Australian Institute of Health

Women's Health Data Requirements

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Acknowledgment

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Upon the completion of a draft in January, 1988, an ad hoc committee was set up to discuss the feasibility of the recommendations and to refine the model and information gaps. The discussions at the meeting and further comments from the committee members became the main sources for the revision of the paper. The committee consisted of 12 people (in alphabetical order):

Ms Jude Abbs	AHMAC Subcommittee on Women's Health member, Consumer Representative, Queensland
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Ms Judith Dwyer	AHMAC Subcommittee on Women's Health member, South Australia
Ms Laurie Gilbert	Commonwealth Department of Community Services and Health (DCSH)
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Dr Selina Redman	University of Newcastle
Dr Judith Straton	University of Western Australia
Mrs Betty Wood	Australian Institute of Health (AIH)

Ms Jane Hall in the Department of Community Medicine, Westmead Hospital was unable to attend the meeting but sent me very helpful comments and suggestions. Ms Manoa Renwick, AIH, also gave me prompt feedback and comments.

I would also like to thank Alasdair Roy, Judy Cassidy, Wayne Chu and Benny Kwa for their assistance.

Summary of Recommendations

1. It is recommended that the planning committee for the 1989/90 Australian Health Survey include a member representing women's views (Attachment 1, page viii).

2. It is recommended that selected variables measuring women's health status (self-rated health and emotional well-being) be considered for inclusion in other social surveys (Recommendation 2).

3. It is recommended that information on the variables measuring women's health, socioeconomic status and intervening mechanism between the two (Attachments 2 and 3, pages ix and x) be collected through occasional surveys (Recommendation 3).

4. It is recommended that registrars of births, deaths and marriages in all States and Territories collect and the ABS tabulate and disseminate information on women's occupations as is done for men (Recommendation 4).

5. It is recommended that State and Territory Health Authorities expand Hospital Morbidity Collections to include a greater range of demographic and socioeconomic variables (Recommendation 5).

6. It is recommended that the Australian Institute of Health (AIH) and Australian Bureau of Statistics (ABS) further explore the benefits, feasibility and complications of linking census data, mortality statistics and morbidity collections (Recommendation 6).

7. It is recommended that the AIH and ABS should explore the feasibility of establishing a longitudinal data base (Recommendation 7).

8. It is recommended that

   - the AIH and ABS develop, test and refine methodologies to provide better measures of the social and health variables set out in Attachment 2 (Recommendation 8).

   - the AIH and ABS refine measures of health status and their interrelationships in Attachment 3 (Recommendation 8).

   - the AIH and ABS develop reliable measures of women's social class (Recommendation 8).

9. It is recommended that research funds be made available for women's health research and where necessary, the Commonwealth should identify funding sources (Recommendation 9).

Attachment 1: List of variables which should be included in the 1989/90 Australian Health Survey

Health Measures

- Self rated health status (Excellent, good, fair or poor)
- Number and types of acute and chronic illnesses
- Reduced activity days due to illnesses
- Injuries and disabling conditions
- Risk factors (smoking, drinking, exercise, use of licit drugs, height, weight)
- Diet
- Uptake of preventive measures (Breast self-examination, pap smear test, regular medical check-up)
- General information on reproductive health and family planning measures (complications of pregnancies, pregnancy risk factors, knowledge, attitudes and practice of contraceptives)

- Measures of emotional well-being
- Stress related to employment and housework

- Health service utilisation

Socioeconomic and Demographic Variables

- Age
- Sex
- Family size
- Number of children and their age
- Marital status and living arrangements
- Age at marriage
- Place of residence (States and Territories, urban/rural)
- Country of birth and ethnicity
- Education
- Employment status
- Current occupation (Usual occupation if the respondent is out of labour force temporarily)
- Personal and household income and sources
- Caring roles (caring for children, elderly relatives, the disabled or handicapped)

Attachment 2: Information which should be collected through occasional surveys

Socioeconomic and Demographic Variables

- Age
- Sex
- Family size
- Number of children and their age
- Marital status and number of marriages
- Age at marriage
- Country of birth and ethnicity

- Current occupation and types of employers (private or Government)
- Employment status and employment history
- Educational qualifications and work training
- Skill levels
- Living arrangements (nuclear, extended family, multiple households)
- Income (personal and household) and sources of income

Environmental Variables

- Housing tenure
- Access to childcare
- Access to motor vehicles and public transport

Biological Variables

- Family history of diseases

Sex Roles and Social Network

- Social activities
- Social suppport and social network
- Caring for children, elderly relatives, the disabled or handicapped

Quality of Employment/non-employment

- Occupational hazard
- Occupational stressors
- Job satisfaction
- Stress related to not being in the labour force

Life Stressors and Satisfaction

- Life events (death of spouse, loss of job, marital dissatisfaction)
- Life satisfaction
- Domestic violence and incest

Personal Factors

- Coping style

Health-related Factors

- Knowledge/beliefs
- Attitudes
- Values

Health Service Utilisation

Attachment 3: Health Status Measures

General Health Status Measures

- Morbidity
- Emotional well-being
- Risk factors
- Uptake of preventive care and advice
- Mortality

Disease-specific Measures

- Cancer incidence (breast, cervical and lung cancer)
- Illnesses which affect women only or women differently from men (arthritis, varicose veins, osteoporosis and gynaecological conditions)

Reproductive Health and Family Planning

- Male and female infertility
- Pregnancy risk factors
- Use of technology in childbirth
- Adolescent pregnancy
- Artificial insemination/In-vitro fertilisation

- Contraceptive use/failure
- Side effects and complications of methods of contraception
- Abortion
- Adoption

- Surgical procedures (e.g. hysterectomy)

[1] INTRODUCTION

The elimination of inequalities in health has been one of the main objectives of the World Health Organization's Health for All by the Year 2000 policy and has recently been incorporated as the prime focus of Australia's proposed National Plan for Better Health (Health Targets and Implementation Committee, 1988). Inequalities in health are related to a variety of factors at the individual, family, community and structural levels.

In the past, women's health issues have not received much attention except in reproduction. Social class differentials in health and mortality, for example, refer by and large to social class differentials among men. As women's traditional roles as housewives and mothers were not seen as directly linked to national economic processes, social issues related to women in general and women's health in particular have been less actively discussed.

In recent years, however, various social changes have taken place. More women now marry late and prefer smaller family sizes, and more women enter and remain in the labour force. Between 1975 and 1985, the median marriage age for women rose from 23 to 25, while the total fertility rate dropped from 2.5 to 1.9. Women's labour force participation increased by about four per cent, from 42 to 46 per cent (ABS, 1975, 1985). There is also a movement toward a revaluation of women's unpaid work (e.g. housework or caring for children and elderly relatives) in the economic process.

The need for an Australian national policy on women's health is documented in the recent report by the Commonwealth Department of Community Services and Health, 'Women's Health: A Framework for Change' (1988). Among various issues related to women and health, the present report focuses on the information requirement aspect of women's health.

It addresses the following four questions:
(1) what information is required to facilitate and improve policy development in women's health?
(2) what data are currently available and what do we know about women's health?
(3) what are the information gaps? and
(4) what should be done to improve the women's health data base?

The second section of this report develops a conceptual model addressing the first question: what we ought to

know. Section three identifies existing data sources which can be utilised for research into women and health and presents results on sex differentials in morbidity. Section four identifies information gaps and the final section makes recommendations to remedy those gaps. (See Appendix A, Terms of Reference).

[2] CONCEPTUAL FRAMEWORK

The development of a conceptual framework will help to identify the main parameters for a study of women's health and the information required to implement the model. The model developed in this report can be applied to the health of both sexes. The comparative studies of health between women and men will have a greater applicability than examining women's health by itself. Health problems unique to women and female health differentials by socioeconomic status are specified in the measures of health status.

Conceptual models on health have been developed over the years. The major breakthrough in establishing a health model is a shift in the emphasis from the provision of and utilisation of health services as the main determinants of health to a consideration of socioeconomic variables. The health field model developed by Lalonde (1974) was one of the first to emphasise the importance of social factors in determining the health status of a population. This model was widely adopted and modified by many different planning institutions. For example, in the Health 2000 Report by the Dutch Ministry of Health (see Gunning-Schepers and Hagen, 1987), four factors are identified as determinants of health:(1) genetic and biological disposition; (2) life style; (3) physical environment; and (4) cultural and socioeconomic factors.

The question as to what strategy a society should adopt to eliminate health inequalities depends largely on how health and disease are perceived (Hexel and Wintersberger, 1986). The traditional medical approach perceives health as the absence of disease, and stresses the importance of curative interventions by the medical system. The epidemiological approach focuses more on the distribution of diseases, the specific measures and their prevention. The social approach to health and disease interprets health status inequalities as being the consequences of socioeconomic inequalities.

Women's health issues need to be considered within a **social** model in which the effects of a wide range of socioeconomic correlates of women's health and sex differentials are taken into consideration. The main impetus for this approach has come from research findings on social gradients in health in the U.K. (see Townsend and Davidson, 1983). Health differentials between social classes stem from deep rooted social inequalities embedded in a society, therefore policies aimed at reducing health inequalities should incorporate recognition of these social differentials.

Two models of women's health are developed in the present report: one examines women's health as measured by cross-sectional data, and the other depicts potential pathways in longitudinal studies of women's health.

[2.1] Conceptual Framework of Health Based on Cross-sectional Data

The model developed in this report is a modification of Cullen et al's model (1987) of employment and health. The model contains three basic components:

(1) **health correlates** including demographic, socioeconomic and environmental variables;

(2) **intervening factors** which explain the mechanism through which these sociodemographic variables may affect women's health;

(3) **health status measures.**

As all these variables interact very closely with each other, it is often very difficult to determine which way the causal path works with cross-sectional data. This model can at best identify the major areas to be included in women's health studies; determination of causal links requires special studies.

