



rural communities and individuals through neglect of their duties. We know of people who died prematurely and suffered immeasurably in obscure corners of South Africa as a result of these sins of omission. Their suffering was no less significant for its hidden and undramatic nature. It is our hope that by sharing our experiences and raising these difficult issues, the health of rural people in our country will be given the attention that it deserves. In many ways the health of rural people is a critical indicator of the extent to which the new government succeeds in its task.

ADDENDUM: RURAL HEALTH AND HUMAN RIGHTS — THE DURBAN DECLARATION

In an effort to address the challenges of improving health for all rural people, health professionals from around the world met at the Second World Rural Health Congress in September 1997 in Durban, South Africa.¹ 'For some it was the first time that they had encountered the sense of identity as a rural practitioner, while for others, it was a celebration of another success in putting rural health issues on the political agenda in this and many other countries.'² The Durban Declaration called for a combined effort to redress the historical inequities faced by rural and disadvantaged communities. Recognising significant contributions from several countries and organisations, the declaration expresses profound concern at the neglect of rural people.

The declaration cites the growing disparity in the distribution of wealth within and between rich and poor countries, and states that targets must be set in stages until the year 2020 to ensure the substantial reduction of all aspects of global poverty.

Health professions in South Africa contribute to the health and welfare of rural and disadvantaged communities. Training institutions should reformulate curricula and adopt other strategies to motivate students for rural practice. Professional organisations should form a strong lobby on behalf of rural health issues, and create continuing professional development programmes for rural health professionals. National government must devise and implement policy incentives for rural practice and initiatives to enhance the recruitment and retention of rural health workers. Local government must work together with the community and the health team in the assessment, analysis and development of health services responsive to community needs. Lastly, every health professional must examine his or her motives with regard to the provision of health care, noting how these affect the human rights of the people we claim to serve.

GENDER AUDIT OF HEALTH RESEARCH — 10 YEARS OF THE SOUTH AFRICAN MEDICAL JOURNAL

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Objective. To examine the extent to which gender bias, which has been identified as a feature of medical research internationally, is present in medical research published in South Africa.

Design. A retrospective review was undertaken of 789 articles, 106 letters and 266 editorials in 10 years of the *South African Medical Journal* (1986 - 1995).

Main outcome measures. These were gender of study subjects, proportion of women in the sample, and evidence of analysis of results according to gender of study subject.

Results. Forty-eight per cent of articles (377) and 98% of letters (104) did not mention the gender of the sample. Samples that included both genders had significantly fewer women than men, with 80% (297) of such articles and 93% (14) of such letters not presenting a comparative analysis of results.

Conclusions. These findings, similar to those of the international literature, indicate a predominant 'gender blindness' in published works. This precludes investigation of differences in the ways men and women experience disease and differential access to care.

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Gender bias occurs when there is a disproportionate focus on one gender, often because of lack of interest in the other or failure to consider gender differences due to an untested assumption that both genders are the same. Historically the direction of bias in research has usually, but not exclusively, been towards men. Researchers worldwide have drawn attention to gender bias in clinical research at conceptual, analytical and presentation stages, arguing that it has resulted in poorer access to health care for women and poorer clinical care.

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At a conceptual level there is a focus on problems of primary interest to men. In the USA this was evidenced by the relatively small amount of funding granted for breast cancer research until the mid 1990s in relation to its significance as a public health problem.¹² At the sampling level women are commonly excluded as experimental subjects,^{3,4} or there is a disproportionate reliance on male subjects.⁵ There is commonly a failure to explore differences between male and female biological and social experiences of disease,⁶ with the male experience subsequently represented as the norm.^{5,7} The interpretation of research findings has been criticised for being based on patriarchal values, as is evident in the study of depression, suicide and premenstrual syndrome.^{8,9}

Gender bias in research has important implications for women's health in terms of access to health care and the management of illness.^{6,10-12} For instance, a study by Bergelson and Tommaso¹³ showed how women with coronary heart disease were excluded from access to clinical care owing to assumptions that CHD affects only men. This paper presents a gender audit of research published in the *South African Medical Journal (SAMJ)* undertaken in order to examine the extent to which gender bias was also a feature of medical research published in South Africa.

