

Title: Gender awareness in a medical curriculum: surveying final year students undertaking a Women's Health rotation

Short Title: Gender awareness in a medical curriculum

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Abstract

Aims: The purpose of this study was to evaluate the effect that the Women's Health (WH) rotation at an Australian university had on final year students' level of gender awareness.

Background: Following a growing movement to emphasise the importance of gender awareness within the health profession, many medical schools are attempting to integrate these principles into their curriculum.

Method: Final year students undertaking the eight week WH rotation between February and July 2011 ($n=30$) completed the previously validated N-GAMS survey following one week of classroom teaching, and at the completion of the rotation. Responses were then compared to students who had not undertaken this rotation ($n=33$). The survey consisted of 32 items: 14 questions concerning gender sensitivity and 18 questions addressing gender role ideologies toward doctors and patients.

Results: There was a significant difference in gender sensitivity between the students who received one week of gender focused teaching when compared to those who did not ($p<0.05$). At the completion of the rotation, this significant difference was no longer present when gender differences between groups were controlled for. There were no differences in gender role ideologies.

Conclusions: Following a teaching program focused on WH, students had a higher level of gender sensitivity when compared to those who do not receive WH teaching. Seven weeks later there was no significant difference between the groups when gender differences were taken into account. Therefore students who undertake the WH rotation may not maintain higher levels of gender sensitivity than those who do not undertake the rotation.

Introduction

Over the last two decades, gender awareness, particularly gender sensitivity, has been emerging as an important consideration in the practice of medicine for doctors and patients alike¹⁻⁷. There is a large body of research demonstrating that men and women differ significantly in matters of health: whether it concerns their presentation; risk factors; symptoms; or experiences of disease^{1, 3, 8}. However, gender awareness goes beyond recognising these differences: men and women also experience socially mediated problems, for example poverty or sexual abuse, in different ways with different consequences to their health. Health professional's failure to appreciate these differences disadvantages both male and female patients^{4, 9}. This recognition has led to a movement within many medical schools to incorporate gender awareness as an integral part of the medical curriculum. This is aimed to transform previously male biased or gender neutral curricula to models which recognise that gender equity leads to better health for both men and women^{1, 4, 7, 10-13}.

Within the literature concerning gender sensitivity, awareness and medical education there are many definitions of these terms. Within this paper, the term gender refers to the characteristics of men and women that are socially constructed. Gender sensitivity makes reference to a person's ability to recognise and adapt to these differences without resorting to negative stereotypes^{6, 13}. Gender role ideology refers to perceptions and acceptance of established stereotypes. Gender awareness is the collective term for these concepts⁷. Another term that is ambiguous within the literature is Women's Health (WH). Educators use the term as the area in which the thematic connection between sex- and gender-based differences is explored. Early medical schools focused WH on

reproductive aspects of health and have been based in a biomedical model. Modern incarnations of WH education have included a more holistic approach, including a focus on non-reproductive issues seen throughout a woman's life, and within a sociocultural framework. This paper uses the term WH to refer to the rotation in which gender awareness should have a particular focus within a modern medical curriculum¹³.

The incorporation of gender awareness into the health profession has been fuelled by the World Health Organization's push to promote gender equality and equity within health. This has been done in an attempt to address inequalities that have arisen as a result of stereotyped gender roles and unequal gender-relations^{2, 14}. Similarly, in 2002 the Commonwealth Secretariat stated that:

“any health system which is not gender-sensitive cannot address the needs of either women or men adequately and is therefore an unsatisfactory system”
(p.16)

Medical education is an important tool to achieve gender equity within the health system, therefore when developing a modern medical curriculum at an Australian university in 2003, gender awareness should have been integrated into the course. A gender sensitive course includes establishing a gender-specific curriculum, in which students are expected to differentiate between sex and gender in health and illness, and to learn how to apply this concept in a clinical context¹⁵.

