



Gender and Medicine:

a conceptual guide for medical educators

A Project of National Significance funded by RUSC
Department of Health and Ageing, Australia

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Foreword

The natural history of a number of common medical conditions is influenced by gender and there are few areas of medical practice where a knowledgeable gender perspective does not give increased insights. The Federal Government is to be commended for having recognised this and provided funding for this project. This is a Project of National Significance and has involved continued commitment to funded work on gender at Monash and other committed Australian universities in recent years. This Guide has a high cross-cultural competence and encompasses the principles of evidence based medicine. This will be an area of increasing importance for both health care educators and practitioners in the years ahead. The authors are to be commended.

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Introduction

The number of papers appearing in medical journals and the medical education literature about clinical implications of gender differences between men and women is increasing. Despite the interest, the concepts of sex and gender are frequently misrepresented because they are poorly understood.

Eloquent arguments have been made in the most reputable of medical journals for the inclusion of a gender perspective into medicine, however there is still some resistance on the basis that this is not core to the practice of teaching medicine.

This response, often bound up in hostility towards 'political correctness' or feminism taking over medicine, represents a failure to grasp the fundamental concept of gender mainstreaming.

These are:

- everyone has a gender
- sex difference and gender differences have a significant impact on health
- the evidence supports the mainstreaming of a gender perspective

This guide provides a cross-culturally competent grounding in the concepts of gender and their relevance to medicine and medical education by providing useful definition and concepts and then demonstrating the use and significance of those concepts.

3 good reasons why medicine should engage with concepts of sex and gender

1. Sex and gender influence health and well being throughout the entire life of an individual
2. Understanding the implications of sex and gender difference in patients is vital for good clinical practice
3. Teaching medical students evidence-based clinical best-practice is our role

This guide does not enter into a discussion of the health implications of diversity of sexual identity or sexual preference or gender dysphoria. It will focus purely on the health implications of sex difference and social role or gender differences between men and women. For the purpose of simplicity in the discussion of these issues will assume that the 'sex' refers to the binary categories of male and female although restricting categories of sex in such a way neglects the diversity of possibilities associated with 'sexual indeterminacy'. We will also make the case of gender on the simplistic assumption that gender is a binary concept based on the social roles associated with male or female sex, when gender studies tells us that gender is a far more complex concept. We view this guide as an introduction to a new perspective which has multiple layers of complexity. This represents the first layer.

Definitions

Sex and gender are terms we use everyday and assume we know precisely what they refer to. However misuse of these words is widespread even in medicine. World Health Organisation (WHO) and United Nations (UN) definitions are the accepted standard worldwide and will be referred to throughout this guide (see Appendix 1).

What is the difference between sex and gender?

Sex = male and female

Gender = masculine and feminine

So in essence...

Sex refers to biological differences; chromosomes, hormonal profiles, internal and external sex organs.

Gender describes the characteristics that a society or culture delineates as masculine or feminine.

The important thing to understand about gender is that it is **culturally determined**; originally a linguistic concept that defined the classifications of nouns into masculine, feminine and neuter categories, has been borrowed by sociology to describe the characteristics and behaviours that are ascribed to the sexes in various cultures. It is well documented that the characteristics that are considered masculine or manly in one culture may be perceived quite differently in another. Likewise that which we perceive as feminine or womanly characteristics in one culture will be perceived differently by people from other cultures.

So while your sex as male or female is a biological fact that is the same in any culture, what that sex means in terms of your gender role as a 'man' or a 'woman' in society can be quite different cross culturally. These 'roles' have an impact on the health of the individual.

In sociological terms 'gender role' refers to the characteristics and behaviours that different cultures attribute to the sexes. What it means to be a 'real man' in any culture requires male sex and what our various cultures define as masculine characteristics and behaviours, likewise a 'real woman' needs female sex and feminine characteristics. To summarise:

'man' = male + masculine social role
(a 'real man', 'masculine' or 'manly')

'woman' = female + feminine social role
(a 'real woman', 'feminine' or 'womanly')

Sex Differences vs Gender Differences

How do you know when to call something a sex difference rather than a gender difference? Using the definitions given above, 'sex differences' therefore refer only those differences that can be attributed solely to biological difference. Medical literature most commonly addresses sex differences. Increasingly we find that medical evidence is published with sex as a variable of analysis. It is this sex difference information that needs to be integrated immediately into medical research and curriculum if we are to be teaching truly evidence based medicine.

