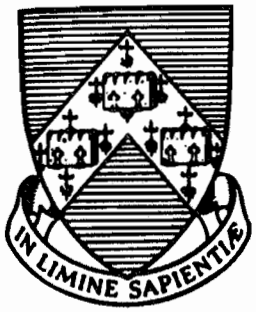

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Age, Sex and Health: A Summary of Findings from The York Health Evaluation Survey

by
STEPHEN J. WRIGHT

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ABSTRACT

The present study investigates the relationships between age, sex and four sets of health-related variables:-

i) a series of six health ratings (current self-rating, previous best self-rating, best possible self-rating, health satisfaction self-rating, estimated population average rating, estimated age/sex average rating);

ii) four independent health status measures (number of current medical conditions (NCOND), number of days of illness-induced incapacity during the past two weeks (DAYS), scores on a functional limitation scale (FNCLIM), chronic health status (CHS));

iii) health locus of control (Internal (IHLC), Powerful Others (PHLC), Chance (CHLC)) and negative life events measures;

iv) choices of life stage at which wellness is perceived to be most important.

Data were obtained in the context of a survey of health evaluations from a large sample of lay respondents (n=377) covering a broad range of age (17-88 years) and other sociodemographic variables.

Age is found to show positive relationships with three of the independent health status measures (NCOND, FNCLIM, CHS), the two 'external' health locus of control scales (PHLC, CHLC), estimated population average health ratings and health satisfaction self-ratings (although only after controlling for the independent health status factors). Age shows negative relationships with negative life events scores, current health self-ratings

(although this is eliminated after controlling for the independent health status measures), best possible health self-ratings and estimated age/sex average health ratings. Sex is found to show significant effects on NCOND (females show higher scores than males) and previous best health self-ratings (males show higher scores than females).

Some support is found for three theoretical approaches relevant to the field of health self-perceptions, namely social representations of health, false consensus effects and Multiple Discrepancies Theory.

A major sex difference emerges in the selection of life stages at which wellness is judged to be most important, with the differing emphases being consistent with the sexes' traditional social roles. However, there is an overall consensus about the particular importance of wellness during early parenthood and infancy.

Age is associated, therefore, with poorer health status, increased beliefs in the importance of powerful others and chance for one's own health, lower current health self-reatings and estimated age/sex average ratings, and substantially lower best possible health self-ratings. Many of these findings may be attributable to cohort effects, with the older generations having been brought up to attribute health outcomes to health professionals and fate, and to accept the idea of an inevitable decline in health status with age.

The only major sex effect is on the importance of wellness at each life stage judgement, with females emphasising stages at which individuals are required to care for others (i.e. wellness in a social context), whilst males emphasise stages important to furthering one's own interests and status. However, despite this sex difference, there is general

agreement that early parenthood and infancy are the most important times to keep people well.

INTRODUCTION

There has been considerable interest in recent years in the major influences on self-perceived health status and health concerns (see Wright, 1985a, for a review). Two factors which might be anticipated to affect these variables are age and sex. Most of the published studies linking age with health self-ratings have concentrated on relatively restricted age-bands (e.g. Ferraro, 1980; Fillenbaum, 1979; La Rue et al, 1979; Maddox, 1962; Tissue, 1972), therefore not allowing for confident empirical conclusions to be drawn about the effects of age on self-rated health across the lifespan. Whilst the common consensus would almost certainly be that health tends to deteriorate with increasing age, virtually all of the published reports have simply <u>assumed</u> age to be an important influence as indicated in this statement by Fillenbaum (1979):-

> "When we say 'How would you rate your health at the present time - excellent, good, fair or poor', we assume that there is a general understanding of what is excellent,good, fair or poor health, for we rarely, perhaps never, define these for the respondent. Admittedly we occasionally have doubts about the universality of the standard, as shown when we ask those questioned to respond in terms of 'other people of your age' and respondents may themselves add such a qualifier. But what, in fact, are the standards used by survey participants, and on what are they based?" (p.45)

This lack of empirical data on the effects of age on self-perceived health across the lifespan may be partially attributable to an exclusive focus on current health status and the use of categorical verbally-labelled scales - thus encouraging subjects to respond in terms of excellent, good, fair or poor health <u>for their age</u>.

Two studies which have looked at sex effects on self-perceived health status in the elderly (Ferraro, 1980; Fillenbaum, 1979) have produced consistent results suggesting that for a given level of self-rated health women show poorer scores on relatively 'objective' health indicators than do men. Whilst neither study reported a significant sex effect on the ratings, they both found that sex influenced the relationship of 'objective' to 'subjective' health indicators.

The present study aims to examine the influence of age and sex on a series of health ratings across a wide age-span, and examines the extent to which any effects are mediated by independent health status indicators. The health ratings involved are as follows:-

1) Current health self-rating.
2) Estimated population average health rating.
3) Estimated age/sex average health rating.
4) Previous best health self-rating.
5) Best possible health self-rating.
6) Health satisfaction self-rating.

The use of this series of health ratings and the employment of undivided bipolar scales on which subjects are required to respond by marking a cross are designed to enhance the likelihood of obtaining absolute, rather than age-adjusted, responses from subjects.

The inclusion of other ratings in addition to the current health self-rating was stimulated by theoretical interests. The population average and age/sex average estimates are included as a test of the 'false consensus' effect (Ross et al, 1977). This phenomenon has emerged from work in the attitudinal field and suggests that subject tend to overestimate the extent

to which others share their attitudes and opinions. Applying this to the present study one would predict that any effects of age and/or sex on current health self-ratings will be mirrored in age/sex average estimates. Predictions about population average estimates are more difficult, since one might conceivably predict either an effect in the same direction as for age/sex average estimates or a mirror-image or contrast effect - depending on the limits of the 'false consensus' phenomenon.

The previous best and best possible health self-ratings are included in order to assess the extent to which any effects of age or sex on health self-ratings extend over time. The best possible rating is of particular interest since one would expect age to be a major influence in modifying health goals amongst older subjects.