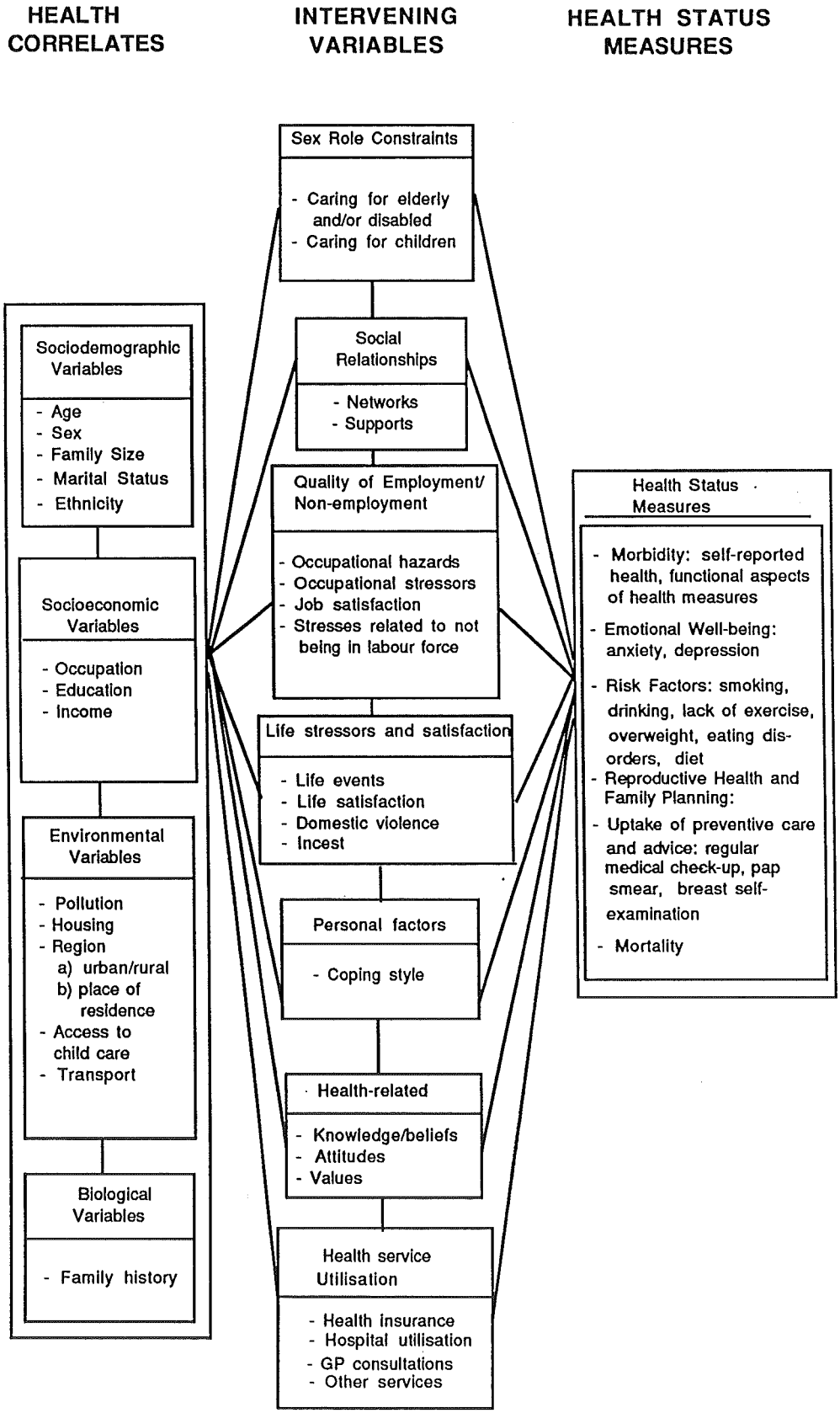

Figure 1. Conceptual Framework of Health Based on Cullen et al's Model (1987)

[2.1.1] Health Correlates

Health correlates include four sets of variables: demographic, socioeconomic, environmental, and biological.

(1) Demographic and Socioeconomic Variables: There is a wealth of literature relating demographic and socioeconomic variables to health status (see Wood, Lee and Smith, 1987). The empirical evidence for these linkages for Australians of working age is documented in Lee, Smith et al (1987). The relationships between selected socioeconomic variables and health are discussed in the next section.

(2) Environmental Variables: There is a growing interest in determining health indicators for a region or nation that can be used for comparative purposes. Such environmental factors as pollution, housing, degree of urbanisation and place of residence could be used to monitor changes in health status of a population and help determine the allocation of health funding to geographical regions. Access to child care and transport has important impact on women's health, as health problems such as chronic fatigue and depression may be related to overwork and isolation, which are in turn related to lack of appropriate child care facilities and transport.

(3) Biological Variables: Although the influence of biological variables on health and mortality is decreasing, they still play an important part in the development of certain diseases (see Waldron, 1983). The impact of biological factors can be measured in this model by family histories of diseases.

[2.1.2] Intervening Variables

The second column of the model includes variables examining the qualitative aspects of employment, marriage and personal disposition. These variables will help to explain why the observed linkages between sociodemographic variables and health exist. It is often suggested that social differentials in health exist because of differences in women's social networks and support systems, occupational hazards and stressors, health related knowledge, beliefs and attitudes and personality factors (see Haynes and Feinleib, 1980; Verbrugge,1985).

(1) Sex Roles: Sex roles are linked to health in several ways. Some social activities (e.g. drinking or playing certain sports) are associated with high health risks. Carrying out some of the social and family roles (e.g. caring for children, elderly relatives and the disabled or handicapped) may prevent women from doing other activities (e.g. exercise). Social and family roles also influence the individual's health knowledge, attitudes, beliefs and practices (see Verbrugge, 1983).

Sex roles also strengthen some of the linkages between socioeconomic variables and women's health. The family caring role, for example, has mainly been seen as a woman's responsibility. Access to child care and transport would be more relevant to women's health than men's.

(2) Social Networks: Social networks and support systems consist of interpersonal ties with groups of people who can be relied upon to provide emotional support, assistance and resources in times of need (Rabkin and Struening, 1976). Social support affects health outcomes by acting as an antecedent reducing the likelihood of certain stressful events and a buffer to stressful life events when they actually occur (Cobb, 1976; Lin et al. 1979).

(3) Quality of Employment: Although the overall impact of employment on health is positive (Lee and Najman, 1987; Nathanson, 1980), the effect of particular types of employment have not been fully examined. Some women may enter the labour force only for economic reasons. Other women may have unfulfilling jobs which cause serious mental strain. A finer classification of labour force participation than the dichotomy of employed/non-employed is necessary in order to have a better understanding of the relationship between employment and health (see Anson and Anson, 1987).

(4) Life Stressors and Satisfaction: Life stressors include such events as the death of a spouse, loss of a job, infertility and marital dissatisfaction. These stressors have greater relevance to emotional well-being than to physical health. Domestic violence and incest have a direct impact on both physical and mental health. It is very difficult to provide population based data on the incidence of domestic violence or incest because of the sensitive nature of the question. Two schools of thoughts view domestic violence from quite different perspectives (Gayford,

1975; Saville et al. 1981; Roberts, 1984). The pathological framework regards abusing families as 'cases' who are in need of diagnosis and treatment. Its underlying implication is that abusing families are different from non-abusing families. The socio-environmental model, on the other hand, views domestic violence as reflecting structural inequalities existing in male and female roles and in the family environment (e.g. poverty). This model stresses community services which do not label and isolate abusing families and aim to increase mutual contact and support (Roberts, 1984:11). In Australia, there are 190 women's refuges to cater for women and their dependent children (Office of the Status of Women, 1987). These services are vital for women in need, but two important issues remain to be addressed: (1) long term support for families who are very likely to suffer from serious lack of material, social and psychological resources; and (2) women who are victims of domestic violence but cannot break away from the situation because they have no economic independence.

Infertility is another area of growing concern in women's health. Various options should be explored and more information on the In-Vitro Fertilisation Program (its cost-effectiveness and side effects of drugs) should be readily available.

(5) Personal Factors: A number of epidemiological studies overseas show a strong linkage between Type A behaviour (aggressiveness, competitiveness, ambition, restlessness and a chronic sense of time urgency) and the development of coronary heart disease (Haynes and Feinleib,1980; Carmelli et al. 1985). But these studies focus primarily on men, the data in this field are scarce in Australia (cf. Risk Factor Prevalence Survey) and the relationships between socioeconomic and intervening variables, and health are largely unexplored.

(6) Health Related Knowledge, Attitudes and Values: There are a number of health behaviour models. An example of these is the 'health belief model' which argues that 'readiness to take action for health stems from a perceived threat of disease, coming from an individual's perception of his or her susceptibility to disease and its potential severity' (Mullen, Hersey and Iverson, 1987:973). The theory of reasoned action (Fishbein and Ajzen, 1975) affirms that a change in an individual's behaviour (e.g. quitting smoking) depends on the importance of subjective norms (e.g. people who

are important to the individual may think he/she should quit smoking) and beliefs about the consequences of the behaviour (e.g. he/she will get healthier after quitting smoking).

These theories stress the importance of knowledge, attitudes and values in changes in health behaviour. Socioeconomic differentials in health may operate through differences in health-related knowledge, attitudes and values.

(7) Health Services: Two issues are relevant: (a) access to and availability of health services and (b) the quality of health care and health care system.

Access to and availability of health services have an important impact on the health of women, particularly those living in remote or isolated areas. A survey of women living in rural and regional areas, conducted by the Office of the Status of Women and the Country Women's Association, points out a number of difficulties related to attracting and keeping a resident doctor and nursing staff and dental services, and the lack of more sophisticated support facilities. The self-reliance in rural areas is evident, and women often take on the responsibility of nursing family members in addition to their roles in the home and/or work place. Harsh economic times force many women to obtain paid work in addition to their responsibilities at home. Worries that their health or marital problems may be exposed to other community members may inhibit rural women from seeking prompt medical and other types of assistance. This applies to Aboriginal women even in cities.

Women in general tend to utilise more medical and psychiatric services than men. An analysis of the 1977/78 Australian Health Survey data revealed that 18 per cent of men consulted a doctor for acute illnesses compared to 21 per cent of women. For chronic illnesses, doctor consultation rates are high for both men and women: 48 per cent for men and 56 per cent for women. The sex differences in doctor consultation remain high even after pregnancy-related treatments are excluded.

The over-representation of women in health service utilisation may reflect the possibility that physical symptoms may be treated but the underlying causes of such illnesses remain untouched. The underlying causes of physical and mental illnesses are closely associated with social factors such as lack of child-care facilities, isolation, boredom, work

overload in the domestic role, fewer employment opportunities, financial insecurity, poverty and lack of decision making-power at both home and work (see Yew and Need, 1988).

Repeated doctor visits by a few women is another factor which may push up the health service utilisation rate for women. A repeated doctor visit may represent dissatisfaction with the quality of health care they receive. A fair proportion of women (8 per cent) who had chronic illnesses but did not consult a doctor thought that doctors cannot help or are 'useless' (1977/78 Australian Health Survey).

Although the importance of the intervening variables is widely recognised, there is not sufficient information to measure the actual linkage and extent of the effects of these variables on health.

[2.1.3] Measures of Health Status

The third column of the model deals with the development of health indicators. This is the area where women's health issues can vary considerably from those of men's health.

Measures of health status reflect how the concept of health is envisaged. Most of the currently available health assessment measures are criticised because they are too narrowly defined; they examine merely the presence or absence of illness. The definition adopted by the World Health Organization (1948) states that 'health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity'. Social well-being or its gradation is more appropriate for health promotion activities and optimising good health (Bergner and Rothman, 1987; WHO, 1948). It points to a need to pay more attention to the development of positive health indicators.

Three types of health measures for women need to be developed:

(1) general health assessment measures which should be available for both men and women;

(2) disease-specific measures; and

(3) reproduction and family planning.

The first group of measures (general health assessment) permits the assessment of health across various subgroups of women and health trends of the whole population. The currently available health measures mostly rely on self-reported conditions. The relationship between self-reported health and a clinically defined disease is a complex area of study. Self-reported conditions or self-rated health (measured on a four-level scale: excellent, good, fair and poor) have proved to be good measures of health status (see Haberman, 1969). However, information on clinically-defined diseases is essential for the study of specific diseases.

The second and third sets of health measures focus on specific health problems and can be analysed for specific sub-groups. In addition to population based data, in-depth interviews based on small sample surveys and hospital morbidity data will be useful for collecting information on these types of health measures. All these three sets of measures should work in a complementary rather than competing manner.