At this university throughout the four year program students are exposed to some gender awareness principles, particularly aiming to increase student appreciation of the sociocultural aspects of medicine. The second year of the course includes objectives to:

“Appreciate the interplay between gender attitudes to healthy lifestyle, diagnosis and treatment in... disease”.¹⁶

and to:

“Appreciate the interplay between gender attitudes to health, illness and social roles.”¹⁶

In the third year, the course includes the objective to:

“Identify and integrate into patient care an understanding of the effects of age, physical growth, developmental stage, life transitions, gender, culture, sexuality and environment on an individual's health and population health.”¹⁶

These objectives are achieved through lectures, workshops and examinations. This attempts to give students insight into these concepts and evaluate their ability to apply them in a clinical setting.

Though exposure to gender awareness themes occurs over the four years of the course, a particular focus on the differences between male and female healthcare practice and the sociocultural factors affecting women's access to healthcare is encouraged within the WH rotation. This university has placed the WH rotation within the students' final year and most of the didactic teaching occurs within the first week. The students attend lectures and workshops focusing on the biomedical aspects of female reproduction, the clinical practice of obstetrics, gynaecology and neonatology, along with the ethics of reproductive and perinatal medicine. There is some teaching that focuses on medico-legal implications of inappropriate or insensitive behaviour, and the importance of chaperones within examination. Like most aspects of this university's medical

curriculum, gender awareness principles within the WH rotation are, for the most part, implied rather than explicitly taught. Similarly, it is assumed that exposure to gender aware clinicians within obstetrics and gynaecology clinical placements should increase student gender awareness throughout the WH rotation.

The purpose of this study is to evaluate the effect that exposure to the WH rotation has on student levels of gender awareness. It is hypothesised that students who undertake the WH rotation will have a significantly higher level of gender awareness following the teaching week, and maintain this level throughout the timeframe of the study.

Methods

Two groups of final year medical students were asked to complete the previously validated Nijmegen Gender Awareness in Medicine Scale (N-GAMS) survey at the commencement of their rotation between February 2011 and July 2011 (Appendix 1)⁷. The first of these groups were the students undertaking the eight week WH rotation ($n=30$). The other group consisted of those students undertaking the senior medicine and surgery (SMS) rotation ($n=33$).

Students at this medical school are divided into two streams. Those who intend to undertake a career in rural medicine are given the opportunity to undertake the entirety of their third year in a rural hospital (rural stream students). They receive different teaching and clinical experiences when compared to those in the city-based course. In order to determine whether this experience changes their level of gender awareness,

students were asked to identify which group of students they belonged to in addition to stating their gender at the start of the survey. Other demographic characteristics (age, ethnicity, religious and cultural/linguistic background) have not been considered in this study.

The initial survey was administered at the end of the first week of both the WH and the SMS rotations. For the WH group, this first week included the majority of the classroom teaching for the rotation. At the completion of this rotation the WH group were asked to complete the survey again. The students in the SMS rotation were asked to complete the survey for a second time seven weeks after the SMS rotation's commencement. The SMS students have been treated as the control group, as the SMS component of the course was not developed with a gender focus³.

The survey consists of 14 questions designed to gauge students gender sensitivity (GS); 11 questions designed to assess students' gender role ideology toward patients (GRI-pt); and 7 questions intended to look at gender role ideology toward doctors (GRI-dr). The survey is Leichhardt scaled, where one represents strongly disagree, and five represents strongly agree. For the GS questions, the higher the mean response, the more gender sensitive a student is considered to be. For the GRI questions, a lower score represents a stronger rejection of a gender-based stereotype.

After all students had completed the survey twice, descriptive statistics were reviewed. The data were not paired, so the two data sets have been treated as statistically independent. Imbalances between gender and SMS and WH groups were evaluated

using Fisher's Exact Test. Comparisons between the SMS and WH groups were assessed using two-sided independent t-tests. Finally, as previous studies have demonstrated significant differences between male and female responses to the N-GAMS survey, a comparison of the SMS and WH groups was undertaken. This comparison was then repeated taking into account the impact of gender using a linear model⁷.