The health satisfaction self-rating is included in order to explore the adequacy of Multiple Discrepancies Theory (MDT; Michalos, 1980/1985) as an account of health satisfaction ratings. MDT sees satisfaction in any area of life as a function of three discrepancies or gaps. These are the goal-achievement gap (GGAP; the perceive discrepancy between current status and best possible status), the age/sex average gap (AGAP; the perceived discrepancy between current status and the average status for a subject's own age and sex) and the previous best gap (BGAP; the perceived discrepancy between current status and previous best status). MDT proposes that the goal achievement gap is derived from the joint influence of age/sex average and previous best gaps, and that GGAP is the single major determining influence on perceived satisfaction.

Whilst it is not the intention here to carry out a general test of MDT in the context of the present data (since this has been reported elsewhere

- see Wright 1985b) the current aim is to examine whether MDT aids the interpretation of any significant effects of age or sex on health satisfaction self-ratings.

Independent measures of current health status are obtained in order to be able to assess the extent to which any significant age or sex effects on the ratings may be mediated by current health status.

Measures of health locus of control and negative life events are also obtained in order to explore any associations between age, sex and these two variables.

Finally, the influence of age and sex on health concerns is investigated by asking subjects to choose three out of a series of ten life stages at which they feel it is most important to keep people well. One might well predict age and sex effects here with older subjects expected to emphasise later life stages, and males and females likely to differ in choice of life stages according to their respective social roles.

METHOD

Subjects: Data for the study were obtained in the context of a survey of health evaluations. Every eighth person appearing on the electoral roll in three wards of the City was contacted and invited to participate. Out of a total of 816 explanatory letters initially distributed, 377 subjects were successfully interviewed with the remainder refusing to take part either following the initial contact ('primary refusers', n = 84) or on being visited by an interviewer ('secondary refusers', n = 147). In addition, 161 of the original sample were found to

have moved, and 47 others were untraceable, unavailable, incapable of completing the interview or dead.

The successfully interviewed sample displayed a wide age distribution (17-88 years, mean = 43 years), a relatively balanced sex distribution (44% males, 56% females) and a broad spectrum of values of other sociodemographic variables.

Measures: Data obtained in the survey took one of two primary forms:-

i) interview/interviewer-coded;

ii) questionnaire/self-completion.

All the sociodemographic details, as well as measures of the number of medical conditions from which each subject was currently suffering (NCOND), the number of days of illness-induced incapacity during the previous two weeks (DAYS) and chronic health status (CHS) fell into the former category.

Age was coded according to a 7-category system - each category spanning a decade except for the lowest (which covered 8 years) and the highest (which covered 14 years). This helped to even out the numbers in each category. Table 1 shows the coding scheme and the category frequencies. The NCOND item assigned to each subject a score from 0-10 according to the number of conditions from the GHS list (OPCS, 1982) which subjects reported currently suffering from. The DAYS item was also taken from the GHS and involved asking subjects-

> "During the 2 weeks ending yesterday, did you have to cut down on any of the things you usually do because of illness of injury?
>
> YES/NO

If YES, How many days was this in all during the past 2 weeks, including Saturdays and Sundays?

Subjects were then each allocated a score from 0-14 according to the number of days of illness-induced incapacity. The CHS item involved a categorisation of subjects by interviewers as either chronically ill or not chronically ill (see table 1). To be categorised as chronically ill, a subject would have to report suffering from one or more of a list of chronic health conditions (e.g. cancer, coronary heart disease, diabetes, permanent fistula, epilepsy requiring continual anti-convulsive medication).

The importance of wellness of each life stage choices were also coded by interviewers, and involved asking subjects to pick three out of a series of ten life stages (infancy, starting school, starting work, setting up home for the first time, bringing up children, at the peak of one's earning power, looking after elderly relatives, just having retired from work, coping with the death of a husband or wife, getting very old) during which they felt it to be most important to keep people well, and then to rank orderthese three life stages. Choices were coded by allocating numbers from 0 to 9 to each of the life stages in chronological order (i.e. infancy = 0, getting very old = 9).

The rating data, which included the six health ratings, the Multidimensional Health Locus of Control (MHLC) and negative life events (LFEV) scales, and four items requiring ratings of the extent to which subjects felt that their health caused limitations in various aspects of their lives were obtained using questionnaire items.

The six health rating items took the following form:-

i) How would you rate your current state of health?

ii) How would you rate the health of an average man/woman from the whole population, that is about age 40, married with 2 children?

iii) How would you rate the health of an average person of your own age and sex?

iv) Which point on the scale represents the best state of health you have ever experienced?

v) Which point on the scale represents the best possible state of health which you feel you could reasonably hope for in the future?

vi) Now I would life to ask about your overall satisfaction with your state of health. Please mark a cross at the point on the scale which you feel best corresponds to the satisfaction you feel with your state of health.

Ratings on the first five items were obtained by requiring subjects to mark crosseson undivided 115mm scales running from 'Poor' to 'Perfect'. The satisfaction item required subjects to mark a cross on a similar 115mm scale running from 'Terrible' to 'Delighted'. Responses were coded by by manual measurement of ratings to the nearest millimetre.

The four health-related functional limitation items took the following form:-

i) Does your health cause you any limitations in employment?

ii) Does your health cause you any limitations in your life at home?

iii) Does your health cause you any limitations in your social life?

iv) Does your health cause you any limitations in mobility?

Subjects were asked to respond to each item by choosing, a number from a 7-point scale running from 'No limitation' (1) through 'Moderate limitation' (4) to 'Severe limitation' (7). Scores on an overall functional limitation

(FNCLIM) scale were then calculated by simply summing responses to the separate items, yielding a scale running from a minimum of 4 to a maximum of 28. For those subjects who were out of work and not looking for work (e.g. housewives, retired) the total scores from the three non-employment-related items were multiplied by $^4/_3$ as an adjustment.