Examples of health measures include:

(1) general health measures including morbidity, risk factors and mortality

(a) measures of physical health status

- self-rated health (excellent, good, fair, or poor)
- self-reported illnesses
- functional impairment aspect of health measures:

  According to a survey of Handicapped Persons (1981), over 13 per cent of the total population aged five and over had difficulties with self care (e.g. showering, bathing, dressing, eating a meal), mobility, communication, schooling or employment due to one or more of the following disabilities or impairment: loss of sight, loss of hearing, speech difficulties in native language, blackouts, fits or loss of consciousness, slowness at learning or understanding, incomplete use of arms or fingers, incomplete use of feet or legs, long-term treatment for nerves or an emotional condition, restriction in physical activities or in doing physical work, disfigurement or deformity, need for

help or supervision because of a mental disability, and long-term treatment or medication. Of those 13 per cent, the proportion of those who had severe handicap was about 60 per cent for women and 40 per cent for men. It is important to expand health status measures from the presence/absence of diseases to the functional aspect which is closely related to the quality of life.

(b) measures of emotional well-being: emotional problems are rarely fatal but very detrimental to quality of life.

An instrument measuring emotional well-being should differentiate various levels of emotional well-being of the population rather than merely detect pathological mental health cases. Available emotional well-being batteries are:

- General Health Questionnaire (GHQ): This battery is widely used to measure general well-being of the population. The original questionnaire includes 56 questions on changes in emotional well-being over two week period, but a shortened version of the GHQ which includes 12 questions is more frequently used (see Appendix B.1)

- General Well-being (GWB): This battery consists of 18 items assessing four important emotional well-being constructs: anxiety, depression, positive well-being and self-control (see Dupuy, 1972).

- Health Insurance Study (HIS) of mental health measures: The battery of 22 items is a modification of GWB (see Ware et al. 1979).

- The Center for Epidemiologic Studies Depression (CES-D) scale was developed for use in studies of the epidemiology of depressive symptomatology in the general population with emphasis on the affective component. The CES-D scale consists of 20 items which were selected from a pool of items from previously validated depression scales. These components included: depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psycho-motor retardation, loss of appetite, and sleep disturbance.

- Bradburn's Affect Balance Scale (Bradburn, 1969): This scale consists of five positively-worded and five negatively-worded descriptions of feeling states. The questions are (a) on top of the world; (b) particularly excited or interested in something; (c) pleased about having accomplished something; (d) proud because someone complimented you on something you had done; (e) things are going your way; (f) very lonely; (g) depressed or very unhappy; (h) bored; (i) so restless you could not sit long in a chair; and (j) upset because someone criticised you. Respondents are asked the frequency of experiencing these states (often, sometimes or never) and answers are weighted according to frequency. The Canadian Health Survey utilised this scale.

(c) risk factors: The prevalence of smoking and drinking among women is in general substantially lower than among men. However, more women nowadays take up smoking and the prevalence of smoking by sex is reversed among adolescents (15-19) in a South Australian survey; about 30 per cent of females are smokers compared with 27 per cent of males (ABS, 1987a). Data on life style changes and their causes should be collected. Risk factors should be extended to other measures such as overweight, eating disorders and diet behaviour (see Redman et al. 1987). The major risk factors for which data is required are:

- smoking
- alcohol use
- lack of exercise
- overweight
- eating disorders ('binge eating')
- diet
- drug use

(d) uptake of preventive care and advice

- regular medical check-ups
- pap smears
- breast self-examination or mammography tests
- exercise

(e) mortality

- death rates from specific causes
- life expectancy

(2) <u>disease-specific measures</u>:

(a) cancer incidence, survival and mortality: changes in patterns of cancer incidence and type

. increasing rates of lung cancer in women
. shift in cervical cancer to younger age groups
. effects of screening programs

(b) Illnesses which affect women only or women differently from men

. arthritis
. varicose veins
. osteoporosis
. gynaecological conditions

- menstrual problems, premenstrual tension
- vaginal infections, sexually transmitted diseases
- sexually transmitted diseases including pelvic inflammatory disease
- menopause

(3) <u>reproductive health and family planning</u>:

(a) reproduction and childbirth

. male and female infertility
. pregnancy risk factors
. use of technology in childbirth (ultrasound, induction of labour, Caesarean section)
. adolescent pregnancy
. artificial insemination and in-vitro fertilisation

(b) family planning

. use of contraceptives (knowledge, attitudes and practice)
. failure of contraceptives
. side effects and complications of methods of contraception (cardiovascular disease, breast cancer, cervical cancer)
. sterilisation and reversal
. abortion (incidence and trends)
. adoption

(c) surgical procedures (e.g. hysterectomy)

[2.2] Potential Pathways in Longitudinal Studies

Figure 2 depict potential pathways in longitudinal studies of women's health (see Blaxter, 1986). Longitudinal data can help to understand the causal relationship between socioeconomic variables and health.

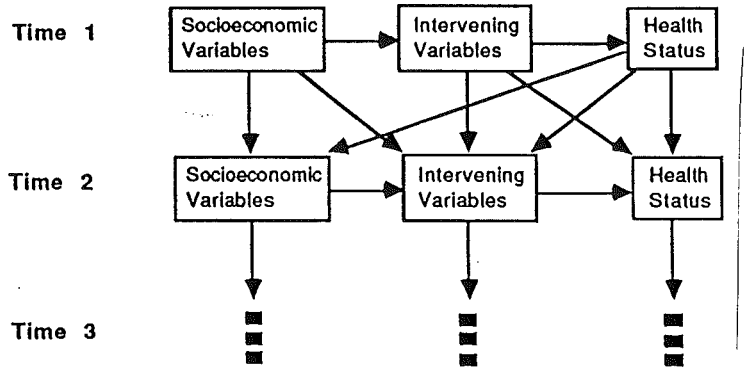

Figure 2. Potential Pathways in Longitudinal Studies

In many studies, socioeconomic variables are considered to be antecedents of ill or good health because this causal link has a higher power of generalisation. But there is also a substantial amount of work which assumes that the causal link goes in the opposite direction. For example, a 'drift hypothesis' or a 'health selection effect' assumes that people who develop disabling chronic illnesses drift downward in social status over time because their disability prevents them from gaining and maintaining jobs up to their illness-free capacity (Harkey and Rushing, 1976). Although the proportion of people in this category may be small, it is important to identify them and quantify their prevalence. These two hypotheses on the linkage between health and social class can only be fully tested by longitudinal studies. The issues related to the causal paths are well documented in Wilkinson (1986).

The examination of social mobility and marriage in relation to illness at younger ages is also possible with longitudinal data. A national longitudinal study in England, Wales and Scotland was conducted based on the cohort of British babies born in one week in 1946 (Wadsworth, 1986). Over 5000 individuals were followed and contacts were made at intervals of two years until 1982. It was found that a child's serious illness affected his/her educational achievement negatively, and serious illness was also associated with an increased risk

of downward social mobility in adult life, despite the good and expanding opportunities in education and occupation that were available to the cohort in 1962-72. This type of study helps us to understand the interactions between social class, health and achievement in the development of inequality.

[3] Current Health Status of Women

[3.1] General Health Status

The health status of women is compared to men based on three measures of health: mortality, morbidity and risk factor prevalence. Sources of data on health and risk factors are: (1) statistics of deaths of women and men of working age (20-64) registered in Australia in 1981 and corresponding population denominators from the 1981 census; (2) the 1977/78 Australian Health Survey which included three measures of morbidity (acute and chronic illness conditions and emotional well-being measured by General Health Questionnaire); and (3) the 1983 Risk Factor Prevalence Survey which included alcohol and cigarette consumption and exercise patterns. The definitions of variables are shown in Appendix B.1.

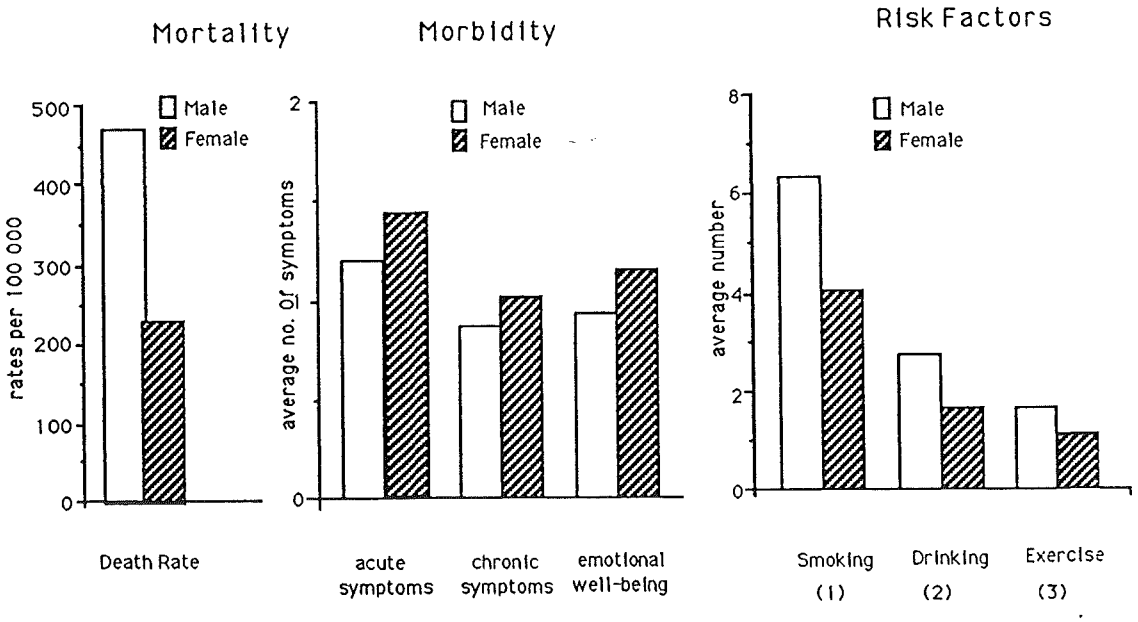

Figure 3. Age-Standardised Death Rates, Morbidity and Risk Factors

Note: See Appendix B.1 for definition of the variables used.
(1) average number of cigarettes per day
(2) average number of drinks per day
(3) average number of hours per week
Data: calculated from the 1977/78 Australian Health Survey

The results clearly indicate that women rank poorly in self-reported physical health and emotional well-being measures but show longer survival on a mortality measure. In order to see whether there are any differences in types of illnesses from which they suffer, five leading chronic illnesses are presented in Table 1.