Examples of *sex difference* between *males* and *females* are:

- on average female brains exhibit greater 'plasticity', male brains are larger and have more neurons
- males experience an increase in blood pressure in response to pain, females, an increase in heart rate, but blood pressure remains stable, or may even fall
- high blood pressure in males increases the size of the left ventricle, in females the chamber does not enlarge, but the muscle of the chamber wall thickens

The concept of gender difference is slightly more complex. Gender differences delineate those differences that exist between men and women. Gender differences by definition take into consideration the fact that gender roles have an impact on the health of men and women.

Examples of *gender differences* between *men* and *women* are:

- in Australia men develop melanoma more commonly on the back and shoulders, women more commonly on the lower leg
- high rates of accident and injury, including suicide, occur in men in Australia, women suffer more depression
- globally women use 2/3 of health services, men use health services at a much lower rate

So gender differences take into account the social role and lifestyle issues that impact on men's and women's health in any society. But what about the following?

Sex or Gender Differences?

- in Australia rates of cancer are higher in males than in female
- women live approximately 5 years longer than men
- a variety of risk behaviours contribute to poorer health status in men than women

Despite the fact that mixed sex and gender language (male/man or female/woman) has been used here, in the 3 examples listed, it is unclear whether these differences are a result of sex differences (biological differences between males and females), or gender differences (a result of social role difference between men and women).

For example, men experience higher rates of cancer: is this because *males* are more susceptible to cancer or is it that *men* in Australian society smoke more, are more exposed to carcinogens in the workplace or are other factors involved?

Common Misuses of Terminology

There are a number of instances where sex and gender are often used interchangeably and inappropriately:

1. When causality is unclear

As you can see from the scenarios outlined above, at times it is impossible to differentiate the biological from the social determinants of health. In any number of instances it is possible that causality is unclear, unresearched or possibly even unknowable; the whole nature versus nurture debate. It is clearly a potential source of confusion. So for that reason when speaking of difference, convention dictates the use of the term 'gender' rather than 'sex' unless you need to speak specifically only of biological difference.

2. Social 'discretion' on public documentation

Regularly we are asked to fill in forms that ask us whether our 'gender' is male or female, presumably as an attempt at discretion through the avoidance of the use of the word 'sex' on public documentation. Obviously the correct term is 'sex'.

3. Linguistic and social association of 'gender' with 'women's issues'

Most of these misunderstandings have slipped into the vernacular as a result of misrepresentation within popular culture. This is one of the reasons why people may find the proposal to introduce a gender perspective in medicine quite confronting. Most of this fear is based on a simple failure to grasp the following concepts:

Some Commonly Misunderstood Facts

- 'gender' does not mean sex, female or feminism
- everyone has gender (*MEN HAVE GENDER TOO!!!!*)
- everyone's sex and gender has an impact on their health
- 'a gender perspective in medicine' is not a euphemism for women's health, feminism or for men needing to 'get in touch with their feminine side'
- misuse of terms is widespread (WHO and UN definitions are the accepted standard)

4. Over interpretation in policy or programme documentation

Quite often you will find gender defined relative to the social or political agenda of the programme or policy being described eg.

'Gender refers to the social and economic roles that contribute to health inequity...'

What is actually being referred to is not gender but rather aspects of 'gender roles', specifically pertaining to social and economic status that impact on health equity. This is quite common in older health programme and policy documentation and represents the beginning of attempts to conceptualise why gender difference appeared to be a common denominator in health inequity. This type of classification rests on a number of assumptions;

in this case, that it is only the social and economic aspects of gender difference that are responsible for health inequity. These types of definitions and the assumptions that they imply limit the usefulness of a gender perspective and are representative more of a politically driven than a theoretically driven gender analysis.