Health locus of control was measured using form A of the MHLC (Wallston et al, 1978) which requires subjects to rate the extent of their agreement or disagreement with 18 statements which can be divided into three groups of six according to the MHLC dimensions which they tap. However, a 7-point scale was utilised, rather than Wallston et al's (1978) 6-point scale, by including a mid-point labelled 'Undecided' (4). This seemed reasonable rather than requiring subjects to make a possibly arbitrary decision between slight agreement and slight disagreement. The scale end-points are 'Strongly agree' (1) and 'Strongly disagree' (7). Responses were quite evenly distributed across the scale, and there was no evidence of a central tendancy. Out of a total of 6,755 ratings on the MHLC items, the 'Undecided' category was selected on 882 occasions (13.06%) which is very close to what would be expected on the basis of perfectly even distribution of responses (6,755 / 7 = 965 or 14.29%). The three MHLC dimensions are Internal (IHLC) , Powerful others (PHLC) and Chance (CHLC). Scores on each dimension were calculated by simply summing responses to each of the separate items relevant to that dimension, yielding a scale running from 6 to 42 in each case.

Negative life events were measured using an anglicised version* of Sarason et al's (1978) Life Experience Survey. This comprises 44 items.

After indicating which of the events they have experienced during the past 12 months, respondents are then asked to rate the impact of each

experienced event on their lives on a 7-point scale running from 'Very bad effect' (-3) through 'No effect' (0) to 'Very good effect' (+3). Total negativelife events scores were obtained by summing all the negative ratings across events yielding a scale running from -132 (-3x44) up to 0. However, to ease interpretation, the minus sign was removed so that higher LFEV scores correspond to more negative life events.

Analyses: The relationships between AGEGRP, SEX and the pscychometric variables (IHLC, PHLC, CHLC, LFEV) as well as the independent health status measures (NCOND, DAYS, FNCLIM, CHS) were assessed using nonparametric correlation techniques (Spearman's rho). The relations between AGEGRP and mean values on each of the life stage importance of wellness choices were also examined using Spearman's rho.

The influence of AGEGRP and SEX on each of the health ratings was assessed using analysis of variance (ANOVA) techniques from the SPSS package (Nie et al, 1975). The influence of AGEGRP and SEX on each of the ratings after controlling for scores on the independent health status measures was examined employing SPSS analysis of covariance (ANCOVA) techniques.

Finally, the overall distribution of choices on the importance of wellness at each life stage items was assessed using chi-square tests.

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* Developed by, and available from Dr. Derek Roger, Department of Psychology, University of York, Heslington, York, YO1 5DD, U.K.

RESULTS

The numbers of subjects falling into each category of the three categorical variables are shown in table 1. AGEGRP and SEX both show fairly evenly balanced distributions whilst CHS indicates, not surprisingly, that the majority of subjects are not chronically ill.

Table 1 : Category frequencies for AGEGRP, SEX and CHS.

AGE GRP CODE	17-24	25-34	35-44	45-54	55-64	65-74	75-88	Total
	1	2	3	4	5	6	7	
n	65	73	74	62	42	41	20	377

SEX CODE	Male	Female	Total
	1	2	
n	166	211	377

CHS CODE	Not chronically ill	Chronically ill	Unclassified	Total
	1	2	-	
n	318	56	3	377

Descriptive statistics relating to the six health ratings, the three non-categorical independent health status measures and the MHLC and LFEV scales are shown in table 2. Mean values for the ratings are much as might have been expected with current self-rating being well above the estimated population average rating, and slightly above the estimated age/sex average. Also, the best possible self-rating is rather higher than the current self-rating, and the previous best self-rating is higher still.

Moving on to analyses of the data, table 3 outlines the directions and strength of the relationships between AGEGRP, SEX and the four independent health status measures. The results indicate that AGEGRP is significantly related to NCOND, FNCLIM and CHS (with older subjects showing higher scores on each variable), and that females report significantly more medical conditions than males, and are slightly more likely to be classed as chronically ill.

Table 2 : Descriptive statistics relating to the six health ratings, three of the independent health status measures and the psychometric variables.

Variable	Mean	Variance	Range	Standard deviation	Min.	Max.	N
Current self-rating	79.22	572.86	113.0	23.93	2.0	115.0	376
Estim. population average rating	68,45	476.01	108.0	21.82	3.0	111.0	372
Estim. age/sex average rating	74.91	491.51	111.0	22.17	4.0	115.0	373
Previous best self-rating	99.18	194.94	82.0	13.96	33.0	115.0	376
Best possible self-rating	88.31	473.45	112.0	21.76	3.0	115.0	376
Health satisfaction self-rating	79.02	544.89	112.0	23.34	2.0	114.0	375
NCOND	2.51	3.47	9.0	1.86	0	9	377
DAYS	0.79	7.73	14.0	2.78	0	14	377
FNCLIM	7.06	26.41	24.0	5.14	4	28	377
IHLC	29.31	37.62	33.0	6.13	9	42	376
PHLC	20.07	62.62	36.0	7.91	6	42	376
CHLC	20.82	45.17	36.0	6.72	6	42	376
LFEV	2.43	13.30	28.0	3.65	0	28	377

Table 3 : Nonparametric correlation coefficients showing the relationships between AGEGRP, SEX and each of the independent health status measures.

	NCOND	DAYS	FNCLIM	CHS
AGEGRP	rho=0.41 (n=377) p<0.001	rho=0.06 (n=377) p>0.10	rho=0.22 (n=377) p=0.001	rho=0.39 (n=374) p<0.001
SEX	rho=0.18 (n=377) p=0.001	rho=-0.00 (n=377) p>0.10	rho=0.01 (n=377) p>0.10	rho=0.07 (n=374) p=0.08

Table 4 illustrates the relationships between AGEGRP, SEX and the psychometric variables. Again AGEGRP shows the more powerful relations, with older subjects having significantly higher scores on the Powerful Others and Chance HLC dimensions, and lower negative life events scores. SEX shows only a marginally significant relationship with the Powerful others HLC dimension (females tending to have higher scores than males).

Table 4 : Nonparametric correlation coefficients showing the relationships between AGEGRP, SEX and each of the psychometric variables.