Table 1. Five Leading Causes of First Mentioned Chronic Conditions by Sex and Age

	Males	Females
Age 20 - 29		
1	Hayfever (6.9%)	Hayfever (6.8%)
2	Eczema & Dermatitis (2.8%)	Migraine (5.6%)
3	Asthma (2.2%)	Eczema & Dermatitis (4.9%)
4	Migraine (2.0%)	Varicose Veins (2.4%)
5	Bronchitis (1.7%)	Asthma (2.1%)
Age 30 - 39		
1	Hayfever (7.4%)	Hayfever (7.8%)
2	Eczema & Dermatitis (2.9%)	Migraine (7.2%)
3	Migraine (2.4%)	Varicose Veins (4.6%)
4	Displacement of Intervertebral Disc (2.3%)	Eczema & Dermatitis (3.3%)
5	Asthma (2.1%)	Other Arthritic Diseases (2.6%)
Age 40 - 49		
1	Hayfever (4.8%)	Migraine (6.7%)
2	Hypertensive Disease (4.2%)	Other Arthritic Diseases (6.7%)
3	Other Arthritic Diseases (3.8%)	Hypertensive Diseases (6.5 %)
4	Deafmutism & other Deafness (2.8%)	Hayfever (5.4%)
5	Displacement of Intervertebral Disc (2.7%)	Varicose Veins (4.9%)
Age 50 - 59		
1	Other Arthritic Diseases (7.6%)	Other Arthritic Diseases (13.2%)
2	Hypertensive Diseases (7.2%)	Hypertensive Diseases (12.0%)
3	Heart Diseases (4.1%)	Varicose Veins (5.0%)
4	Deafmutism & other Deafness (3.8%)	Hayfever (4.0%)
5	Hayfever (3.2%)	Migraine (3.8%)
Age 60+		
1	Other Arthritic Diseases (11.5%)	Other Arthritic Diseases (19.1%)
2	Heart Diseases (8.4%)	Hypertensive Diseases (12.0%)
3	Hypertensive Diseases (7.5%)	Heart Diseases (6.1%)
4	Deafmutism & other Deafness (5.5%)	Deafmutism & other Deafness (2.7%)
5	Bronchitis (3.4%)	Rheumatism Except Rheumatic Fever (2.7%)

Note: See Appendix B.1 for definition of the Variables used.
Data: Calculated from the 1977/78 Australian Health Survey

Men report more illnesses related to respiratory diseases such as bronchitis and asthma at young age groups (20-39), while women in this age group report varicose veins. For middle aged men and women (40-49), the leading chronic illnesses are similar, but more women than men suffer from hypertensive disease. Proportionally more men than women report heart disease at the older ages (50 and above).

Why do women report more health problems yet live longer than men? Verbrugge (1976) explains this paradox in terms of the differences in types of illnesses they report; men are more likely than women to report many of the chronic conditions that cause high mortality.

In order to see whether the same explanation can be applied to the sex differentials of Australians, chronic illnesses are classified into two types: (1) chronic illnesses that cause high mortality including neoplasms, heart disease, cerebrovascular disease, hypertensive disease, bronchitis, emphysema, asthma, and other diseases of the respiratory system; and (2) other illnesses. The complete list of chronic illnesses that respondents mentioned is shown in Appendix B.2. The following figures are standardised by the direct method using the 1986 total population as the standard.

Table 2. Age-standardised Morbidity Rates for Chronic Illnesses (per 1000 population)

	Men	Women
Illnesses leading to high mortality	127	97
Other	391	497
Total morbidity rates	518	586

Data: Calculated from the 1977/78 Australian Health Survey

The chronic conditions for Australian men and women show a similar pattern to that of the American study mentioned above. Women's morbidity rate is substantially higher than men's, but men report a higher incidence of chronic illnesses which lead to high mortality.

The next question then is why do women report more illnesses? Much discussion has centred on the following possibilities (Nathanson, 1975; Newmann, 1986).

(1) sex role stereotype hypothesis: Women report more illness than men because it is culturally more acceptable for them to be ill. Men, on the other hand, relate health with masculinity and often disregard the symptoms of illnesses (Philips and Segal, 1969);

(2) sick role hypothesis: The sick role is relatively compatible with women's other role responsibilities and incompatible with those of men (Mechanic, 1965);

(3) differential vulnerability hypothesis: Given exposure to similar life stresses and strains, women are more likely than men to manifest symptoms;

(4) social role difference hypothesis: Women do have more illness than men and this hypothesis accounts for this difference by reference to strains associated with women's social roles and biological differences (Gove and Tudor, 1973).

(5) physiological differences may make it more likely that women would develop symptoms.

The sex role stereotype hypothesis argues that the ethic of health is masculine, while the sick role hypothesis, on the other hand, accounts for sex differences in illness behaviour on the basis of differences between men and women in compatibility of the sick role with their other role obligations. Efforts to find data to support the first two hypotheses, however, fail to produce consistent findings and demonstrate little consensus on how illness may relate to a woman's other roles.

Studies supporting the third hypothesis, differential vulnerability, speculate that the sources of a heightened female vulnerability to depression are related to socialisation. Women are more inclined to react to life difficulties with feelings of self-blame, a sense of helplessness and hopelessness or some combination of these appraisals (Ickes and Laden, 1978; Brown and Harris, 1978; Radloff, 1975). Despite the plausibility of these hypotheses, few studies have investigated whether women are more vulnerable to depression than men, given exposure to similar life difficulties. Studies that do address this question have produced mixed results (Newmann, 1986; Perline, 1975).

The fourth hypothesis, sex role differences, focuses on socially rather than biologically based stress peculiar to women's roles. In particular, the sex difference in the rate of mental illness is higher among married than single people (Gove and Tudor, 1973). In relation to physical health, women often have more role obligations that require constant ongoing activities. Fulfilling these roles can lead to fatigue or self-neglect, both of which can lower bodily resistance to illness (see Gove and Hughes, 1979). Also women with children of school age fulfilling nurturant roles may experience higher rates of morbidity because they are more likely to be exposed to communicable illness transmitted from their family members.

Clearly more detailed analyses of women's roles and their relationship with health are needed to resolve these conflicting interpretations, but role differences seem to have the potential to explain much of the sex difference in morbidity rates.

[3.2] Health Differentials Among Working Age Women

The aggregate indicators of health such as life expectancy and mortality rates do not take account of the qualitative changes in health and environment which are so crucial to human welfare. Research into health differentials helps to explain the distribution of illness and good health across different socioeconomic groups and results can be used to identify the disadvantaged groups to whom prevention programs should be directed.

This section presents the data of our analysis of four socioeconomic variables which form the basis for social class differentials: employment status, occupation, education and income. Data are drawn from the 1977/78 Australian Health Survey. Detailed information on health differentials is available in a recent publication by Lee, Smith et al. (1987).

It should be noted that it is difficult to determine the causal relationships between socioeconomic variables and health from cross-sectional data. The results presented in this section tend to interpret socioeconomic variables as determinants and health as a consequence, because the hypothesis of health affecting socioeconomic characteristics has limited application to the population. The number of men and women who are too ill to be employed, to marry, or to obtain education is yet to be determined, but it is assumed to be fairly small. An analysis from the 1977/78 AHS shows that only one per cent

of working age men were permanently unable to work. But the 'healthy worker' effect (the healthy tend to be in the labour force) should not be ignored, and further inquiry should be made.

[3.2.1] Employment Status Differentials

Employment status differentials show an interesting contrast between the not-employed and employed (Figure 4). The overall morbidity rates are higher for women and among the employed, the female rate is higher than the male rate, but the opposite is true among the not-employed. As expected, the proportion of males of working age who were not employed is comparatively small. While women who are not in the work force are mostly housewives (62 per cent), men of this group include those who were retired early (4 per cent), engaged in home duties (0.4 per cent), permanently unable to work (1 per cent) and students (1 per cent). The selection effect of health (health affecting employment) may work strongly in the case of not-employed men.

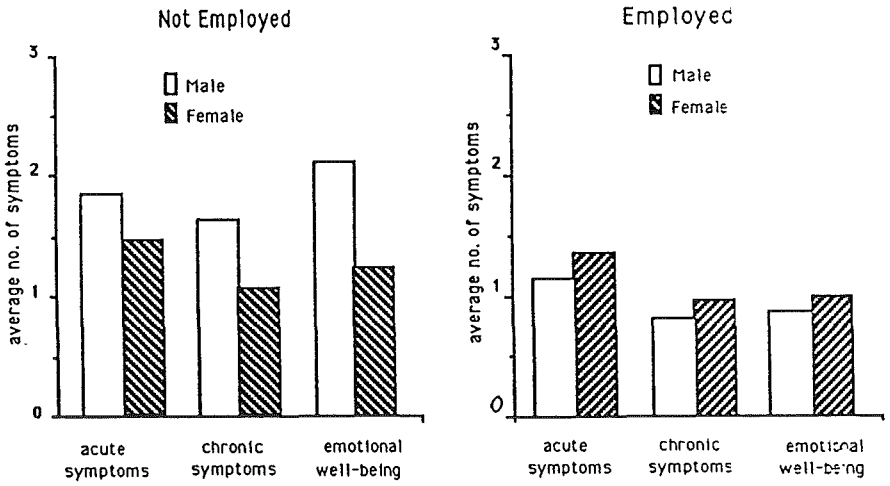

Figure 4. Age Standardised Average Number of Acute and Chronic Symptoms and Emotional Well-being by Sex and Employment Status.

Note: See Appendix B.1 for definition of the variables used.
Data: Calculated from the 1977 / 78 Australian Health Survey

Employment provides one with a feeling of participation and self fulfilment. Employment also widens the social network which in turn has a positive effect on health (see Lee and Najman, 1987). The negative aspect of employment such as job-related stress and the burden of carrying an

additional role, however, may be greater for women than men.

[3.2.2] Occupation Differentials

Class differentials as indicated by occupational group are the most important and most widely used health differentials. Currently available occupation groupings in the AHS data, however, relate more to industry classification rather than to occupational class. Most occupation categories include jobs at quite different levels, and it is very difficult to see a systematic social hierarchy within them.

Table 3. Occupational Structure of Women in the Labour Force, 1981 Census

Occupation groupings	Per cent
professional	17.0
teachers	(6.7)
nurses	(5.5)
medical practitioners	(0.2)
professional medical workers	(0.6)
administrative	1.9
clerical	31.9
sales workers	11.5
farmers, fishermen	4.4
miners, quarrymen	0.0*
transport, communication workers	1.7
tradesmen	9.1
service, sport, recreation workers	13.7
armed services	8.7
indequately described, not stated	8.7

Note: * less than 0.02 %

The sex differentials in morbidity are presented for only two occupation groups (professionals and clerical workers) because employed women are concentrated in these two occupations (31 per cent in clerical and 20 per cent in professional positions). An examination of the 1981 Census reveals the same pattern as the 1977/78 Health Survey on which Figure 5 is based.

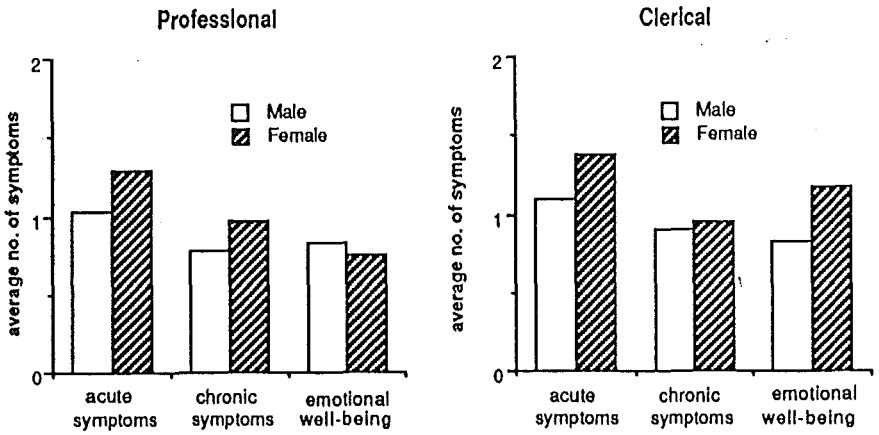

Figure 5. Age-Standardised Average Number of Acute and Chronic Symptoms and Emotional Well-being by Sex and Occupation.

Note: See Appendix B.1 for definition of the variables used.
Data: Calculated from the 1977 / 78 Australian Health Survey

Women in both professional and clerical occupations report more physical health problems than men, but the emotional well-being of professional women is better than their male counterparts. For those who hold clerical positions, however, women report more emotional health problems as well as more physical problems.