This study was approved by the ACT Health Human Research Ethics Committee (Reference: ETHLR.10.333)

Results

A sample of 63 final year students were evaluated. They were either undertaking the SMS rotation (52%), or the WH (48%) rotation during the study period. These students initially completed the N-GAMS survey at the close of their first week of teaching. All students who attended the final classes of that week completed the survey. There were other students within the rotations that did not attend these lectures, and these students have not been considered within this study. Descriptive data of the participants is described in Table 1. There was no statistically significant difference in the gender spread across the two groups ($p=0.45$). However, gender was corrected for when examining mean student response rates as it has been shown to have a significant effect on gender awareness in previous research⁷.

The teaching that students receive prior to their final year is assumed to be comparable across the two groups, with the exception of rural stream students. There was no

difference in the proportion of rural stream students assigned to the SMS and WH groups ($p=1.00$).

Following the first week of teaching, there was a statistically significant difference between the SMS and WH group responses. The WH group mean responses were significantly higher in the component of the survey that assessed the student's gender sensitivity ($p=0.03$) (Table 2). This level of significance was maintained when gender differences across groups were corrected for (Table 3). There was no statistically significant difference in the student's gender role ideologies as demonstrated by the second and third parts of the survey (GRI-pt and GRI-dr) (Tables 2 and 3).

In the second survey there was a statistically significant difference in gender sensitivity between the SMS and WH groups' mean responses ($p=0.04$) (Table 4), however when the students' average response was adjusted for gender, this difference was no longer significant (Table 5). As seen in the initial survey responses, there was no significant difference between the groups when evaluating student responses to the gender role ideology questions. Finally, there were no significant differences in mean responses when they were adjusted for rural stream involvement.

Discussion

This study provides evidence that though exposure to a week of gender focused teaching increases final year medical students' gender sensitivity initially, this may not be a long term change. This implies that students who undertake the WH rotation may

not permanently improve their gender sensitivity as a result of exposure to the course. In addition, we have concluded that gender role ideology is not affected by exposure to the WH course. Therefore the hypothesis that the teaching in the WH rotation would improve gender awareness in the long term is invalid based on this study's results.

These results are in accordance with previous findings that indicate gender sensitivity and gender role ideologies are not necessarily correlated^{7, 17-18}. Similarly, the gender sensitivity results of this study are comparable to those discovered in the initial application of the survey⁷. Again, our results are in accordance with current research that demonstrates that exposure to WH training courses increases student and practitioner gender sensitivity, at least initially^{10, 19-20}. This is the first application of the N-GAMS survey as a pre- and post course exposure evaluative tool, and it has supported the N-GAMS survey validity if it is accepted that student levels of gender sensitivity are affected by gender focused teaching only in the short term.

There are several limitations to this study. Firstly, though the teaching within the first week of the WH rotation is gender focused, there are no components specifically aimed at raising gender awareness. Gender awareness is part of the hidden medical curriculum (Prof. David Ellwood, course co-ordinator) and may need to be more explicitly addressed throughout the WH rotation in order to instigate a more permanent change. In addition, the small sample size is a significant limitation of this study. This should be emphasised as the results of the second survey are approaching statistical significance after they have been corrected for gender. In order to validate these results this study could be repeated, evaluating the entire student cohort within their final year rather than just

those students who undertake the WH rotation within the first five months of the academic year. This would increase the student sample size and may validate the results of this study.

Next, the differences in individual learning experience between students prior to the survey being administered limits this study, as do possible differences in student demographics. This is particularly important to mention considering the small sample size. However, as students were randomly allocated to either the SMS or WH group, bias due to demographic and learning differences is assumed to be minimal.