	IHLC	PHLC	CHLC	LFEV
AGEGRP	rho=0.00 (n=376) p>0.10	rho=0.37 (n=376) p<0.001	rho=0.16 (n=376) p=0.001	rho=-0.18 (n=377) p=0.001
SEX	rho=0.02 (n=376) p>0.10	rho=0.07 (n=376) p=0.09	rho=-0.01 (n=376) p>0.10	rho=-0.01 (n=377) p>0.10

Table 5 provides a summary of the significant effects of AGEGRP and SEX on the six health ratings from both ANOVA and ANCOVA (after controlling for NCOND, DAYS, FNCLIM, CHS) analyses. Given the significant relationships between AGEGRP and three of the independent health status measures and between SEX and NCOND, the ANCOVA analyses are of interest insofar as they provide an indication of AGEGRP and SEX effects relatively uncontaminated by current health status.

Consistent with predictions AGEGRP shows significant influences on current health, best possible health and health satisfaction self-ratings. However, the effect on current self-ratings is only apparent when the independent health status measures remain uncontrolled, and the effect on health satisfaction self-ratings only emerges after controlling for NCOND, DAYS, FNCLIM and CHS. AGEGRP also shows significant influences on the estimated population and age/sex average health ratings in both the ANOVA and ANCOVA analyses.

Table 5 : Summary of significant effects ($p<0.05$) of AGEGRP and SEX on the six health ratings from ANOVA analyses, and from ANCOVA analyses after controlling for the influence of the four independent health status measures (NCOND, DAYS, FNCLIM, CHS).

	ANOVA	ANCOVA
Current self-rating	AGEGRP (F=9.25; df=6,357; p<0.001)	
Estim. population average rating	AGEGRP (F=7.82; df=6,357; p<0.001)	AGEGRP (F=7.31; df=6,353; p<0.001)
Estim. age/sex average rating	AGEGRP (F=9.04; df=6,357; p<0.001)	AGEGRP (F=11.82; df=6,353; p<0.001)
Previous best self-rating	SEX (F=8.52; df=1,361; p=0.004)	SEX (F=6.82; df=1,357; p<0.001)
Best possible self-rating	AGEGRP (F=25.85; df=6,361; p<0.001)	AGEGRP (F=10.61; df=6,357; p<0.001)
Health satisfaction self-rating	AGEGRP x SEX (F=2.40; df=6,361; p=0.003)	AGEGRP (F=3.57; df=6,357; p=0.002) AGEGRP X SEX (F=2.65; df=6,357; p=0.02)

The only significant influence of SEX is on previous best health self-ratings, and this effect is independent of the independent health status measures. However, there is also a significant SEX by AGEGRP interaction effect on health satisfaction self-ratings which appears in both the ANOVA and ANCOVA analyses.

Table 6 : Non parametric correlation coefficients showing the relationships between AGEGRP and means values for each of the life stage importance of wellness choices.

	First choice	Second choice	Third choice
AGEGRP	rho=0.08 (n=375) p=0.055	rho=-0.03 (n=375) p>0.10	rho=0.07 (n=373) p=0.094

AGEGRP shows virtually no effect on the life stage importance of wellness choices (see table 6). Nonparametric correlation coefficients were employed to test for an age effect on the three choices of life stage

since chi-square frequency tables for the three choices separately yielded expected cell frequencies of five or less in considerably more than 20% of the cells in each case - making the use of chi-square inappropriate (Siegel, 1956). Table 6 shows that first and third choices do show marginally significant ($0.10 > p > 0.05$) relationships with AGEGRP - indicating that older subjects do show a slight tendancy to pick later life stages in both cases. However, given the weakness of AGEGRP effects, it was decided to examine the degree of consensus across age, sex and the three choices by collapsing the frequency data across these three variables and looking for significant departures from a random distribution of life stage choices using a one-way chi-square. This analysis tests the experimental hypothesis that certain life stages will be more likely to appear in subjects three choices than would be expected by chance. The relevant observed and expected cell frequencies are shown in table 7.

Table 7 : Distribution of importance of wellness at each life stage choices as a function of life stage - collapsed across the three choices, AGEGRP and SEX.

Life Stage	Infancy 0	Starting School 1	Starting work 2	Setting up home for the first time 3	Bringing up children 4	At the peak of earning power 5	Looking after elderly relatives 6	Just having retired from work 7	Coping with the death of spouse 8	Getting very old 9	Total
Observed	164	65	93	48	268	57	101	115	99	113	1123
Expected	112.3	112.3	112.3	112.3	112.3	112.3	112.3	112.3	112.3	112.3	

A highly significant life stage effect was obtained ($X^2 = 329.70$; $df=9$; $p<0.001$) indicating a substantial degree of consensus across subjects in respect of the life stages at which wellness is most important.

Frequencies of life stage choices as a function of SEX were examined for each choice separately using chi-square, since the relatively smaller number of cells (2 x 10) than was the case for AGEGRP meant that very few cells showed expected frequencies of five or less. The relevant frequency tables for each of the three choices are shown in table 8.

Table 8 : Distribution of importance of wellness at each life stage choices as a function of SEX and life stage for each of the three choices.

a) First choice

Life stage / Code	Infancy 0	Starting school 1	Starting work 2	Setting up home for the first time 3	Bringing up children 4	At peak of earning power 5	Looking after elderly relatives 6	Just having retired from work 7	Coping with spouse death 8	Getting very old 9	Total
Male	45	15	7	7	45	13	5	6	8	14	165
Female	58	9	7	3	79	2	14	10	15	13	210
Total	103	24	14	10	124	15	19	16	23	27	375

b) Second choice

Life stage / Code	Infancy 0	Starting school 1	Starting work 2	Setting up home for the first time 3	Bringing up children 4	At peak of earning power 5	Looking after elderly relatives 6	Just having retired from work 7	Coping with spouse death 8	Getting very old 9	Total
Male	15	9	18	15	40	13	12	17	13	13	165
Female	21	7	19	6	62	6	32	19	18	20	210
Total	36	16	37	21	102	19	44	36	31	33	375

c) Third choice

Life stage / Code	Infancy 0	Starting school 1	Starting work 2	Setting up home for the first time 3	Bringing up children 4	At peak of earning power 5	Looking after elderly relatives 6	Just having retired from work 7	Coping with spouse death 8	Getting very old 9	Total
Male	13	15	21	13	15	16	8	35	11	17	165
Female	12	10	21	4	27	7	30	28	34	36	210
Total	25	25	42	17	42	23	38	63	45	53	375

The results indicate highly significant sex differences in life stage selections for first choices (X^2=22.6; df=9; p<0.01), second choices (X^2=22.3;df=9; p<0.01) and third choices (X^2=35.6; df=9; p<0.001). Thus the data strongly support the hypothesis of a sex difference in judgements of the importance of wellness of each life stage.