METHODS

A review was undertaken of South African contributions published over 10 years (1986 - 1995) in the *SAMJ*. Although only the articles and some of the letters presented original research results, many of the editorials, opinion pieces and other letters discussed the results of studies with human samples. All the above types of contributions were included in the audit. Gender-specific diseases, i.e. male and female reproductive health, non-South African studies, studies without a sample, case studies with less than five cases, literature reviews and studies of rare diseases or particularly unusual cases were excluded. Information was abstracted onto checklists that recorded the type of article, nature of the health problem, gender of subjects, numbers of female and male participants in the sample and whether or not findings for men and women were compared. In order to assist the presentation

and interpretation of the findings, health problems were grouped into disease and system categories by the second author (a medical doctor). Data were analysed using appropriate techniques provided in Epi-Info 6 and SAS.

RESULTS

A total of 1 185 published contributions that met the criteria were identified over the 10 years and included in the review. Table I shows the distribution of these according to type of contribution and the gender of the sample in each type. The studies were divided into four gender categories: those with women only, those including only men, those stating that women and men were included, and those that gave no information regarding the gender of the subjects. The table shows that 48% of articles (377) and 98% of letters (104) failed to mention the gender of subjects. It also indicates that significantly fewer articles had only women as subjects compared with those that included only men.

The proportion of women included as subjects in articles and letters was examined in studies that included both genders and where gender breakdowns of the sample were provided. Of the 384 articles reviewed that included both men and women, 373 indicated the proportion of women in the sample. The median proportion of women was 47% for the articles, and 37% for the 16 letters. Wilcoxon's signed rank tests indicated that the median percentages of female subjects in both articles and letters was significantly less than 50%. In 79.6% (297) of these articles and 93.3% (14) of these letters, no comparative analysis of findings for men and women was presented in the results.

Contributions relating to four groups of conditions, namely CHD, AIDS/HIV, psychiatric disorders and sexually transmitted diseases, were examined in more detail. These groups were selected because local and international literature^{9,13-15} identifies them as important examples of conditions where the different ways in which symptoms are manifested in men and women are often overlooked. Table II shows the number of articles published for each group of conditions and the proportion of these studies in which a gender breakdown of the sample was omitted.

Table I. Distribution of type of contribution by gender

Type of contribution	Gender				Total
	Women only	Men only	Women and men	No gender mentioned	
Article	5 (0.6%)	23 (2.9%)	384 (48.7%)	377 (47.8%)	789 (100%)
Editorial	0	0	2 (1.9%)	104 (98.1%)	106 (100%)
Letter	0	2 (0.8%)	16 (6%)	248 (93.2%)	266 (100%)
Opinion	0	0	0	24 (100%)	24 (100%)
Total	5	25	402	753	1 185
Percentage	0.4	2.1	33.9	63.6	100
95% CI	0.05 - 0.79	1.29 - 2.93	31.23 - 36.6	60.8 - 66.29	



Table II. Number of articles published on four groups of conditions and the proportion of studies for which a gender breakdown of the sample was absent

	Groups of conditions			
	CHD	AIDS/ HIV	Psychiatric disorders	STDs
No. of articles published	79	53	38	14
Percentage omitting proportion of each gender in the sample	55.7	67.9	47.4	78.6

DISCUSSION

This study shows that the failure to investigate the possibility of different disease manifestations and access to health care between men and women in international health research is also found in research published in South Africa. Half of all articles and almost all editorials, letters and opinion pieces do not mention the gender of the study subjects. Those that did mention it had significantly less than 50% female subjects (although the difference between the median proportion and 50% may not be consequential) and commonly failed to present an analysis of their results by gender. The same international pattern of failure to consider male and female differences in four important groups of conditions was found in the local literature.

The fact that gender of subjects is commonly omitted from articles suggests that they are written with an underlying assumption that men and women experience disease in the same ways. International reviews have shown this to be an untested assumption.¹⁶ In the case of CHD, Beery⁶ has shown that women experience cardiac symptoms differently from men and so are diagnosed later, and that they have longer stays in intensive care units and poorer outcomes.

Although the number of research articles and letters with solely male or female subjects was small, significantly more articles were published with only male than only female subjects (Table I). International studies have shown similar patterns in sample selection, with most medical research using all-white male samples. Even studies using animals have mostly used male animals.^{3,5,16} Reasons cited for this have been cost, fear of potential harm to a conceptus, fetus or resulting child and attendant issues of safety and liability, and possible effects of the menstrual cycle on findings.¹⁶ Women of child-bearing age, however, constitute a large proportion of consumers of many pharmaceutical products. The consequences of excluding women in research design are that there are huge gaps in knowledge regarding women's health and illness that could possibly result in inaccurate or inappropriate clinical care.