5. Medical Literature

Misuse of the terms sex and gender is widespread even throughout the medical literature and even when that literature deals specifically with sex and gender difference. In the medical education literature for example you will see papers that report of 'gender differences in communication styles.' It is very rarely specified whether the authors are referring to biological difference between males and females (as they use this language) or whether they attribute the differences to social role. This needs to be reported with more rigour.

What is important to understand from all of these examples is that it is impossible to separate a person from their environment. The phrase; 'a male medical student' still indicates the social role of 'medical student' of the male variety. The generic rule of thumb must therefore be:

If you know that the difference is **100% biological** it's a **Sex Difference**

Everything else must be considered a **Gender Difference**

(...because you can't separate people from their environment)

The WHO has provided precise definitions of the terminology (Appendix 1). This was done originally to describe gender inequity in social development in the world's poorest countries. As much of the social inequity in the world is centred on access to health care, the terminology became integrated into language in health service reform more generally and is now pervasive throughout international health literature.

Mainstreaming a Gender Perspective

During the mid-late 1990's gender and social role became variables of social analysis that explain recurring social, institutional and structural disadvantage to women. It became clear that, unless structural adjustment and health service reform and social service development programmes addressed gender inequity at all levels, they would continue to be ineffective. The outcome has been that 'mainstreaming of a gender perspective' has become an integral part not only in UN and WHO development programmes but throughout the entire UN system and into government, non-government and other social institutions world wide.

'Mainstreaming' simply means that a concept (or process) be fully integrated into all institutional processes so that it becomes a 'mainstream', common or everyday concept. In the case of *gender* mainstreaming, the purpose is to identify all points at which gender roles limit access to and equity in improved health and social development in the social, structural and institutional context of individuals.

Mainstreaming a gender perspective into medical curricula therefore means integrating gender concepts, or making gender concepts more 'mainstream', common or everyday within medical education and practice. Practically it means acknowledging where difference is important throughout the entire curriculum and teaching process, in clinical practice and in policy development, and providing balance where needed.

A Gender Perspective in Medicine

So of what value is a gender perspective in medicine? Essentially we have all been taught that medical knowledge and practice is gender neutral and we apply that knowledge and practice to men and women. As a result we currently teach that medicine is gender neutral and yet there are a multitude of ways in which medicine is demonstrably gendered. The gendered nature of medicine has significant clinical consequences for patients. For example:

- women < 50 years old have 24% higher mortality rate from myocardial infarct than men of the same age (*Vaccarino V et al. Sex-Based Differences in Early Mortality after Myocardial Infarction. N Engl J Med 1999; 341(4):217-25.*)

We are taught and still teach that some of the major symptoms experienced by patients suffering acute myocardial infarct (AMI) are:

- crushing chest pain
- pain radiating into the left arm
- feeling of acute indigestion

But despite the gender neutral language such as 'the symptoms experienced by **patients** suffering acute myocardial infarct (AMI)', the reality is that these are the symptoms most commonly experienced by **male** patients suffering AMI. Recent evidence has demonstrated that most female patients don't report experiencing the crushing, vice-like chest pain radiating to the left arm; the symptoms they report are quite different.

The most common symptoms reported by female patients suffering AMI are:

- shortness of breath – 58%
- weakness – 55%
- unusual fatigue - 43%
- cold sweat – 39%
- dizziness – 39%

(NIH NEWS, J American College of Surgeons, 2004; 198: 177)

A gender perspective in medicine provides a systematic way of looking at what we do in medical practice, and helps us to discover the limitations of our assumptions. A gender perspective in medicine can therefore be described as a lens through which we observe our practice in a different light. As with any analytical practice the goal is to improve the process under review.

At first glance it is hard to imagine how a gender perspective can have such a broad ranging impact on the institution of medicine. But on closer examination it is possible to see that a gender perspective in medicine is multidimensional because all players in the educational,

research and health care process have a gender and the nature of the educational, research and health care process itself can be gendered.

From the patient's perspective...