DISCUSSION

AGEGRP and SEX both show significant relationships with at least one of the independent health status measures (table 3). Thus age is positively associated with number of medical conditions, chronic health status and scores on the functional limitation scale, and females report more medical conditions than males and are slightly more likely to be chronically ill.

AGEGRP and SEX both show some relationships with the psychometric variables, but AGEGRP is by far the more potent influence (table 4). Age is positively related to scores on Powerful Others and Chance scales of the MHLC and negatively related to scores on the negative life events scale, whilst females show a marginally significant tendency to show higher Powerful Others HLC scores than males. This sex difference may well be attributable to the still predominantly masculine, high technology image of current medical practice - making women more likely to attribute power and responsibility for health outcomes to others. The influence of AGEGRP on PHLC and CHLC scores is difficult to interpret since a cross-sectional study does not allow a distinction to be made between cohort effects and real age effects. The former interpretation would suggest that the tendency for younger subjects to show lower PHLC and CHLC scores is a result of a change in the climate of opinion with regard to responsibility for health in the direction of attributing more power and responsibility to

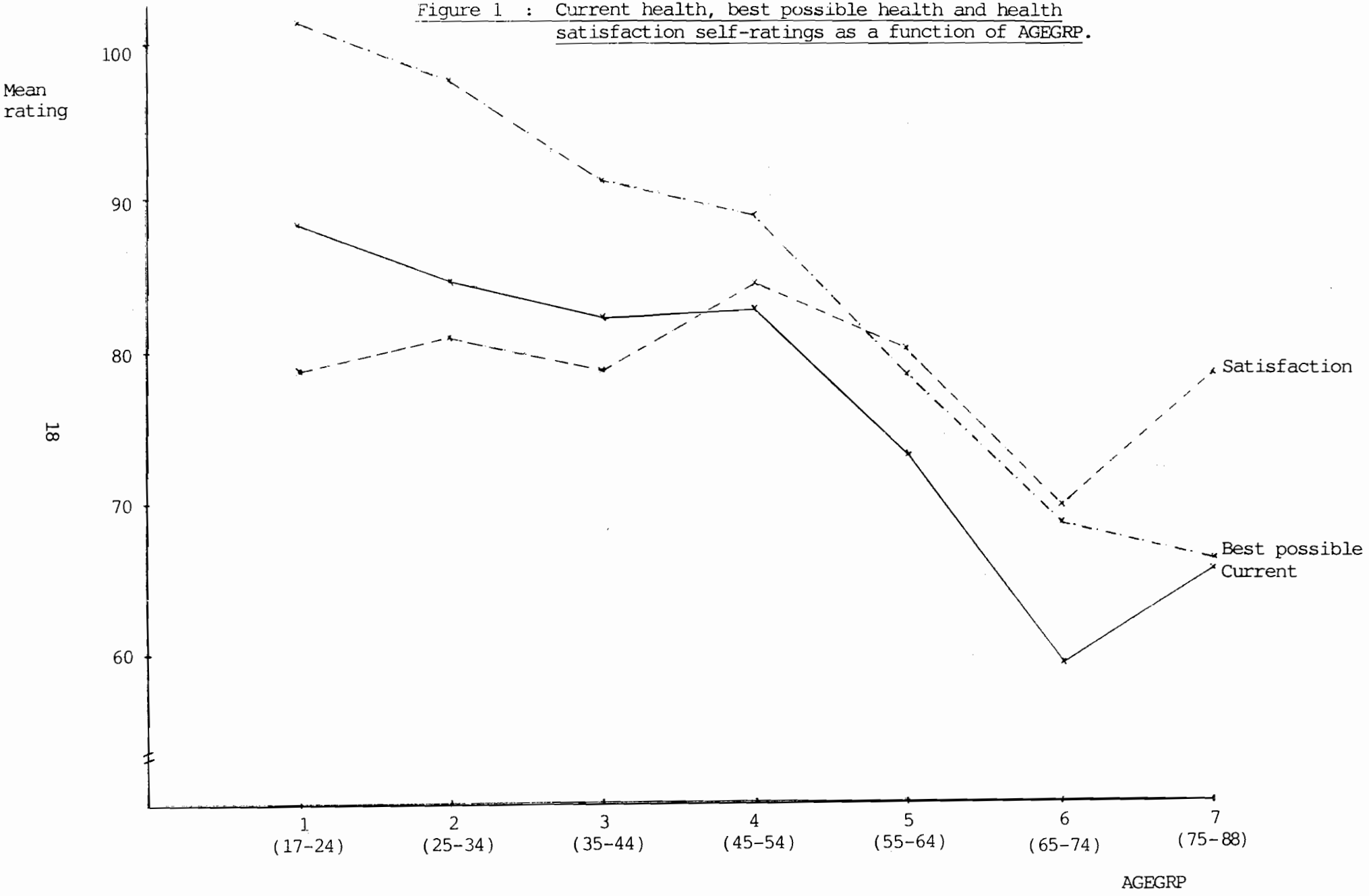
the individual. Almost inevitably this will shape the beliefs of younger people (who were brought up to see things this way) to a greater extent than those of older individuals (who have been brought up to view things differently). An interpretation in terms of real age effects would see a strengthening in beliefs about the influence of powerful others and chance on health matters to be an inevitable consequence of ageing. These competing explanations are equally plausible, and longitudinal studies would be required to investigate their relative validities.

The negative relationship between AGEGRP and negative life events is hardly surprising in view of the tendency for age to be associated with increasing isolation from the world at large, and for older people to have social support networks set up about them by friends, relatives and social services which almost certainly act as effective buffers against the ravages of chance and fate (Cobb, 1976; Pearlin et al, 1981).