The groups of conditions examined in Table II were selected because writers particularly criticised research in these areas. Authors have identified bias in referral and management of

female CHD patients,^{6,17,18} with Bergelson and Tommaso¹³ and Kee¹⁹ showing that women undergo evaluation and treatment for cardiac diseases less frequently than men with similar symptoms. It is argued that this is to a great extent the result of a perception that CHD is a 'male' problem, despite the fact that it is the single most important cause of death in postmenopausal women in the USA.²⁰ The exclusion of women from much CHD research has contributed strongly to this perception.

The study of neurotic psychiatric disorders, on the other hand, has focused largely on female subjects, with the result that these disorders are trivialised as being 'female' illnesses, and the effectiveness of research and intervention has been undermined.⁹ Denenberg²¹ and Marte and Anastos²² argue that the study of AIDS has been based largely on male experience. They report that women experience different symptoms and are often inaccurately diagnosed and receive inappropriate treatment. The failure of South African published research to consider the possibility of gender differences in these conditions suggests that the same problems that beset clinical practice overseas are likely to be found locally.

The most widespread problem identified by this study was an apparent 'gender blindness' in the published contributions reviewed, a sin of omission rather than commission. In the case of articles this also reflects a failure of the peer review process. It is good scientific practice to provide basic demographic information regarding a sample as study findings cannot be generalised beyond the populations from which study subjects are drawn. The gender of subjects is normally regarded as a key demographic variable because of differences between men and women. Similarly an understanding of 'cause' (i.e. explanation of observed phenomena) requires the search for differences between subgroups as well as explanations for these differences. Failure to analyse results by gender precludes exploration of differences in the ways men and women experience disease. It also leads to possible discrimination against women with regard to accessing health care resources. Ultimately this leaves scientists less informed and women with poorer access to the benefits of health research.

The exclusion of women as subjects in health research has enormous implications for the treatment, management and understanding of diseases in more than half the population. Referrals from both diagnostic and therapeutic procedures reflect gender bias towards men, even though women are at high risk for certain disorders. If this bias is not identified and monitored it will hamper the development of relevant health care for women and the advancement in understanding of women's health beyond the reproductive health arena.

In 1991 steps were taken by the National Institutes of Health (NIH) in the USA to remedy the lack of inclusion of women as subjects of research. This happened after the Congressional Caucus for Women's Issues ordered a gender audit of NIH funding and found that women were routinely excluded from



medical research studies funded by the NIH, that a policy for the inclusion of women was not being implemented, and that gender analysis of research findings was lacking. The audit led to the establishment of an Office of Research on Women's Health in the NIH. One of the mandates given to this office was to put into place a set of guidelines for the inclusion of women as research subjects (Table III) thereby ensuring that women would be appropriately represented in NIH-supported biomedical and biobehavioural research studies, especially clinical trials. A committee was also formed to advise on research on women's health, gender differences in clinical drug trials, and gender differences in disease aetiology, course and treatment. This advisory committee also monitored compliance with regard to guidelines on the inclusion of women as subjects in clinical trials. Compliance with the new policy is reported to be high.²³

Table III. Revised NIH policy on the inclusion of women and minorities as subjects in clinical research, 1993

1. Women, minorities and their subpopulations must be included in all human subject research.
2. Women, minorities and their subpopulations must be included in phase III clinical trials in sufficient numbers to allow for valid analyses of differences in intervention effect.
3. Cost is not accepted as a valid reason for excluding these groups.
4. NIH initiate programmes and support for outreach efforts to recruit and retain women and minorities and their subpopulations as volunteers in clinical studies.

The health of South African women can only be improved if they are included as subjects in equal numbers to men and if researchers at least begin to ask questions when analysing data regarding whether women's experience of health, disease and health services is the same as that of men. Efforts should be made to provide equitable and relevant health care for women and to conduct research that will describe women's symptoms and their responses to management and technology in their own right. The findings of this study suggest that South Africa should develop a policy similar to that of the NIH for the inclusion of women as subjects in medical research. Funding institutions should use these guidelines when considering proposals and editors assessing articles for publication should consider adherence to the policy in the same way they would adhere to basic ethical principles. A national research body such as the Medical Research Council could provide leadership in this matter as it has in the area of research ethics.

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