... a gender perspective in medicine acknowledges the differential roles that maleness and masculinity and femaleness and femininity play in men's and women's health

- following emergency room treatment for unstable angina men have a greater rate of procedures than women and men still suffer worse outcomes (Roger, VL. Sex Differences in Evaluation and Outcome of Unstable Angina, JAMA 2000; 283(5) :7)

From the provider's perspective...

... a gender perspective acknowledges the ways in which the gender of the provider impacts on the health care event

- in cases of sexual abuse and domestic violence, victims are far less likely to present to a doctor of the same gender as the perpetrator

From an educational perspective...

... a gender perspective identifies the gendered nature of medical education/texts/teaching styles

- most of medical texts contain diagrams that show the 'human abdomen' with a testicular artery, if not male genitalia

This is gender neutral language but it is a gendered representation of the human abdomen. Clearly the correct label would be male abdomen or human, with the differences in women described in complimentary detail.

A gender perspective of...

- **medical evidence** acknowledges the clinical consequences of gender blind medical research and the resulting medical evidence
- **the patient** acknowledges the different roles that masculinity and femininity play in men's and women's health
- **the provider** acknowledges the ways in which the sex or gender of the provider impacts on the health care event
- **medical education** identifies the gendered nature of medical education/texts/teaching styles and environments
- **clinical practice** acknowledges the way in which the sex or gender of the patient impacts on clinical testing, diagnostics, treatment and outcomes

...and this list is by no means complete

Gender and Medical Evidence

Asking medical educators to change the perspective they have on their practice is no small request. It is vital that we demonstrate how valuable the process can be and the insight that can be achieved with the mainstreaming of a gender perspective into medical curricula and practice. Volumes could, and perhaps may, be written on the examples given above. The most obvious, and possibly most convincing, place to start is gender-blindness in medical evidence and its consequences.

Gender-blindness in medical evidence refers to the lack of research, analysis and publication of sex disaggregated data, so no differences between men and women are mentioned. Gender-blindness rests on the assumption that there is no difference between men and women. This perspective is being challenged by emerging evidence.

Why is it Gender-blind?

There need be no great conspiracy theory to explain the existence of gender-blindness in the medical literature; most of it can be explained by two factors, firstly, the basis of scientific enquiry (control vs variable) and secondly, economics. Historically, medical evidence has been gathered from medical research conducted in a relatively few countries. Typically, the size of study required to provide statistically reliable information is expensive and has been restricted to institutions with access to high levels of resources. Typically this occurs in more developed countries, and typically the populations of these countries, and therefore the study participants, are largely of white European genetic origin. In other words, data gathered from participants who represent less than 10% of the world's genetic diversity has been generalised to the remaining 90%. This is has been the best that we have.

To a large extent women have not been included as participants in these studies. There are a number of reasons for this. Firstly, women have menstrual cycles, meaning there is no consistent hormonal environment. This makes control of variables in a study very difficult. One may not know whether variation in results is a consequence of the intervention in question, or of some interaction between the trial and a woman's stage of cycle. Numbers of female participants required to control for 'stage of cycle' plus study variable is expensive.

In a nutshell it has been assumed that it's just too difficult and expensive to include women and we are all human anyway, so studying men alone is close enough. This goes most of the way to explaining that up until recently women have made up less than 7% of participants in all cardiac research, even though one in 3 women will die of a heart related illness.

Secondly, there is the great fear that including women of childbearing age in clinical trials, particularly drug trials, may result in unforeseen teratogenic risk to her future 'offspring'. (There is an interesting discrimination on the basis of gender on this point; there has never been such concern about the teratogenic risk to the 'offspring' of male participants!)

Where women have been included as study participants, quite often the data has not been analysed with sex as a variable of analysis. Whatever difference may have been demonstrated in those studies has therefore been lost, with the added risk that the effect being demonstrated is not specific for either sex.

The Light-bulb Moment

Recent WHO global estimates that women are users of 2/3 of all health services world wide, and consumers of 2/3 of all the pharmaceuticals used world wide. It seems logical to question whether existing evidence adequately represents their experience. This thought, reinforced by the outcomes evidence such as the cardiac literature mentioned above, provide a convincing argument that understanding difference is critical to competent care.