Unfortunately, the important causative question about the direction of influences between MHLC, LFEV and health status cannot be readily answered in the context of a cross-sectional study. However an attempt to examine this issue in the context of the survey results is reported in Wright (1986c).

Moving on to the health self-rating results, detailed consideration of the AGEGRP effects is aided by joint inspection of table 5 (summarising the ANOVA and ANCOVA analyses) and figure 1, which shows mean values for the relevant self-ratings as a function of AGEGRP.

Figure 1 : Current health, best possible health and health satisfaction self-ratings as a function of AGEGRP.



Current self-ratings show a significant AGEGRP effect from the ANOVA analysis, but one which disappears in the ANCOVA analysis. Thus, if older subjects did not experience more medical conditions, suffer greater functional limitations and were not more likely to be chronically ill than younger subjects (see table 3), they would not exhibit reductions in perceived current health status. Mean ratings show a gradual decline from age groups 1 to 4, a sharp decline from age groups 4 to 6 and then a marked upturn in age group 7 (see figure 1). Quite why the sharp decline should begin in age group 4 is not entirely clear, since this age (45-54 years) is not uniquely associated with any particular life stage or 'rites de passage' (as is age 60-65 with retirement). However, the upturn in ratings in the oldest group is consistent with American research (e.g. Ferraro, 1980, Linn & Linn, 1980) which has documented the relatively more favourable health self-ratings of the 'old-old' (75 and over) than the 'old' (65-74). The present results suggest either that the short-term sequelae of retirement are especially damaging to perceived current health status, or - since the sample was entirely noninstitutionalised - that the elderly age group was less representative of what would be typical for the population as a whole than was the 65-74 age group. This is because the chances of institutionalisation almost undoubtedly increase over the age of 75.

Best possible health self-ratings show a more marked consistent decline with age (see figure 1). Since this AGEGRP effect is evident in both the ANOVA and ANCOVA analyses (see table 5), it would seem not to be crucially dependent on current health status. The consistency of this age-related decline and the indication that it is independent of current health status both suggest that it may be largely a function of social representationsof health (see Wright, 1986b). This would refer to a

widespread adherence to a belief to the effect that health tends to deteriorate with increasing age, and that health goals should therefore be modified accordingly.

The final main effect of AGEGRP on the self-ratings is on health satisfaction. However, this effect is only evident in the ANCOVA analyses (see table 5), indicating that age only has an effect on health satisfaction after controlling for the independent health status measures.

Table 9 : Adjusted mean health satisfaction self-ratings as a function of AGEGRP from ANCOVA analysis (after controlling for NCOND, DAYS, FNCLIM, CHS).

AGEGRP							
17-24	25-34	35-44	45-54	55-65	65-74	75-88	Total
1	2	3	4	5	6	7	
72.45 (n=65)	77.07 (n=73)	75.75 (n=74)	82.12 (n=62)	86.70 (n=42)	79.83 (n=40)	92.89 (n=19)	79.02 (n=375)

Adjusted health satisfaction group mean ratings as a function of AGEGRP (from the ANCOVA analysis) are shows in table 9, and unadjusted group means in figure 1. Controlling for the independent health status measures has the effect of transforming the relatively flat distribution of means in the graph into an almost linear increase in health satisfaction as a function of age in table 9, although there is again a dip in ratings in age group 6 (65-74 years old).

It is of interest to look at the unadjusted health satisfaction self-ratings from the viewpoint of Multiple Discrepancies Theory. Consistent with MDT, mean health satisfaction ratings as a function of AGEGRP seem to reflect quite closely the size of the gap between current self-ratings and best possible self-ratings (see figure 1). Thus, as the gap narrows with increasing age up to age group 4, satisfaction rises. The subsequent widening of the gap from age groups 4 to 6 is accompanied by a decline in

satisfaction. Finally, the marked contraction of the gap in age group 7 is accompanied by a large rise in mean health satisfaction.

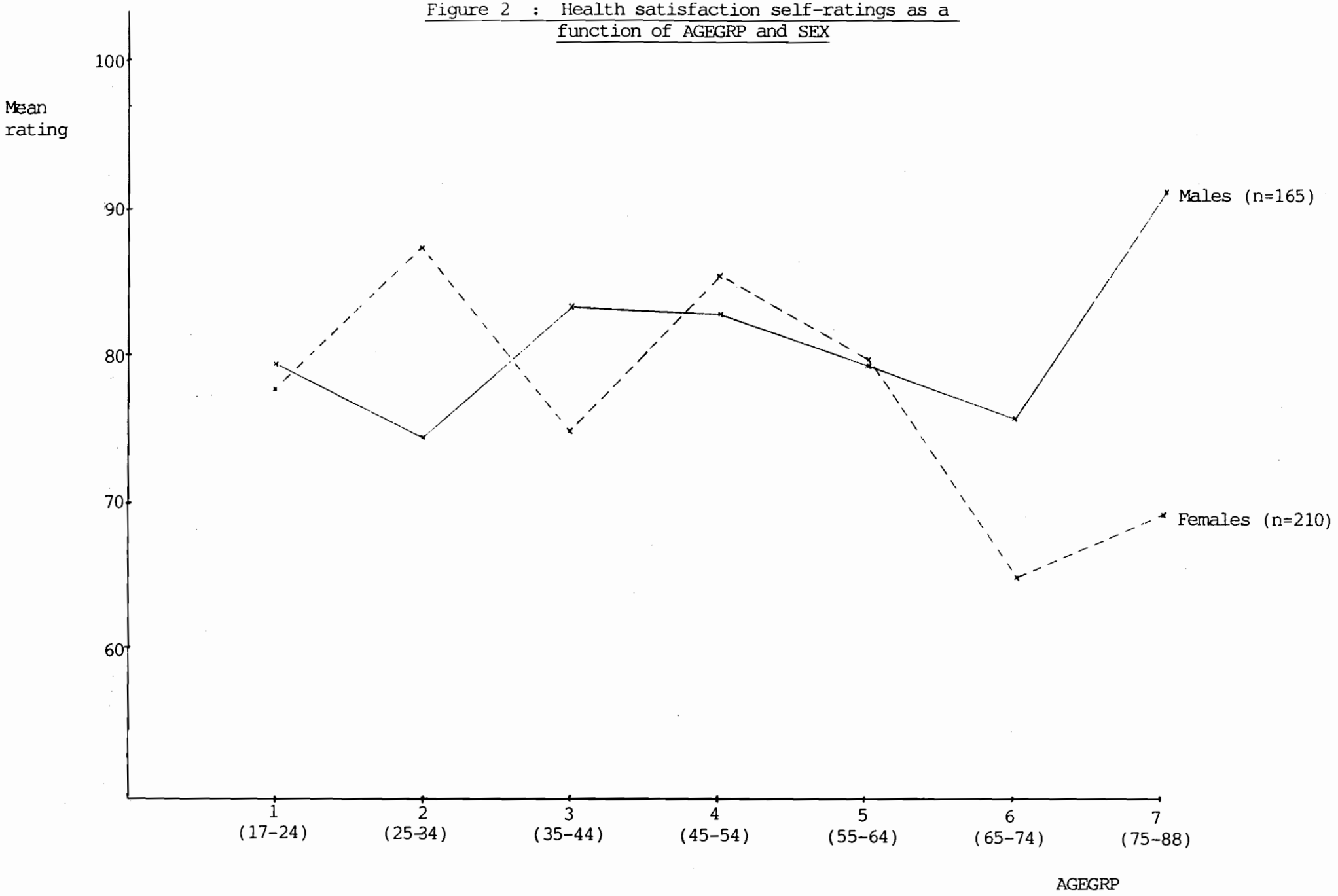
However, more generally, the data from the survey were not found to fit the predictions of MDT (see Wright 1985b). This may have been due to the use of calculated rather than directly measured or perceived gaps in the present study, as Michalos (1985) has noted that the results of these two approaches may well not be completely consistent but may blend together "a bit like a horse and rabbit stew" (Michalos, 1985;p.351). Further testing of MDT is obviously called for employing both perceived and calculated gap strategies.

