology

Breast exam

Speculum examination

Pap smear test

Bimanual pelvic exam

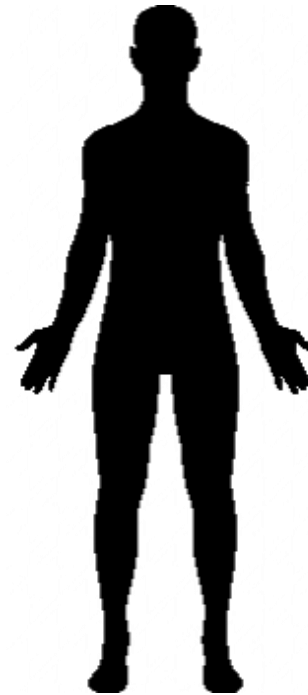
Obstetrics

Leopold's maneuvers

Uterine size measuring

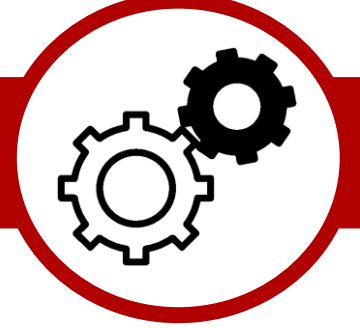
Evaluation of Bishop's score

Collection of genital swab for GBS

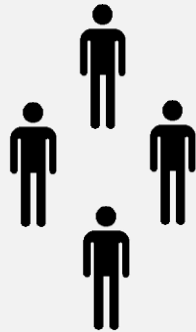


Models and Simulators

METHODS



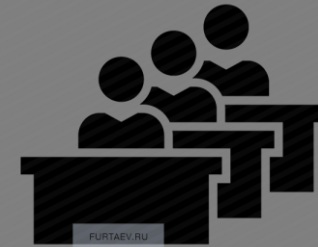
Study
material
about each
clinical



4 Students
groups, 4 clinical
gestures

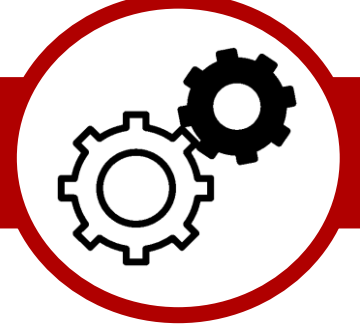


Each group has
a facilitator



Final
Discussion

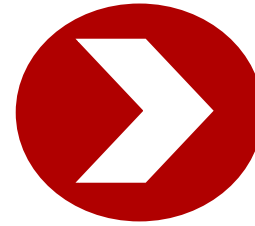
METHODS



To evaluate the influence of the G&O simulation in student's **confidence, self-comfort, performance**:



10-point scale
(1 is lowest, 10 is
highest)



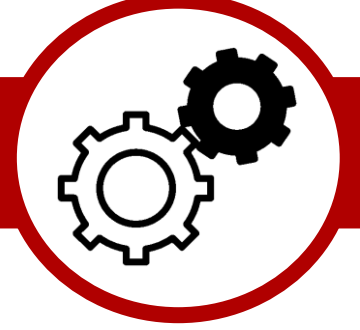
4th year medical students (2015-2016 and
2016-2017)

Pre- and post- surveys:

- ✓ Gender of the student
 - ✓ Confidence
 - ✓ Self-comfort
 - ✓ Performance
 - ✓ Interest for women's health
- Interest in choosing G&O as future medical career

After the clinical clerkship, students were asked to complete a final survey to evaluate the impact of the simulation curriculum on the clinical rotation

METHODS



To compare the performance of students **exposed vs. not exposed**

- 6th year: final OSCE's (*objective structured clinical examination*)
- A station for evaluation of 2 gynecology gestures (speculum examination and pap smear test) and others for 2 obstetric gestures (Bishop's score and collection of a genital swab for GBS detection) were included (0-20)



RESULTS



Gynecology



207 Students

	Pre-Simulation ^a (mean ± SD)	Post-Simulation ^b (mean ± SD)	<i>p</i> Value ^c
Confidence			
Breast Exam	5.77 ± 2.02	8.64 ± 1.07	<0.001*
Speculum Examination	5.40 ± 2.01	8.25 ± 1.09	<0.001*
Pap Smear Test	5.63 ± 2.02	8.60 ± 1.07	<0.001*
Bimanual Pelvic Exam	5.02 ± 1.99	8.12 ± 1.15	<0.001*
Self-comfort			
Breast Exam	6.21 ± 2.38	8.62 ± 1.26	<0.001*
Speculum Examination	5.79 ± 2.28	8.51 ± 1.21	<0.001*
Pap Smear Test	5.88 ± 2.28	8.59 ± 1.18	<0.001*
Bimanual Pelvic Exam	5.61 ± 2.27	8.40 ± 1.27	<0.001*
Performance			
Breast Exam	5.37 ± 2.04	8.42 ± 1.01	<0.001*
Speculum Examination	5.18 ± 1.95	8.16 ± 0.97	<0.001*
Pap Smear Test	5.32 ± 1.97	8.33 ± 0.98	<0.001*
Bimanual Pelvic Exam	4.80 ± 2.03	8.07 ± 1.04	<0.001*