The National Institutes of Health of the USA, was one of the first medical research institutions world wide to put into funding policy that, where research is conducted on health issues that affect both men and women, that both male and female participants must be recruited for that research, and more importantly, that sex disaggregated data from those studies must be reported. Effectively this has meant that the amount of evidence of sex and gender differences being published has increased dramatically. This policy is being pursued by the more rigorous research institutions and funding bodies world-wide.

Teaching and practicing evidence based medicine

There is no question that evidence based teaching and practice is the ideal for which we strive as educationalists and practitioners. Up until now, an understanding of the subtleties of gender difference has taken clinicians a lifetime of experience to learn. Now that such evidence is starting to emerge in the medical literature we have a great opportunity as medical educators to provide students with this newly acquired evidence-based knowledge.

Lack of evidence is not evidence of lack of difference

It is often stated that 'there IS no difference between men and women in this instance'. The fact the there is *no evidence to suggest difference* does not mean *there is no difference* if the research about difference has not been done.

In many fields of medicine there is assumed to be no difference but in truth these areas simply have not been researched. Mounting evidence in other fields now calls these assumptions into question.

It is no longer adequate to say that there is 'no evidence of difference'
where sex disaggregated data does not exist...
this constitutes a lack of evidence not a lack of difference.

Increasingly evidence of difference is being published in the medical literature. The American College of Physician's (ACP) has published the definitive work on coronary difference between men and women. Oddly named 'Coronary Artery Disease in Women' it actually provides the most thorough summary of the existing evidence of difference in prevention, diagnosis and management of coronary artery disease in men and women. (Charney P (ed). Coronary Artery Disease in Women: What all Physicians Need to Know. Philadelphia, American College of Physicians, 1999.)

Another source of excellent information on gender difference in all fields of medicine is the Columbia University Partnership for Gender-specific Medicine. This institution has recognized the need and conducts research and publication of medical evidence of difference, much of which can be found by searching the archived material in their free web-based journal, The Journal of Gender-specific Medicine (JGSM) which can be found at:

<http://www.mmhc.com/jgsm/>

A few areas with new evidence of difference from the Journal of Gender-specific Medicine

- Coronary heart disease
- Cardiovascular disease and arrhythmia
- Brain differences including number of neurons and plasticity
- Differential addiction times
- Responses to pain medication
- Eating and digestion
- Differential drug metabolism
- Differential treatment of dyslipidaemia
- Differential carcinogenic and toxic effects of tobacco smoke
- Differential risk of lung cancer
- Differential HIV viral loads and treatment options
- Depression from a genetic level
- Sex hormones and cognitive function
- Differential dietary treatment for obesity
- Gender differences in pre-pubertal children
- Differential lifetime medical costs
- Cataract Surgery
- Stress responses and the sympathetic nervous system

Of course men and women are more alike than they are different...

This cannot be stated strongly enough, but it is the subtle differences that may have such profound consequences for health (such as those associated with the AMI study mentioned). Where evidence of difference is available we should use it. Logically this means if it is not available we should state that it is *unavailable* rather than stating that it is *not different*.

Some Simple Tools for Identifying Gender Issues

How can you start to include a gender perspective into your teaching and practice? The simplest way to start to integrate a gender perspective into your thinking is to constantly ask yourself some simple questions that involve reversing the gender of the players.

The generic question is:

How would this scenario be different if the players were male/female?

For example:

- How would this presentation be different if the patient were male/female?
- How would the treatment be different if the patient were male/female?
- Is the evidence for the treatment based on research that included and reported men/women?
- How would the outcomes be different if the patient were male/female?
- How would the consultation be different if the doctor were male/female?
- Would this situation seem reasonable if the players were male/female?

This last question is a good one for revealing structural inequity such as gendered assumptions presented in gender neutral language.