Table 10 : Mean previous best health self-ratings as a function of SEX from ANOVA analysis, and adjusted means from ANCOVA analysis (after controlling for NCOND, DAYS, FNCLIM, CHS).

	Sex		Total
	Male	Female	
ANOVA	107.64 (n=165)	97.21 (n=210)	99.16 (n=375)
ANCOVA	107.31 (n=165)	97.47 (n=210)	99.16 (n=375)

The only main effect of SEX on the ratings emerges from both the ANOVA and ANCOVA analyses of previous best health self-ratings (see table 5). This is quite surprising in view of the tendency for previous best self-ratings to show a ceiling effect (see table 2). Table 10 indicates that this sex difference takes the form of males giving higher ratings than females. This is somewhat difficult to interpret in view of the failure to find a sex difference in current health self-ratings despite the report of more medical conditions by females (see table 3). However it may simply be that the health self-rating 'ceiling' for women is lower than that for men reflecting a real and persistent sex difference in perceived health status.

Figure 2 : Health satisfaction self-ratings as a function of AGEGRP and SEX

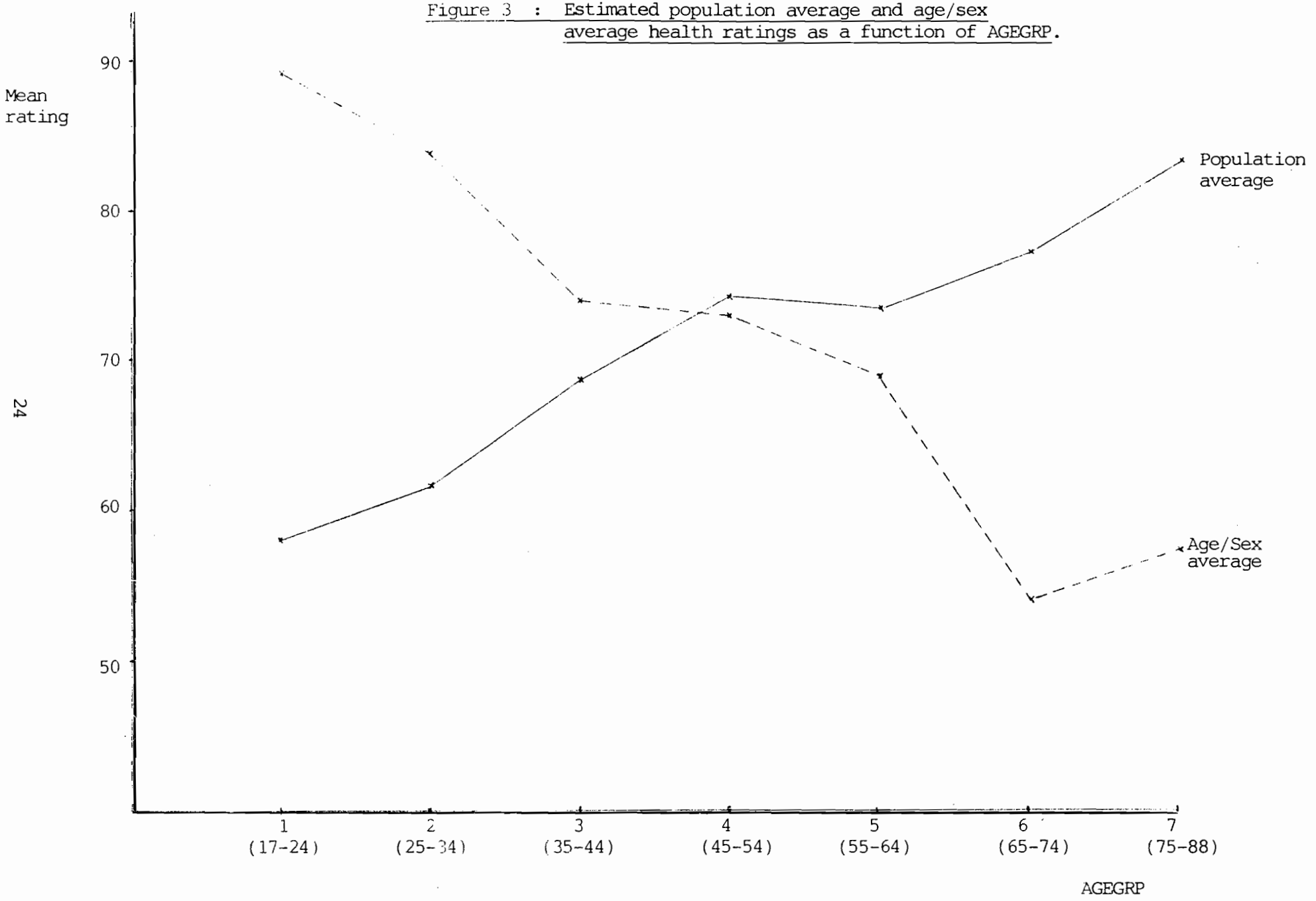


There is also a significant SEX by AGEGRP interaction effect on health satisfaction self-ratings which appears in both the ANOVA and ANCOVA analyses (see table 5). The relevant group mean ratings are depicted in figure 2. The graph indicates that health satisfaction is highest in males in age groups 7 and 3 and lowest in age groups 2 and 6, whilst among females health satisfaction is highest in age groups 2 and 4 and lowest in age groups 6 and 7. There is no obvious explanation for this interaction, but it seems plausible that the high point in health satisfaction for women may be a direct function of childbearing (age group 2, 25-34 years old), and that women's health satisfaction ratings may be more closely tied to perceived current health status than are those of men (thus accounting for the general decline with increasing age).

Finally, the estimated population and age/sex average health ratings both show substantial AGEGRP effects in both the ANOVA and ANCOVA analyses indicating an independence of these effects from current health status (see table 5). The strong and consistent decline in age/sex average ratings with increasing age (see figure 3) is wholly consistent with an influence of social representations of health (see above). However, the tendency for age/sex average ratings to show a remarkably similar pattern with increasing age to that of current self-ratings (compare figures 1 and 3) suggests the operation of false consensus effect, despite the remaining presence of an AGEGRP influence on age/sex average ratings after controlling for the independent health status measures.

The evidence is therefore suggestive of joint social representation and false consensus effects on the age/sex average ratings, although more detailed investigation would be required to distinguish the relative contributions of each to shaping age/sex average estimations.

Figure 3 : Estimated population average and age/sex average health ratings as a function of AGEGRP.



Population average health ratings also show a relatively linear relationship with age (see figure 3), although in contrast with the age/sex averages, this takes the form of an increase with increasing age. Comparison of the two graphs in figure 3 suggests that the more abstract estimated population average ratings may be derived from a contrast with the age/sex average ratings about a 'mirror' centred at a mean rating of about 73. This would also fit in with the instructions to subjects characterising the subject of the population average rating as someone of about age 40.

AGEGRP shows virtually no effect on the importance of wellness of each life stage choices, although there is a very slight tendency for older subjects to pick later life stages for their first and third choices (see table 6). However, when the data are collapsed across the three choices, AGEGRP and SEX, a clear consensus emerges as to the life stages during which wellness is most important (see table 9). The most frequently selected life stage is that of 'bringing up children', and the next most common that of 'infancy'. The least frequently selected are 'setting up home for the first time', 'at the peak of earning power ' and 'starting school', with the remaining life stages all being selected at frequencies close to what would be expected on a chance basis.