Note: Data are scores on a 10-point scale (1 is lowest, 10 is highest)
 SD: Standard Deviation; ^an=207; ^bn=207; ^c Paired t-test; *Statistically significant

RESULTS



Gynecology



207 Students

	Pre-Simulation ^a (mean ± SD)	Post-Simulation ^b (mean ± SD)	<i>p</i> Value ^c
Interest in women's health	7.75 ± 1.92	8.08 ± 1.67	0.001*
Interest in G&O ^d as a future medical career	5.86 ± 2.60	5.96 ± 2.48	0.066

Note: Data are scores on a 10-point scale (1 is lowest, 10 is highest)
SD: Standard Deviation; ^an=207; ^bn=207; ^c Paired t-test; ^d Gynecology and Obstetrics
*Statistically significant

RESULTS



Obstetrics



243 Students

	Pre-Simulation ^a (mean ± SD)	Post-Simulation ^b (mean ± SD)	p Value ^c
Confidence			
Leopold's Maneuvers	3.23 ± 2.03	8.31 ± 1.28	<0.001*
Uterine Size Measuring	4.16 ± 2.33	8.85 ± 1.17	<0.001*
GBS detection	4.53 ± 2.34	8.97 ± 0.99	<0.001*
Bishop's score	3.24 ± 1.98	7.55 ± 1.41	<0.001*
Self-comfort			
GBS detection	5.41 ± 2.72	8.45 ± 1.36	<0.001*
Bishop's score	4.82 ± 2.71	8.32 ± 1.63	<0.001*
Performance			
Leopold's Maneuvers	3.31 ± 2.06	8.57 ± 1.41	<0.001*
Uterine Size Measuring	3.78 ± 2.30	8.17 ± 1.45	<0.001*
GBS detection	4.13 ± 2.27	8.30 ± 1.29	<0.001*
Bishop's score	3.33 ± 2.00	7.70 ± 1.48	<0.001*

Note: Data are scores on a 10-point scale (1 is lowest, 10 is highest)
 SD: Standard Deviation; ^an=243; ^bn=243; ^c Paired t-test; *Statistically significant

RESULTS



Obstetrics



243 Students

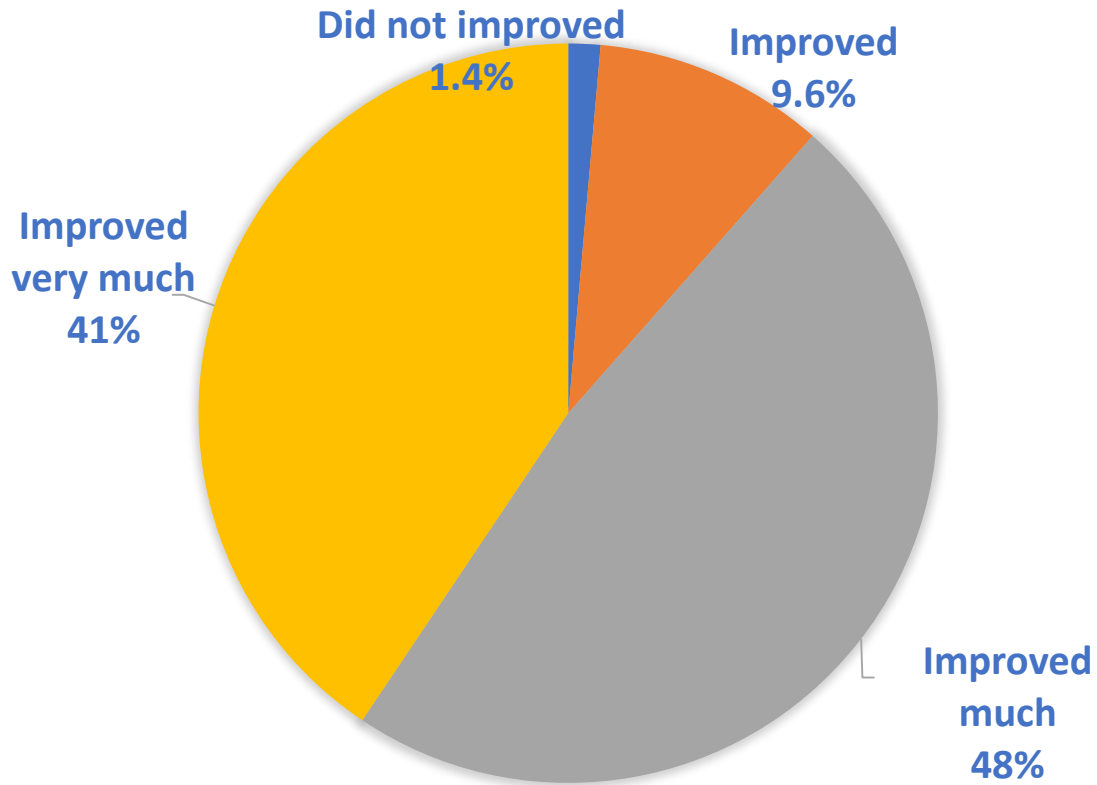
	Pre-Simulation ^a (mean ± SD)	Post-Simulation ^b (mean ± SD)	<i>p</i> Value ^c
Interest in women's health	7.86 ± 1.91	9,07 ± 1,27	<0.001*
Interest in G&O ^d as a future medical career	5.74 ± 2.66	5.77 ± 2.67	0,341