More specific information on women's occupations is needed in order to conduct research into occupational class differentials in health and the reasons for them. Information needed includes employment history, qualifications, skill level, psychosocial characteristics (such as personality type, stress, reactions to anger, somatic strains and family responsibilities), health (both self-reported and clinically examined) and occupational mobility.

[3.2.3] Personal Income Differentials

There are significant health differentials between income groups; the higher the income, the healthier the person. The sex differentials show that men in the low income bracket are worse off than women, while women in medium and high income groups show worse health than men. As most women not gainfully employed (83 per cent) fall into the low income bracket, the observed difference could represent both the employment status differences and actual income differences. More information on family income, personal income and sources of income will help to assess the income effect.

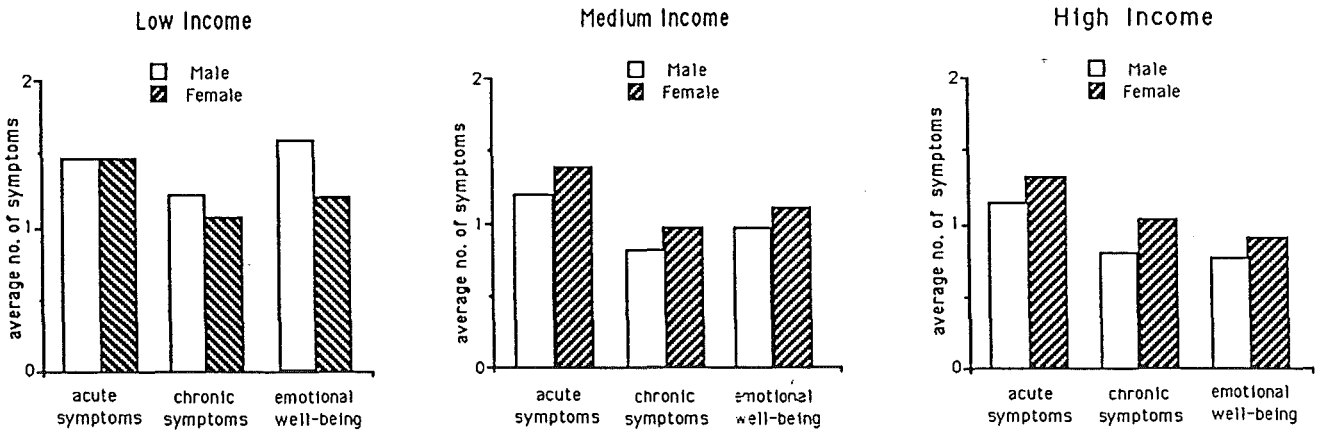

Figure 6. Age-Standardised Average Number of Acute and Chronic Symptoms and Emotional Well-being by Sex and Income.

Note: See Appendix B.1 for definition of the variables used.
Data: Calculated from the 1977/78 Australian Health Survey

[3.2.4] Education Differentials

For both men and women, the more educated report fewer health problems than the less educated. Why do educational differentials exist? Possibly education improves the individual's efficiency in consuming medical services in terms of choosing the appropriate doctor or hospital (Leigh, 1983). This explanation may not apply in

the Australian context, because choosing the appropriate doctor is also related to the type of insurance one has. Another explanation is that if earnings affect health, then education will have an indirect effect on health through earnings.

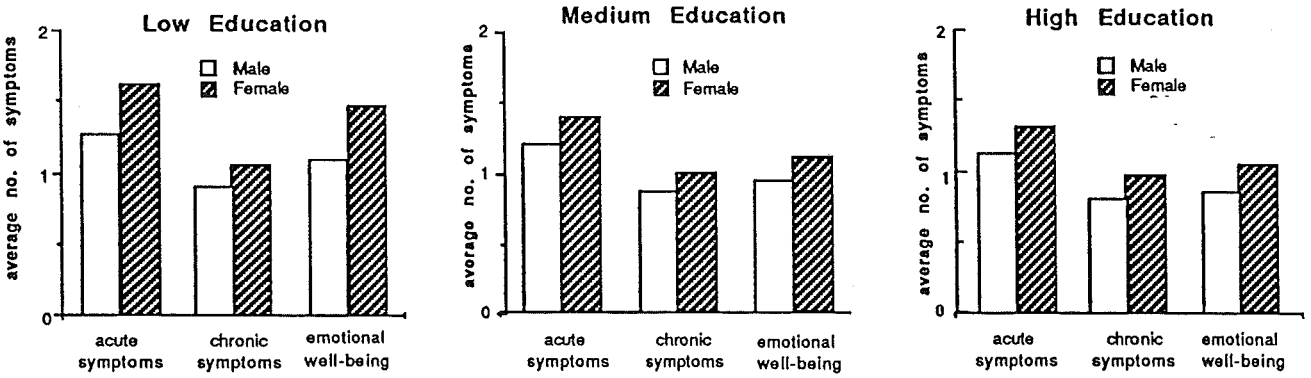

Figure 7. Age-Standardised Average Number of Acute and Chronic Symptoms and Emotional Well-being by Sex and Education.

Note: See Appendix B.1 for definition of the variables used.
Data: Calculated from the 1977 / 78 Australian Health Survey

Education also may be associated with a more efficient information acquisition process, especially with regard to health information. The more educated tend to have not only a better health practices but also a better knowledge of health risk factors. Data from the health risk factor prevalence survey confirm that the more educated tend to be non-smokers and when they smoke, they smoke less (NHF, 1983; Lee and Bennett, 1987). Education is also related to self-esteem, confidence and personal resources as well as other financial and social resources.

Women report substantially more physical and emotional health problems than men across all education levels. The sex differentials are even greater for low education groups than higher education groups. The result from this differential analysis suggests the need for a closer examination of less educated women and their health with regard to why the sex differentials are greater among the less educated.

[3.2.5] Relative Contributions of Socioeconomic Variables to Health

Although the health status of the adult population shows substantial differences according to sex and socioeconomic groups, these differentiating factors are highly interrelated. To determine whether the effect of each variable will remain after controlling for the effects of other variables and to determine the relative contribution of each socioeconomic variable, an analysis of variance was carried out for the total population and for males and females separately.

Figure 8 shows the percentage contribution of each variable for the total sample. The purpose of this analysis is to assess the contribution of sex differentials after adjusting for the effects of other variables. Although the variance explained by sex differences in the number of chronic symptoms is low (5 per cent), its contribution remains significant.

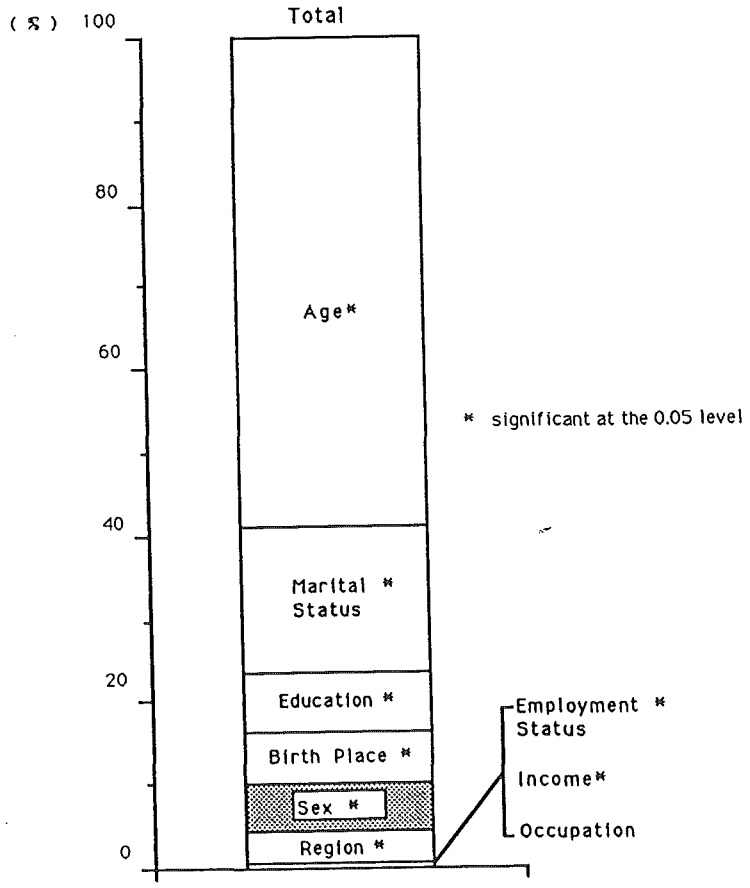

Figure 8. Relative Contribution of Socioeconomic Variables to Variance Explained (Chronic Illnesses)

Note: See Appendix B.1 for definition of the variables used.

Data: Calculated from the 1977 / 78 Australian Health Survey

It is also necessary to examine the association between socioeconomic variables and health measures for males and females separately. Figure 9 presents the same analysis carried out separately for women and men. The following three findings are noteworthy. First, age, sex, marital status, education, birthplace and regional differentials in health remain significant for both men and women, even after controlling for the effects of other variables. Secondly, income has a significant net effect on men's health but not on women's. As pointed out before, the measure of income includes only personal income, which is highly correlated with employment status of women. Probably that is why income does not show a significant effect on women's health status. This analysis should be repeated for women with a better measure of income. Thirdly, employment status remains significant for women but not for men, and occupation appears to be not significant when all other variables are taken into account.

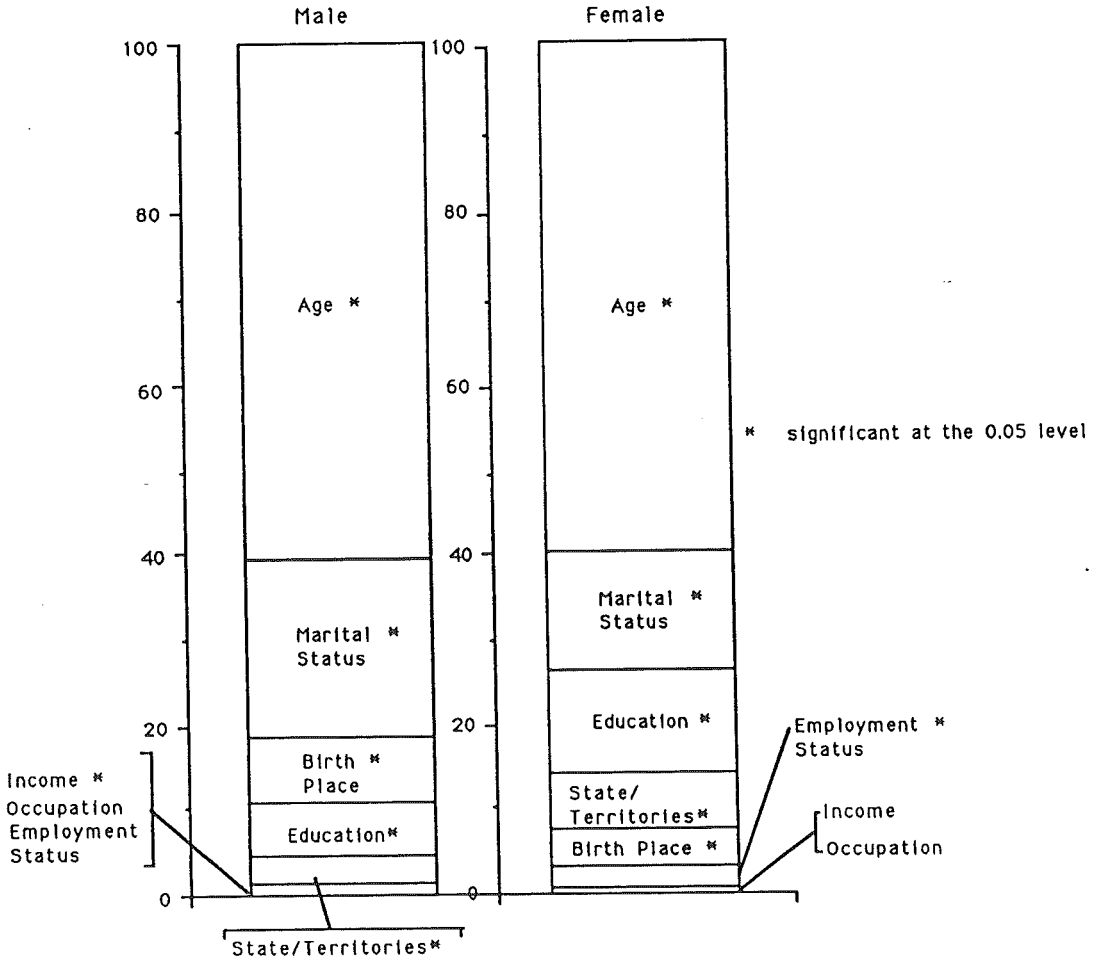

Figure 9. Relative Contribution of Socioeconomic Variables to Variance Explained By Sex (Chronic Illnesses)

Note: See Appendix B.1 for definition of the variables used.
Data: Calculated from the 1977 / 78 Australian Health Survey.