This evidence is of interest insofar as it indicates a broad agreement across the community about the priorities for health care provision at different stages of life.

Despite this degree of overall agreement, however, there are significant sex differences in priorities for the importance of wellness at each life stage. These are evident for first ($X^2=22.6$; df=9; $p<0.01$),

second (X^2=22.3; df=9; $p<0.01$) and third choices (X^2=35.6; df=9; $p<0.001$), with all the relevant frequency data listed in table 8. However, by picking out the life stages within each choice for which sex differences are most pronounced, an overall picture of the two sexes' priorities can be constructed, since sex differences for each life stage tend to be consistent in direction across the three choices. Thus women are more likely to emphasise bringing up children, looking after elderly relatives and coping with the death of a spouse, whilst men place relatively more emphasis on starting school, setting up home for the first time and being at the peak of their earning power.

These findings are remarkably consistent with traditional sex differences in social roles, with women being expected to care for others (children and elderly relatives) and being more dependent (and therefore more affected by a spouse's death), and men devoting their energies to achieving personal social status (through education, home and earning power). In both cases wellness would be seen as important for the execution of their respective social roles. Despite this sex difference in the relative priorities of ensuring wellness at certain life stages, however, a consensus about absolute priorities still remains as noted above.

Further research on priorities for the importance of wellness at each stage of life would be valuable - ideally employing interval scale ratings to assess the perceived importance of wellness at each life stage. This would have important advantages over the frequency data reported here.

CONCLUSIONS

Age and sex appear to have important influences on several of the various health-related dependent variables employed in the present study.

Thus, age is positively associated with three of the independent health status measures (NCOND, FNCLIM, CHS), scores on the two 'external' health locus of control scales (PHLC, CHLC), estimated population average health ratings and health satisfaction self-ratings (although only after controlling for the independent health status measures), and negatively related to negative life events scores, current health self ratings (although this effect is mediated by the independent health status factors), age/sex average health ratings and best possible health self-ratings. The age effects on estimated age/sex average ratings and best possible self-ratings provide some support for the theoretical approaches concerning social representations of health and false consensus effects, whilst the age effects on current health, best possible health and health satisfaction self-ratings tie in neatly with Multiple Discrepancies Theory.

Significant sex differences appear on number of medical conditions (higher for females), previous best health self-ratings (lower for females) and on choices of life stage on each of the importance of wellness items - with the two sexes emphasising the importance of wellness at life stages associated with their traditional social roles. However, a broad consensus is apparent, placing particular emphasis on wellness during early parenthood and in infancy.

The present results represent no more than a provisional foray into the influence of age and sex on self-perceived health, health attitudes and health concerns. It would seem likely to be very valuable, therefore, to carry out more detailed studies into the mediation of age and sex effects on health self-ratings, and into health care priorities as a function of age and sex.

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