All students undertaking this medical course had already been exposed to teaching that may have affected their gender awareness over the three years prior to this survey being administered. This is a limitation of this study as the influence that prior teaching had on the students' gender awareness is unknown. It is worth further investigation before any conclusions about whether this medical course is producing students that have improved gender awareness can be drawn.

Finally, this study is limited by the fact that the results may not apply to students undertaking medical courses at other universities, or to prior or subsequent graduating classes. Firstly, the attitudes of students, and the teaching that they receive, may not be comparable to those at other schools when it comes to gender awareness principles. Similarly, the medical school that has been studied is less than ten years old, and its curriculum is constantly evolving, therefore the gender awareness teaching that each year group is receiving may be incomparable. A study across Australian universities and

across different year groups would contribute to an understanding of the level of gender awareness in graduates of Australian universities, but it is beyond the scope of this research.

It should be mentioned that this study did not pair the students' data, so it was not possible to accurately compare the responses from the initial survey to the data compiled from the second survey. Therefore we are unable to determine how exposure to the WH course affected the students' overall gender sensitivity and gender role ideology. In order to gain an understanding of the direct effect that the WH rotation has on gender awareness this study could be repeated with paired data.

In conclusion, it has been demonstrated that students who have undergone a week of gender focused teaching within a WH rotation have a higher level of gender sensitivity than those who have not. However seven weeks later all students had comparable levels of gender awareness when gender differences between groups are taken into account. This has the implication that the initial increase in gender sensitivity may not be a permanent change. These results are important as previous research has shown that competent health professionals need to maintain a high level of gender sensitivity in order to practice effectively, and that medical education is an important target to achieve this goal^{1, 7, 9, 11, 15, 21}. To determine whether exposure to the WH course directly improves gender sensitivity, further investigation is needed. In order to ensure that this medical curriculum follows the World Health Organization's recommendation to integrate gender sensitivity into medical education this research should be undertaken.

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Table 1

Descriptive data from the survey

		SMS	WH	All	p-value [†]
		Students	Students	Students	
		(n=33)	(n=30)	(n=63)	
Gender <i>n (%)</i>	Male	19 (57.6%)	13 (44.8%)	32 (51.6%)	0.45
	Female	14 (42.4%)	16 (55.2%)	30 (48.4%)	
Rural stream <i>n (%)</i>	Yes	7 (22.6%)	7 (23.3%)	14 (23.0%)	1.00
	No	24 (77.4%)	23 (76.7%)	47 (77.0%)	

[†] Based on a two-sided Fisher's Exact Test

Table 2

Results from the first survey

	SMS Students	WH Students	p-value †
	(n=33)	(n=30)	
	<i>Mean (SE)</i>	<i>Mean (SE)</i>	
GS	3.50 (0.50)	3.73 (0.29)	0.03 *
GRI-pt	2.17 (0.68)	2.27 (0.65)	0.57
GRI-dr	2.19 (0.79)	2.23 (0.60)	0.83

† Based on a two-sided independent t-test assuming equal variance

* Significant at $p=0.05$

Table 3

Results from the first survey adjusted for gender

	SMS Students (<i>n</i> =33) <i>Mean (SE)</i>	WH Students (<i>n</i> =30) <i>Mean (SE)</i>	p-value †
GS	3.50 (0.07)	3.74 (0.08)	0.03 *
GRI-pt	2.15 (0.12)	2.26 (0.12)	0.22
GRI-dr	2.17 (0.13)	2.22 (0.13)	0.28

† Based on a two-sided independent t-test assuming equal variance

* Significant at $p=0.05$

Table 4

Results from the second survey

	SMS Students	WH Students	p-value †
	(n=33)	(n=30)	
	<i>Mean (SE)</i>	<i>Mean (SE)</i>	
GS	3.46 (0.08)	3.66 (0.05)	0.04 *
GRI-pt	2.07 (0.12)	2.09 (0.11)	0.90
GRI-dr	2.00 (0.12)	2.06 (0.12)	0.73