[4] Information Gaps

Information gaps are identified by comparing the conceptual model and the currently available data sources. The data sets reviewed in this section are (1) those available for all the States and Territories; and (2) those which contain information on health status and the possible social causes, correlates or consequences of states of health.

[4.1] Evaluation of Current Health and Social Data in Australia

Data 1: 1977/78 Australian Health Survey (AHS)
Data 2: 1983 Australian Health Survey (AHS)

The main objective of the 1977/78 AHS was "to provide data generally not available from other sources to assist in the monitoring, evaluation and planning of health services" (ABS, 1981:3). This data set is national in coverage and includes people of all ages. Health indicators in this survey include acute illnesses, chronic conditions, mental well-being, and disability days. A wide range of socioeconomic variables which make research into social gradients of health possible were also collected.

The 1983 AHS, on the other hand, focused on health service utilisation and covered a limited range of health indicators.

Data 3: 1989/90 Australian Health Survey

The ABS is planning to conduct another AHS in 1989/90. This survey will consist of two parts: (1) core data set to provide various measures of health status, risk factors, usage of health services, and demographic and socioeconomic information; and (2) the supplementary component, the content of which will vary from survey to survey, will focus on risk factor prevalence such as diet, drug including alcohol and tobacco use and exercise patterns (ABS, 1987b).

Data 4: 1984 Household Expenditure Survey

This is a household-level data set which has some relevant health information such as health risk items (e.g. tobacco and alcohol) and medical care expenditure (see Lee, 1988).

Data 5: 1980 and 1983 Risk Factor Prevalence Surveys

The main strength of these data sets is the comparability of risk factor prevalence between 1980 and 1983. Information on a wide range of health risk variables and respondents' socioeconomic characteristics is available for both surveys (see NHF, 1980, 1983). The sample areas were limited to capital cities only.

Data 6: Hospital Morbidity Statistics

While data from general health surveys such as the AHS is designed to evaluate the health status of the general population, hospital morbidity statistics include only those who seek hospital attention. Available information on the patient's socioeconomic characteristics and the coverage of statistics vary from State to State (see Australian Institute of Health, 1987). Information on sex, marital status and country of birth are available in all States and ACT, whereas other variables such as age, occupation and race are available only in some States and Territories.

Data 7: Census Data

Although census data do not include any health indicators as such, they do have a great potential to provide valuable information on the population's social mobility, migration, fertility, and labour force participation including health manpower. From the health research point of view, census data may have a limited usage. However, if the information gathered in the census in various years can be linked to various health surveys and mortality data, its value will be enormous.

Data 8: Mortality Statistics

Mortality statistics go back to the late 19th century in Australia, but reliable national data on births, deaths and migration was not available before 1921. The figures for the total deaths for the period 1921-62 are available from publications of the Commonwealth Bureau of Census and Statistics. Single year cause of death publications (catalogue no 3303.0) are available for the years 1963 to 1982. Computer printouts of 'Deaths by State of Usual Residence by Cause by Sex and by Age Group,' are available for 1983-86 from the ABS.

A trend analysis of cause of death is difficult as there have been several revisions in the International Classifications of Diseases, but a comparative code scheme is available from the Australian Institute of Health (Taylor, 1987). Information on socioeconomic variables of the deceased is limited to a few key variables such as occupation, country of birth and marital status. Information on occupation is available only in the case of men.

Data 9: Australian Longitudinal Survey (1985)

The purpose of this survey is to improve the understanding of labour market processes in Australia (Social Science Data Archive, 1985). The sample is confined to youth. Most of the questions are related to employment and education; health-related questions are limited to a measure of emotional well-being (12 General Health Questionnaire). An initial sample of about 3000 youths has been followed up since 1984.

Data 10: 1981 Disability/Handicap Survey

This survey is the first attempt to provide comprehensive national statistics on handicapped persons. The areas examined included causes, disabling conditions, services, aids, accommodation, difficulties with employment, education and transport use. The sample for the survey consisted of two parts: (1) a sample of 33 000 household members residing in non-private (e.g. hotels, motels, etc.) as well as in private dwellings; and (2) a sample of 5300 patients from selected health establishments (see ABS, 1982). Another survey is now being conducted: the 1988 Household Survey of Disability and Ageing (ABS, 1988). The main focus of the 1988 survey is on the provision of care and the domestic care needs of disabled people and non-disabled aged people within the home.

[4.2] Information Gaps

Table 4 summarises the information required for women's health studies and the availability of such information.

Table 4. Information Required and Data Available.

Information Required	Availability in the identified data sets	Remarks
Demographic Variables		
-age	all	
-sex	all	
-family size	1, 2, 3, 4, 7, 10	
Socioeconomic Variables		
-occupation	1, 2, 3, 4a, 5, 6b, 7, 8c,9	a) available for hh head b) available in 4 States c) men only
-income	1, 2, 3, 4, 7, 9,10	
-education	1 to 5, 7, 9,10	
-marital status	1, 2, 3, 4, 5, 6, 7, 8,10	
-country of birth	all	
Environmental Variables		
-pollution		
-housing	4, 9	housing ownership
-States/Territories	all	
-urban/rural	1, 2, 3, 4, 7	
-access to childcare		
-transport	4	ownership of motor vehicle
Biological Variables		
-family history		
Sex Roles		
-social activities		
-caring for children	1, 2, 3	proxy measure: number of children
-caring for elderly relatives		
-caring for the disabled	10	
Social relationships		
-social networks		
-social support		

1 1977/78 Australian Health Survey (AHS)
2 1983 AHS
3 1988/89 AHS (provisional)
4 1984 Household Expenditure Survey
5 1980,1983 Risk Factor Survey
6 Hospital Health Statistics
7 Census data
8 Mortality Statistics
9 Australian Longitudinal Survey
10 1981 Disability/Handicap Survey

Table4 (continued)

Information Required	Availability in the identified data sets	Remarks
Quality of Emp./non-employment		
-occupational hazard		
-occupational stressors		
-job satisfaction	9	reasons for leaving previous employment
-stresses related to not being in labour force		
Life Stressors and Satisfaction		
-life events		
-life satisfaction		
-domestic violence		
-incest		
Personal Factors		
-coping style		
-Type A behaviour		
Health Related		
-knowledge/beliefs		
-attitudes		
-values	*	Community Attitude Toward Domestic Violence Survey
Health Service Utilisation		
-health insurance	1, 2, 3, 4, 6	
-hospital utilisation	1, 2, 3, 4, 6, 10	
-GP consultation	1, 2, 3, 10	
-other services	10	
Health Status Measures		
a) general health measures		
-morbidity	1a, 2a, 3a, 6	a) types and number of illnesses

1 1977/78 Australian Health Survey (AHS)
2 1983 AHS
3 1988/89 AHS (provisional)
4 1984 Household Expenditure Survey
5 1980,1983 Risk Factor Survey
6 Hospital Health Statistics
7 Census data
8 Mortality Statistics
9 Australian Longitudinal Survey
10. 1981 Disability/Handicap Survey

*Office of Status of Women

Table 4 (continued)

Information Required	Availability in the identified data sets	Remarks
Health Status Measures (Continued)		
-emotional well-being	1a, 2a, 3, 5a, 6, 9a	a) measured by GHQ
-risk factors	3, 5	smoking, drinking, exercise, weight, height, diet behaviour use of oral contraceptive pills
-uptake of preventive care and advice	3	pap smear test, breast self-examination
-mortality	8	
b) disease-specific		
-cancer incidence	1, 2, 3, 6, 8	
-Illnesses ***		
arthritis	1, 2, 3, 6, 8	
varicose veins	1, 2, 3, 6, 8	
osteoporosis		
gynaecological conditions	1, 2, 3, 6, 8	
c) reproductive health and family planning		
reproduction and childbirth		
-male and female infertility		
-pregnancy risk factors		
-use of technology in childbirth		
-adolescent pregnancy		
-artificial insemination/ in-vitro fertilisation		
family planning		
-contraceptive use/failure	5	use of oral contraceptive pills
-side effects and complications of methods of contraception		
-abortion		
-adoption		
surgical procedures		
-hysterectomy		

1 1977/78 Australian Health Survey (AHS)
2 1983 AHS
3 1988/89 AHS (provisional)
4 1984 Household Expenditure Survey
5 1980,1983 Risk Factor Survey
6 Hospital Health Statistics
7 Census data
8 Mortality Statistics
9 Australian Longitudinal Survey
10 1981 Disability/Handicap Survey

*** Illnesses which affect women only or women differently from men

Information gaps are of three kinds:

(1) information not available at all;
(2) information available but insufficient; and
(3) information available but inadequately measured.

[4.2.1] Information not available

(1) National data on housing, access to health care and transport and their linkage to health is unavailable.

(2) No national data allow us to measure the mechanisms through which socioeconomic variables impinge upon health. Information on the quality of life and social roles should be collected. At the State level, however, there are some data available to examine the linkage between social networks and health (e.g. Hall, Waters et al., 1987).

(3) There is a lack of longitudinal data to enable us to measure the actual and likely changes in the health status of the population (cf. Australian Longitudinal Survey). The current health and social data based on cross-sectional surveys do not allow one to measure the direction of causation in the relationship between health and inequality. Therefore trends in health differentials is largely unexplored.

There have been notable changes in women's health behaviour which have a significant impact on their health status. The current smoking and drinking prevalence rates are lower for women, but the gap is decreasing because more women are taking up smoking, while men are quitting smoking at a much faster rate. For example, the proportion of smokers among young females (25-29) increased by over 10 per cent between 1980 and 1983 (NHF, 1980, 1983). This finding has important implications for future health policies. Furthermore, a lack of longitudinal data makes the examination of causal relationships between socioeconomic variables and health measures very difficult. A comprehensive understanding of the causal links will help to formulate health and social policies (see Section 2.3).