For example:

**Would it seem reasonable for anatomical texts labelled
'normal abdomen' to display only female anatomy?**

Obviously the answer is 'no' and yet we currently teach from texts that routinely label male anatomy (and many other parameters) 'normal'. We frequently see things such as Glomerular Filtration Rate (GFR) expressed as: Normal GFR [Female GFR] with the male value as normal and the female as additional in brackets behind. It's hard to justify calling one sex normal and the other 50% of humanity something else.

Imparting a gender perspective to medical students is often difficult. The best place to start is with the literature. Critical examination for gender-blindness of the literature is an important skill for a student to acquire. The additional skills of gender analysis are easily included with other critical skills.

Encourage your students to look critically at the literature

- Does the disease affect both men and women?
- Were both men and women included in the study? If not, why not?
- Is the data presented in a sex disaggregated way?
- Understand that if both men and women are not reported on that the evidence may only tell part of the story and further evidence should be sought

Understanding the significance of difference to patient outcomes is the simplest and most convincing place to start.

Resistance

Most innovations take both time and a weight of evidence to become accepted. The mainstreaming of a gender perspective is no exception. Most of the resistance to the concept is based in the misinterpretations and misunderstanding outlined above. Resistance can be passionate and outspoken or stony-silent and disapproving. Whatever the form it takes it can only be engaged and overcome through clarification of the concepts, supported by reference to the medical evidence (see Appendix 2 for extracts from a range of papers published in the literature).

Conclusion

Medicine is perceived to be one of the more immutable of the social institutions yet the reality of medical practice is that it is constantly evolving through the integration of new theory and through practical and technical advancement as published in the medical literature.

For a gender perspective to be embraced by educationalist and clinician, a great place to begin is the demonstration of a well reasoned, evidence-based argument. The best arguments for mainstreaming a gender perspective into medicine are these:

Why should we mainstream a gender perspective into medicine?

- sex and gender influence health and well being throughout the entire life of an individual
- more or less you are either male or female on the basis of biology
- everyone has gender (MEN TOO!)
- difference has profound consequences for clinical practice
- understanding the implications of sex and gender difference in patients is vital for good clinical practice
- graduation of more competent doctors
- teaching medical students evidence-based clinical best-practice is our role
- evolution based on good research is the nature of medicine

It seems counter-intuitive in such a positivistic and hierarchical field of practice as medicine to acknowledge that a great deal of the time we operate in partial knowledge. If we are truly committed to evidence based teaching and practice, the weight of increasing evidence and greater understanding of the concepts will see a gender perspective fully mainstreamed into medical curricula and clinical practice.

Appendix 1: WHO Gender Terminology Glossary

Sex

Genetic/physiological or biological characteristics of a person which indicate whether one is female or male.

Gender

Refers to women's and men's roles and responsibilities that are socially determined. Gender is related to how we are perceived and expected to think and act as women and men because of the way society is organised, not because of our biological differences.

Mainstreaming gender

Integration of gender concerns into the analyses, formulation and monitoring of policies, programmes and projects, with the objective of ensuring that these reduce inequalities between women and men.

Gender equality

Absence of discrimination on the basis of a person's sex in opportunities and the allocation of resources or benefits or in access to services.

Gender equity

Fairness and justice in the distribution of benefits and responsibilities between women and men. The concept recognises that women and men have different needs and power and that these differences should be identified and addressed in a manner that rectifies the imbalance between the sexes.

Gender roles

The particular economic and social roles which a society considers appropriate for women and men. Men are mainly identified with productive roles which tend to be sequential, while women have a triple role: domestic responsibilities, productive work and community activities which often have to be carried out simultaneously. Gender roles and responsibilities vary between cultures and can change over time. In almost all societies women's roles tend to be undervalued.

Gender blindness

Failure to recognise that gender is an essential determinant of social outcomes including health.

Gender awareness

Understanding that there are socially determined differences between women and men based on learned behaviour, which affect their ability to access and control resources.

Gender sensitivity

Ability to perceive existing gender differences, issues and inequalities and incorporate these into strategies and actions.