† Based on a two-sided independent t-test assuming equal variance

* Significant at $p=0.05$

Table 5

Results from the second survey adjusted for gender

	SMS Students (<i>n</i> =33) <i>Mean (SE)</i>	WH Students (<i>n</i> =30) <i>Mean (SE)</i>	p-value †
GS	3.47 (0.07)	3.66 (0.07)	0.06
GRI-pt	2.13 (0.11)	2.12 (0.11)	0.90
GRI-dr	2.07 (0.11)	2.07 (0.12)	0.99

† Based on a two-sided independent t-test assuming equal variance

Appendix 1

Survey for final semester fourth year ANU medical students

Based on the N-GAMS survey developed by P. Verdonk et al (2008)

For more information, questions, or comments please contact u4787154@anu.edu.au

Please circle the appropriate response

Gender (for data disaggregation purposes only)	Male	Female
Rural Stream (for data disaggregation purposes only)	Y	N

Do you think that:

	Strongly disagree	Disagree	Neither agree or disagree	Agree	Strongly agree
Addressing differences between men and women creates inequity in health care	1	2	3	4	5
Physicians' knowledge of gender differences in illness and health increases quality of care	1	2	3	4	5
Physicians should only address biological differences between men and women	1	2	3	4	5
In non-sex specific health disorders the sex/gender of the patient is irrelevant	1	2	3	4	5
A physician should confine as much as possible to medical aspects of the health complaints of men	1	2	3	4	5

and women					
Physicians do not need to know what happens in the lives of men and women to be able to deliver medical care	1	2	3	4	5
Differences between male and female physicians are too small to be relevant	1	2	3	4	5
Especially because men and women are different, physicians should treat everybody the same	1	2	3	4	5
Physicians who address gender differences are not dealing with important issues	1	2	3	4	5
In communicating with patients it does not matter to a physician whether the patients are men or women	1	2	3	4	5
In communicating with patients it does not matter to a physician whether the physician is a man or a woman him/herself	1	2	3	4	5
Differences between male and female patients are so small that physicians hardly take them into account	1	2	3	4	5
For effective treatment, physicians should address gender differences in aetiology and consequences of disease (ie: are there differences between men and women when considering the development and progression of disease)	1	2	3	4	5

It is not necessary to consider gender differences in presentation of complaints	1	2	3	4	5
Male patients better understand physicians' measures than female patients	1	2	3	4	5
Female patients have unreasonable expectations from physicians compared to male patients	1	2	3	4	5
Women more frequently than men want to discuss problems that do not belong in the consultation room with physicians	1	2	3	4	5
Women expect too much emotional support from physicians	1	2	3	4	5
Male patients are less demanding than female patients	1	2	3	4	5
Women are larger consumers of health care than is actually needed	1	2	3	4	5
Men do not go to a physician for harmless health problems	1	2	3	4	5
Medically unexplained symptoms develop in women because they lament too much about their health	1	2	3	4	5
Female patients complain about their health because they need more attention than male patients	1	2	3	4	5
It is easier to find causes of health complaints in	1	2	3	4	5

men because men communicate in a direct way

Men appeal to health care more often with problems they should have prevented	1	2	3	4	5
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Male physicians put too much emphasis on technical aspects of medicine compared to female physicians	1	2	3	4	5
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Female physicians extend their consultations too much compared to male physicians	1	2	3	4	5
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Male physicians are more efficient than female physicians	1	2	3	4	5
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Female physicians are more empathetic than male physicians	1	2	3	4	5
---	---	---	---	---	---

Female physicians needlessly take into account how a patient experiences disease	1	2	3	4	5
---	---	---	---	---	---

Male physicians are better able to deal with the work than female physicians	1	2	3	4	5
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Female physicians are too emotionally involved with their patients	1	2	3	4	5
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Based on your training at the ANU, what do you think is important to female patients in a medical consultation?