The study by Lee and Smith (1988) on sex mortality differentials suggests that the continuing increase in the female advantage in mortality seems to have come to an end in the 1980s. The sex mortality differentials had been increasing from 1921 to 1980,

but there is a sharp reversal in the trend in the 1980s. While the male death rate has continued to fall rapidly, the female rate shows little improvement. An examination of the causes of death shows that the increase in young women's drug dependence and homicide (aged 15-24) and middle aged women's lung cancer (45-54) are most responsible for the sex ratio reversal in the 1980s. Further research into changes in women's behaviours which have health consequences is necessary.

(4) The spill-over effects of women's health on the health and well-being of their families and communities are largely unexplored in Australia. Overseas studies which have examined the effects of wives' characteristics and health behaviour on their husbands and families have found them significant (Carmelli et al. 1985; Graham, 1987;). If it were possible to document the extent to which women's health problems affect the rest of the population, the importance of women's health may gain a wider recognition.

[4.2.2] Information Insufficient

(5) The studies of social class differentials in mortality are often limited to men, as information on women's occupations is not routinely collected at death registration. Only two States in Australia have begun to collect information on women's occupation in recent years. The fact that many women do not work outside the home excludes them from statistics relating to sick leave absence from work or to compensation claims arising from industrial injury or death. However, as women's labour force participation has been increasing and this trend is likely to be continued in the future, appropriate attention should be given to this change and the impact of employment on health.

(6) Some of the variables have both positive and negative effects on health. For example, employment is positively linked with women's physical and mental health, as it may provide a sense of participation, achievement, and self-actualisation as well as broadening social networks and activities (Lee and Najman, 1987). Employment alleviates negative states such as boredom and a preoccupation with personal problems (Converse, 1980).

On the other hand, employment is linked with a certain amount of stress, especially for those who have little job satisfaction. As perhaps the beneficial aspects of employment outweigh the harmful ones, studies examining the relationship between employment and health consistently show a positive association between employment and women's health. But the qualitative aspect of women and work should be further examined. Because of occupational segregation, women may be exposed to different work hazards from men. Most work-related stress research excludes women as subjects or does not analyse sex differences.

(7) The interrelationships between risk factors, morbidity and mortality are not adequately examined. Although women live longer than men, their morbidity prevalence and use of medical services of all kinds are substantially higher than men. Some of this excess can be explained by their reproductive capacities, but even when reproductive visits are excluded, women appear to use medical services more than men and report more chronic illness. Some research casts doubts on whether women's reported health status reflects their actual health status and suggests that women perceive more health problems. This is a complex issue which requires comprehensive data on psychosocial variables (see Section 3).

(8) There are marked differences in the health of women in different social groups in Australia. Social differentials between women are greater than men in some of the social measures (e.g. education differentials) and these problems are not adequately addressed. The overall improvement in health experienced by both sexes has yet to reach some of the more impoverished women such as Aboriginal women, the elderly, less educated, not-married women or women engaged in home duties (see Section 3.2). More information on the quality of education and women's career patterns is needed.

(9) More refined measures of socioeconomic variables such as income and occupation are needed to examine the extent of their impact on health and to assess how they affect women and men's health differently. These statistics should be routinely collected to enable researchers to determine the real size and trends in socioeconomic differentials. More refined measures of health status and their interrelationships need to be developed.

[4.2.3] Information Inadequate

(10) The currently available information on occupation groupings is inadequate to define women's social class. Defining women's social class requires special attention with respect to the social class of housewives and the concentration of employed women in a few occupations (e.g. teaching, nursing and clerical jobs). Research into the relationship between women's social class and health requires specific information on occupation including the position within an organisation and the level of autonomy and control over work. Research is also needed into indicators of social class which do not depend on occupation (see section 3.2.5).

(11) The current measures of mortality, morbidity and risk factors are not adequate for women's health studies. Life expectancy and mortality rates are "hard" measures, but convey little information on women's health. Information on the quality of prolonged life is more appropriate.

Available morbidity measures are also generally inadequate to measure the kinds of health problems from which women often suffer. For example, there is not enough information on nutritional anaemia, mental well-being, the chronic dysfunctional aspects of health, or domestic violence (Section 2.2).

[5] Implication and Recommendations

This section concerns such issues as

(1) what information to collect (information requirement),
(2) how to go about it (implementation strategies)
(3) what to do first (research priorities), and
(4) who should do what

[5.1] Information Requirement

To conduct appropriate studies on women's health, researchers need:(1) information on women's overall health status measures at the national level; (2) information on specific subgroups of women whose health needs closer attention; (3) specific information on women's socioeconomic characteristics; (4) information on the intervening mechanism through which the association

between socioeconomic variables and health works; (5) information on the inter-relationship between various health measures (e.g. mortality and morbidity); and (6) information on women's socioeconomic characteristics in mortality data.

[5.2] Implementation Strategies

The above problems with women's health data can be rectified in several ways.

(A) Utilising the existing surveys as a tool for improving the women's health data base

Women's health information should be collected periodically and based on a large representative sample. This will provide population-based and respondent-provided information on women's current health status. The 1989/90 Australian Health Survey (AHS) would be a good vehicle to achieve this goal with minimum cost, as it will include a nationally representative sample of women and men.

Recommendation 1:

The planning committee for the 1989/90 Australian Health Survey should include a member representing women's views to ensure that the interests of women's health and social issues are covered adequately in the next survey. A representative's role is to make sure the following areas are included and covered adequately in the next survey.

(1) health status measures:
- . self-rated health (excellent, good, fair or poor)
- . number and types of acute and chronic illnesses
- . reduced activity days due to illnesses
- . injuries and disabling conditions
- . uptake of preventive measures: pap smear, breast self-examination, exercise
- . general information on reproductive health and family planning: complications of pregnancies, knowledge, attitude and practice of contraceptives

(2) measures of emotional well-being (see Section 2.1.3) and stress related to employment and housework

(3) health service utilisation: e.g. doctor visits, dentists, psychiatrists, psychologists

(4) risk factors: alcohol and tobacco consumption, licit drug use (tranquillisers, pain relievers), overweight, eating disorders

(5) social status measures: employment status, education, personal and household income, sources of income, occupation

(6) sex role measures: caring for children, elderly relatives, the disabled or handicapped

(7) other: major public health problems perceived by respondents

The observed relationships between these variables and health must reflect the actual associations rather than be artefacts due to poor measures. The following are recommendations to improve the specific variables.

Health Status Measures

Reliable and short health measures which can be administered easily should be tested in the next Australian Health Survey. This may be achieved by including a measure of self-rated health (excellent, good, fair or poor) in addition to the other health measures.

Social Class related variables

Education: The education variable should include information on both formal schooling and work experience, as collected in the 1983 AHS data.

Occupation: The ABS (1986) recently released a document on new occupation groupings (The Australian Standard Classification of Occupations). This classification system should be used in the next health survey and made available in the unit record tape for public use. Information on the nature of work with respect to the level of control over work will help us to conduct research on women's social class.

Employment Status: Specific information on the types of employment (self-employed/salary earners, government

sector/private sector and the size of firm) as well as employment status should be collected.

Special attention should be paid to obtaining information on women's employment and occupation. It is often the case that women are temporarily (or for a few years) out of the labour force during child bearing and rearing. This might cause some discrepancies between the current employment status and usual occupations. Information on usual occupations appears to be more appropriate for the social class analysis and occupational differentials, but if there are any discrepancies between usual and current occupations at the time of the survey, they should be noted.

Income: Personal income is a poor measure for women who are not employed outside the home. Information on household income as well as personal income should be collected and made available. Also information on sources of income (wages, government benefits, income from other sources) should be collected.

Recommendation 2:

Short and reliable measures of health status (e.g. self-rated health status and the measure of emotional well-being) should be considered for inclusion in other social surveys (e.g. Health Insurance Survey, Household Expenditure Survey, surveys on employment and income, National Heart Foundation Risk Factor Survey).

(B) Conducting cross-sectional surveys on women's health

Recommendation 3:

National health surveys should be conducted regularly in order to identify (1) specific subgroups' health and social problems (e.g. single mothers, not-employed women, migrant women, Aboriginal women and the elderly) using a smaller sample base; (2) specific health problems of women outlined in Section 2.1 as intervening variables such as domestic violence, the impact of the provision of child care facilities on women's employment and health; (3) specific information on unpaid women's work including caring for children, elderly relatives, the disabled; and (4) specific information on reproductive health and family planning.

Information collected in these surveys should include the variables specified in Section 2. In summary, women's health can be assessed more extensively by (1) extending health measures to encompass psychosocial variables, social networks, quality of working life, personal coping style, health attitudes, knowledge, and values; (2) including health variables which are specific to women in morbidity and risk factor measures (such as family planning variables, abortion, and prescribed drug use); (3) providing information on preventive care such as pap smear and mammography tests; (4) providing information on the impact of women's ill-health and health risk behaviours on their families and communities; and (5) including specific information on women's socioeconomic characteristics such as employment history, job satisfaction, fertility, age at marriage and labour force participation.

(C) Improving mortality and hospital morbidity statistics

Research in socioeconomic differentials in mortality concentrates on male mortality in the 15 to 64 age range, with little effort to study the patterns for females or the elderly.

Socioeconomic characteristics related to mortality data are usually limited to a few variables. This is even more so for deceased women. Information on occupation, for example, is not routinely collected for women. Only two States in Australia have started collecting information on women's occupation in the death registers. Information on socioeconomic characteristics should be extended to occupation (for women), income and education.

Recommendation 4:

Registers of births, deaths and marriages in all States and Territories should collect, and the ABS should tabulate and disseminate information on women's occupations as is done for men. Action should be taken in order to monitor this.

The delivery of health services has been predominantly a State function and the individual States and Territories collect hospital statistics for administrative and planning needs. Information collected on the patient varies from State to State.

Recommendation 5:

State Health Authorities should be asked to expand hospital morbidity collections to include a greater range of demographic and socio-economic variables such as occupation, education, income and information related to migrants.

(D) Matched-records Approach

As mentioned in Section 4.1, there are other sources of data of which information can be usefully incorporated into health data (e.g. census data). One obvious linkage is between the mortality statistics and census information. Many countries (e.g. United States of America, United Kingdom, France, Denmark, Norway, Hungary and Finland) routinely link mortality records back to census records. This opens up a new avenue for mortality differentials research. The matched record approach involves identifying people in particular occupations as identified at the census, then matching the individuals with records of deaths, cancer incidence, etc. This allows a much more accurate identification of occupational groups.

A matched-records approach also can be applied to linking various surveys back to census records. Information on socioeconomic variables available in census data will verify, substantiate and add more information to health surveys.

A linkage between census data collected at two points in time will provide the possibility of the study of women's social mobility (social status changes, income levels) compared with men's. The 1986 Census data show that in eight major groups of occupations, women earn substantially less than men. It should be examined whether this trend continues in the future, if so why this is the case (e.g. education and experience differences or structural discrimination) and how it is related to health.

The issue of linking data is currently a sensitive topic in Australia and the probability of making it happen in the near future may be remote. However, the possibility of a data linkage needs to be explored without violating the confidentiality of information relating to individuals. This requires a close liaison with appropriate authorities at the Commonwealth and State levels.

Recommendation 6:

An inquiry into the benefits, feasibility and complications of linking data should be made. It will involve a close liaison with appropriate Commonwealth and State authorities.