Note: Data are scores on a 10-point scale (1 is lowest, 10 is highest)
SD: Standard Deviation; ^an=207; ^bn=207; ^c Paired t-test; ^d Gynecology and Obstetrics
*Statistically significant

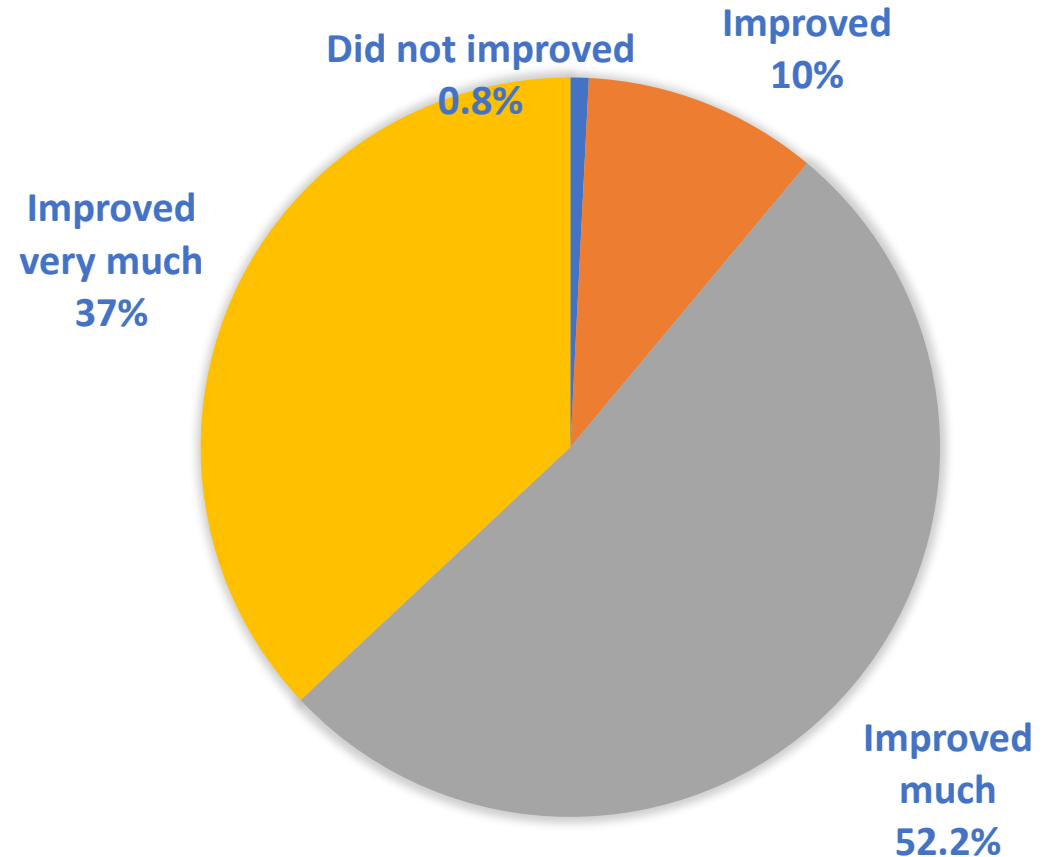
RESULTS: Final Survey



Gynecology



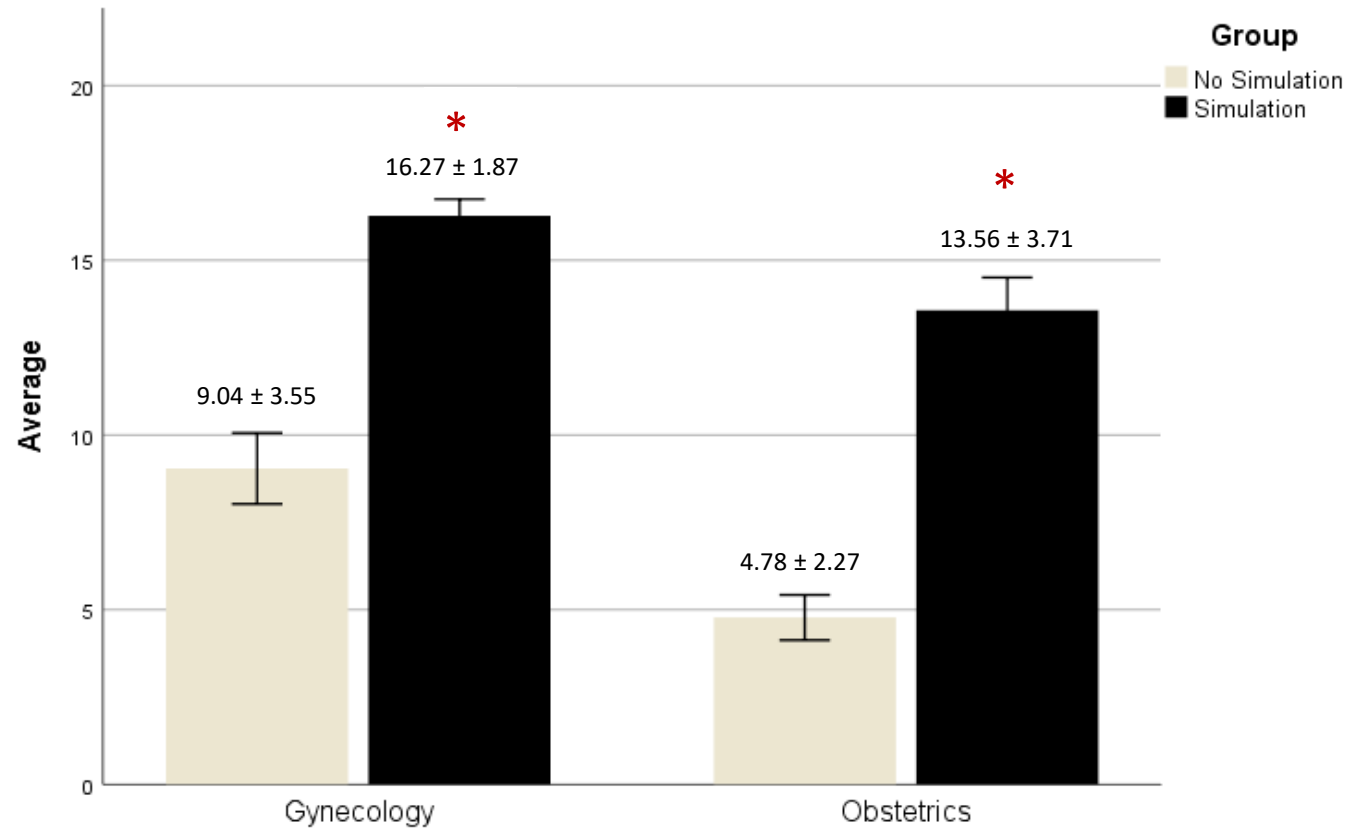
Obstetrics



RESULTS



Effect of Simulation on performance after 2 years



n= 111 students

- ✓ 49 not exposed (Control)
- ✓ 62 exposed (Simulation)

*: $p < 0.001$; t-test

Limitations



- ✓ Self-reported data (may not correspond to reality)
- ✓ Did not assess student clinical performance of these gestures in real-life patients (ultimate goal of the simulation exercise)
- ✓ There was a lack of individual feedback for the students after the simulation

CONCLUSIONS



- ✓ Simulation in G&O seems to improve students' confidence, self-comfort, performance and interest in women's health.



Improved confidence and student's self-comfort may result in greater participation in clinical clerkships, which can result in more experience in performing clinical skills in real patients

- ✓ Simulation seems also to provide higher qualified performance.



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