Gender analysis

This examines the differences and disparities in the roles that women and men play, the power imbalances in their relations, their needs, constraints and opportunities and the impact of these differences on their lives. In health, a gender analysis examines how these differences determine differential exposure to risk, access to the benefits of technology, information, resources and health care, and the realisation of rights. (WHO Technical Paper on Gender, 1998).

Appendix 2: Supporting Literature

The following are extracts from some of the key papers in the field that appear in the medical literature. They give an indication of the range of support for the uptake and integration of gender issues into medical research, literature and curricula.

Gender of the Patient:

Extract from paper 'Sex, gender, and health: the need for a new approach' by Doyal, L
British Medical Journal 2001;323:1061–3

Summary points

- Men are now following the example of women in drawing attention to the links between gender, health, and health care
- The health of both sexes is influenced by biological factors including, but not confined to, their reproductive characteristics
- Socially constructed gender characteristics are also important in shaping the capacity of both women and men to realise their potential for health
- Gender inequalities in access to health promoting resources have damaging effects on women's wellbeing
- Men face particular problems because of the relation between masculine identities and risk taking
- Greater sensitivity to sex and gender is needed in medical research, service delivery, and wider social policies

Gender Perspective of Medical Evidence:

Extract from editorial 'Where are the Women in Studies of Coronary Heart Disease?' by Khaw, KT. **British Medical Journal, 1993;306:1145-6**

White middle aged men are not necessarily representative of all humankind. Coronary heart disease has traditionally been regarded as a disease of men, but it is also the leading cause of death and an important cause of morbidity and disability in women. Each year in Britain about 100,000 men and 80,000 women die of the disease.

Most research into the causes, prevention, diagnosis, and treatment of coronary heart disease has been conducted in men - more specifically, white middle-aged men. Reasons for this include the well recognised excess of coronary heart disease among men and the easier accessibility of male populations to study. Although these studies have provided much insight into coronary heart disease, the dearth of data in women has caused concern.

Medical practice relies on applying general principles to individual patients. Generalising findings from men to women may, however, not always be appropriate as the effects of some interventions may differ either qualitatively or quantitatively between men and women. These interventions include coronary artery bypass grafting, dietary manipulation or lipid lowering drugs for hypercholesterolaemia, and oestrogen replacement treatment.

Gender Perspective of Medical Education:

Abstract from paper 'Gender Sensitivity in Medical Curricula'. Zelek, B; Phillips, S.P. MD; Lefebvre, Y. Can Med Assoc J 1997;156:1297-1300.

Both sex -the biologic aspects of being female or male - and gender - the cultural roles and meanings ascribed to each sex - are determinants of health. Medical education, research and practice have all suffered from a lack of attention to gender and a limited awareness of the effects of the sex-role stereotypes prevalent in our society. The Women's Health Interschool Curriculum Committee of Ontario has developed criteria for assessing the gender sensitivity of medical curricula. In this article, the effects of medicine's historical blindness to gender are explored, as are practical approaches to creating curricula whose content, language and process are gender-sensitive. Specific areas addressed include ensuring that women and men are equally represented, when appropriate, that men are not portrayed as the prototype of normal (and women as deviant), that language is inclusive and that women's health and illness are not limited to reproductive function. By eliminating or at least addressing the subtle and often unintentional gender stereotyping in lecture material, illustrations and problems used in problem-based learning, medical educators can undertake a much needed transformation of curriculum.

Gender Perspective of Medical Education Assessment:

Key Learning Points from paper 'Gender as a Variable in the Assessment of Final Year Degree-level Communication Skills'. Wiskin, CMD, Allan, TF, & Skelton, JR. Medical Education 2004; 38: 129-137

In Long station OSCE-style exam in the Department of Primary Care and General Practice, University of Birmingham, Birmingham UK

- Female students gain higher marks irrespective of the gender of the role player, the examiner or any combination of genders.
- Male students performed better than females in one out of 11 scenario choices.
- There has been a worsening of male compared to female performance in the interactive examination since 1999.
- Examiner gender is significant in this examination, role-player gender is not.
- Female examiners and male role players were higher markers.