(E) Longitudinal Studies

The answer as to why women report higher rates of morbidity than men should come from longitudinal studies that can clarify the time ordering of variables. Longitudinal data containing information on mortality, morbidity and risk factors will also help researchers to understand their interrelationships. Only mortality data are available for an extended period of time, and a data base which will shed light on the subject is virtually non-existent in Australia. Matched record studies can also contribute to longitudinal analysis (e.g. Office of Population and Census Statistics studies).

Recommendation 7:

Action toward establishing longitudinal studies should begin immediately. Various types of longitudinal surveys can be conducted: (1) starting from scratch approach: conduct a base line survey and follow up the samples over a ten year or longer time period; (2) building longitudinal data based on the existing information such as employment records of public servants; and (3) a cohort study (e.g. marriage or birth cohort).

[5.3] Research Priorities

Identified research areas to improve the understanding of women's health include:

- refinement of measures of health status and their relationships
- refinement of emotional well-being measures
- defining women's social status
- the relationship between women's caring roles and health

- development of methodologies to provide reliable measures of sex roles, social networks, quality of employment and non-employment, life stressors and satisfaction, personal factors, health related knowledge, attitudes and values, and health service utilisation (see Figure 1)

Recommendation 8:

Research into the refinement of health status measures, their interrelationships, and the development of methodologies to provide reliable measures of women's social class, caring roles, personal factors and life stressors should be conducted.

The first step should involve the establishment of a statistical basis for women's health based on large samples. This task is carried out to some extent by the 1977/78 AHS (see section 4.1). This data base, however, is almost ten years old, so it urgently needs updating. The 1989/90 AHS should include a few key variables which are identified in Recommendation 1. The survey should be repeated every five years to make the analysis of women's health trends possible.

At the same time, various small sample surveys on specific issues on women's health and social issues should be carried out (Recommendation 3). A survey conducted by the Office of the Status of Women (1988) reveals the problems associated with attitudes toward domestic violence. Other social problems which have direct implications for women's health such as incest and the provision of child health care facilities should be further researched.

Once the basic statistical relationships have been established, the next step is to explore in depth specific women's health problems using smaller data bases, and to examine the way in which the factors operate.

Establishing a longitudinal data base will take a long time, and there is currently difficulty with securing research funds for this type of research. For example, National Health and Medical Research Council (NHMRC) public health research and development funds would not fund this type of research. In the meantime, various small surveys can be repeated.

[5.4] Resource Allocation

Recommendation 9:

Research funds should be made available for conducting research into the above specified areas of women's health. Where necessary and appropriate, the Commonwealth should identify appropriate funding sources. The option of allocating a proportion of the existing public health funds (e.g. through NHMRC or Research And Development Grants Advisory Committee) to research on women's health issues should be explored.

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Appendices

APPENDIX A. TERMS OF REFERENCE

CONSULTANCY BRIEF

To prepare a research report and make recommendations on women's health status data in Australia in the context of the development of the National Women's Health Policy in 1987/1988.

The research report is a joint project between the Commonwealth Department of Community Services and Health, and the Australian Institute of Health in conjunction with the development of the National Policy on Women's Health.

TERMS OF REFERENCE

1. Project Name: Consultancy on Women's Health Status Data

2. Persons Responsible: Dr. Len R. Smith, Director, AIH
   Dr. Sun-Hee Lee, Research Fellow, AIH

3. Scope

The AIH will conduct research and prepare a report on women's health status and health status indicators in Australia. Areas of focus will be:

(1) Examination of women's health status

This task involves both primary data analysis and a comprehensive literature review on women's health. Utilising the existing data on mortality, morbidity and risk factor surveys, further analyses will be carried out to provide more detailed information on the kinds of acute, chronic health problems, mental health and the extent of health service utilisation. A recent study on "health differentials of working age Australians" is the base for this assignment. Sub-groups of women for consideration will be based on:

. age (in relation to health problems of the elderly)
. education levels,
. employment status,
. income levels,
. occupational health and social class differentials,
. marital status,
. ethnicity in relation to migrant health,
. aboriginal health and
. geographical location (State/Territories, urban/rural)

Data will be analysed from the 1977/78 and 1983 Australian Health Survey and 1983 Risk Factor Prevalence Survey data.

(2) Identification of information gaps in health indicators

A digest of available data sources and information collected in these data sets will help to identify problem areas and gaps in availability of information.

(3) Development of a conceptual model for health indicators

Incorporating the recommendations made by the Better Health Commission, WHO, and various reports prepared by State governments, this report will consider alternative conceptual models on the health status of women and make recommendations as to the most effective ways of collecting data on a national basis.

(4) Recommendations

Recommendations will be made to improve the data base for women's health status by investigating:

- the possibility of incorporating women's health issues into the existing death register and health surveys (e.g. Australian Health Survey and Risk Factor Prevalence Survey)

- the possibility of conducting separate surveys on women's health (information to be collected will be specified)

- the possibility of pooling data on women's health at the State and community levels.

This project will be carried out in consultation with women's health organisations at the Commonwealth and State levels and various interest groups in Australia. We will be cooperating closely with the Central Statistical Unit of the Department of Community Services and Health.

A research report will be made to the National Consultancy on Women's Health Policy.

Appendix B.1 Definitions of Variables

Measures of Health Status

Acute symptoms

Method: A list of 26 pre-selected complaints was shown to respondents. Respondents were also asked what they believed had caused the complaints. If the respondent's description was not a morbid condition in its own right (e.g. overwork), the complaint itself was recorded as a symptom. A total of 56 symptoms was identified and a maximum of five acute symptoms was recorded per respondent.

Measure: Number of recent illness conditions of any kind

Value Range: 0 - 5

Chronic symptoms

Method: Respondents were supplied with a list of pre-selected chronic conditions and were asked if they currently had any of those conditions for more than six months. A maximum of five chronic conditions was recorded for each respondent.

Measure: Number of chronic illness conditions of any kind of at least six months standing

Value Range: 0 - 5

Mental health

Method: Respondents were presented with the 12 item General Health Questionnaire (see Goldberg, 1972) and were asked whether they experienced any negative changes in the12 items for the two weeks prior to the survey. The 12 items were:
(1) the level of concentration;
(2) the level of strain;
(3) loss of sleep over worry;
(4) lack of decision making power;
(5) feeling of playing a useful part in life;
(6) ability to maintain normal day to day activities;
(7) ability to overcome difficulties;
(8) ability to face up to problems;
(9) feeling unhappy and depressed;
(10) confidence;
(11) feeling oneself to be a worthless person; and
(12) feeling generally happy

Value Range: 0 -12

Cigarette consumption

Measure: Number of manufactured cigarettes consumed per day
Value Range: 0 - 80

Alcohol consumption

Measure: Number of alcoholic drinks per day
Value Range: 0 - 20

Exercise pattern

Measure: Number of hours of exercise which make a respondent puff, pant, or breathe hard (per week)
Value Range: 0 - 60

Appendix B.1 Definitions of Variables

	Mortality	1977/78 AHS	1983 RFP Survey
Age	5 year age groups for 20-24 and 10 year age groups for 25-64 (1) 20-24 (2) 25-34 (3) 35-44 (4) 45-54 (5) 55-64	5 year age groups (1) 20-24 (2)25-29 (3) 30-34 (4) 35-39 (5) 40-44 (6) 45-49 (7) 50-54 (8) 55-59 (9) 60-64	(1) 25-29 (2) 30-34 (3) 35-39 (4) 40-44 (5) 45-49 (6) 50-54 (7) 55-59 (8) 60-64
Education	Not available	(1) low: no schooling or left before 15, no qualifications since (2) medium: left before 15, qualifications since or over 14 when left, no qualifications since (3) high: over 14 when left, qualifications since	(1) low: no schooling or primary school (2) medium: some high school or completed high school (3) high: University, CAE or other tertiary institutions
Income	Not available	(1) low: gross personal income of $0 to $4,000 in 1977/78 (2) medium: gross personal income of $4,001 to $10,000 in 1977/78 (3) high: gross personal income of $10,001 to $20,000 and over in 1977/78	Not available
Employment status	Not available	(1) employed: either full-time or part-time (2) not employed: retired, student, home-duties, permanently unable to work, other, not stated	(1) employed: either full-time or part-time (2) not employed: retired, student, home-duties, permanently unable to work

Appendix B.1 (continued)

	Mortality	1977/78 AHS	1983 RFP Survey
Occupation	(1) professional (2) administrative, executive and managerial workers (3) clerical workers (4) sales workers (5) farmers, fishermen and related workers (6) miners, quarrymen (7) transport and communication workers (8) tradesmen, production-process workers and labourers (9) service, sport and recreation workers (10)members of armed forces	Same	Same

Appendix B.2 : Type Of Chronic Conditions

Infective and Parasitic Diseases
- 01 infective and parasitic diseases

Neoplasms
- 02 neoplasms

Endoctrine, Nutritional and Metabolic Diseases
- 03 diabetes mellitus

Diseases of Blood and Blood-forming Organs
- 04 gout
- 05 other endocrine, nutritional and metabolic diseases
- 06 diseases of blood and blood-forming organs

Mental Disorders
- 07 neuroses
- 08 mental retardation
- 09 other mental disorder

Diseases of Nervous System and Sense Organs
- 10 epilepsy
- 11 migraine
- 13 cataract
- 14 glaucoma
- 15 blindness (includes one eye)
- 16 other diseases of the eye
- 17 deafmutism and other deafness
- 18 other diseases of the ear
- 19 other diseases of the nervous system and sense organs

Diseases of Circulatory System
- 20 hypertensive diseases (includes high blood pressure)
- 21 heart diseases
- 22 cerebrovascular diseases (includes stroke so described)
- 23 varicose veins
- 24 haemorrhoids
- 25 other diseases of the circulatory system

Diseases of the Respiratory System
- 26 bronchitis
- 27 emphysema
- 28 asthma
- 29 chronic sinusitis
- 30 hayfever
- 31 other diseases of the respiratory system

Diseases of the Digestive System
- 32 peptic (any site)
- 33 hernia of abdominal cavity
- 34 diseases of liver, gallbladder and pancreas
- 35 other diseases of the digestive system

Diseases of Genito-Urinary System
- 36 diseases of the urinary system
- 37 diseases of the genital system

Appendix B.2: (Continued)

Diseases of the Skin and Subcutaneous Tissue

38 eczema and dermatitis (includes allergy unspecified)
39 other diseases of the skin and subcutaneous tissue
40 rheumatoid arthritis and allied conditions
41 osteo-arthritis and allied conditions
42 other arthritic diseases

Diseases of Musculo-skeletal System

43 rheumatism except rheumatic fever
44 sciatica
45 displacement of intervertebral disc
46 other diseases of bone and joint
47 other diseases of the musculo-skeletal system

Congenital Abnormalities

48 congenital anomalies

Other Symptoms and Illdefined Conditions

49 symptoms of the nervous system and special senses
50 symptoms of the cardiovasular and lymphatic system
51 symptoms of the respiratory system
52 nervousness and debility
53 headache, other symptoms and ill-defined

Complications of Pregnancy

54 complications of pregnancy etc/ perinatal morbidity

Accidents, Poisoning and Violence

55 fractures
56 adverse effects of medical agents
57 other accidents, poisoning and violence

Absence of Limbs

58 absence of thumbs, fingers and / or limbs

Absence of Organs

59 absence of organs