LIVING ARRANGEMENTS AND THE HEALTH OF OLDER PERSONS IN DEVELOPED COUNTRIES

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INTRODUCTION

In 1950/51, only a handful of developed countries had populations in which those aged 65 comprised 10 per cent, or slightly more, of the total. By 1996, virtually all developed countries were in this position, and in most of Northern, Southern and Western Europe those over 65 accounted for 15 per cent or more of the population (Council of Europe, 1998). In much of Europe and North America recent increases in the proportion of very old people have been particularly marked (Grundy, 1996).

The same post-Second World War period has seen substantial changes in the living arrangements of older people. The proportions living alone have increased and the proportions living in complex households with kin other than members of the nuclear family have plummeted (Kobrin, 1976; Pampel, 1983; Murphy and Grundy, 1994; Elman and Uhlenberg, 1995; Weinick, 1995). These trends are illustrated for England and Wales in figures I and II.

Figures Ia and Ib show that the average size of households in which elderly people lived was considerably lower in 1991 than in 1981 or 1971. It can also be seen that the relationship between age and household size has changed. In 1971, household size initially fell in the younger elderly groups (reflecting the effects of widowhood and the departure of children from the home) but rose at later ages, suggesting movement by some into the households of relatives. By 1991, this latter rise is not apparent at all among men and is only manifest among women among the extreme aged. Indeed, by 1991, as shown in figures IIa and IIb, the proportion of adults living alone increased steadily throughout adult life, reaching very high levels among those aged 85 and over, particularly among women. The changes between 1971 and 1991 do not reflect increases in widowhood—on the contrary, sex differentials in England and Wales and in some developed countries have recently narrowed, with a consequent increase in the proportion of elderly women still living with a spouse (Murphy and Grundy, 1994). However, while living with a spouse has in some (but not all) developed countries become slightly more prevalent at older ages, co-residence with a child in the very old age groups has become much less usual. In England and Wales, as recently as 1971, 41 per cent of women aged 85 or over lived in two- or three-generation households; by 1991, this proportion had fallen to 21 per cent (Grundy,

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1999). Trends in other Western populations show similar declines (Börsch-Supan, 1990; Sundstrom, 1994; Kramarow, 1995; Waehrer and Crystal, 1995). In Japan, where co-residence between elderly parents and their children has historically been the norm, rates of co-residence remain much higher than in the West, but declines have been proportionately just as great (Ogawa and Retherford, 1997).

(FIGURES Ia AND Ib HERE)

(FIGURES IIa AND IIb HERE

This conjunction of rapid growth in both the number and proportion of older people, particularly very old people, and the proportion living alone has raised a number of concerns among policy makers,[1] particularly with regard to the implications for demand for formal care and support services (Allen and Perkins, 1995).

LIVING ARRANGEMENTS AND USE OF SERVICES

A large share of the research on the relationship between health and household composition among older people has focused on the implications of the choice of living arrangements for the provision of care (Cafferata, 1987; Arber, Gilbert and Evandrou, 1988; Chappell, 1991). Some studies (Arber, Gilbert and Evandrou, 1988) have found that the allocation of formal care (in terms of the provision of statutory services) was influenced more by household composition than by the gender of either the aged person or the caregiver. Thus, in the mid-1980s, older people in the United Kingdom of Great Britain and Northern Ireland who lived alone were five times more likely to receive home help support than those who were married. Associations between living arrangements and the use of medical services (as opposed to support services provided in the home) are less clear-cut. Some studies have found that those living with others are more likely to use such services, as family members facilitate access and encourage medical consultation (Magaziner and others, 1988); however, results from other studies conflict with this finding (Cafferata, 1987). Those living alone do, however, have a much higher rate of entry into long-term institutional care than do those living with others (Dolinsky and Rosenwaike, 1988; Grundy 1992a; Grundy, and Glaser, 1997). However, risks for never-married elderly people tend to be even higher, suggesting that part of this association reflects a possible lack of relatives, rather than living alone per se.

This research suggests that, not surprisingly, a lack of intra-household support has consequences for the demand for extra-household help, including formally provided assistance. A second issue of importance is the possible consequences for the well-being of those in the older age groups. It is well established that selection

effects (considered in more detail below) are an important factor in accounting for differences in the health status of marital status groups, but the literature on associations between marital status and health and on links between social ties and health also suggests a number of mechanisms whereby living with others might have beneficial effects on health. These include the provision of services such as meals, nursing care when ill and support and companionship (Verbrugge, 1979; Umberson, 1992; Hahn, 1993; Murphy, Glaser and Grundy, 1997). Marriage or co-residence with other relatives may also bring material advantages, especially for women (Hahn, 1993; Rendall and Speare, 1995). Finally, marriage (or co-residence) may bring control of unhealthy behaviours; unmarried men, for example, have higher rates of alcohol consumption than do married men (Umberson, 1992).

While living with a spouse would seem to confer various health-related benefits, it does not necessarily follow that living with someone other than a spouse (the only likely "choice" for an elderly widow) confers similar advantages over living alone. Evidence on this, reviewed below, is sparse compared with the literature on marital status and even more complicated by the problem of selection effects.

LIVING ARRANGEMENTS AND HEALTH: PREVIOUS STUDIES

There is some rather fragmentary evidence that living alone may be associated with various health-related disadvantages. Davis and others (1990), for example, found a greater prevalence of dietary inadequacy among elderly people living alone in the United States of America. There are also some studies that have found higher rates of poor health among people living alone. Murphy (1997), for example, reported that, in the United Kingdom, rates of long-standing illness were higher among those living alone than among those in other types of household, but only in middle-aged groups. Welin and others (1985), in a large prospective study of middle-aged and elderly Norwegian men, found an inverse relationship between household size and mortality, that is, those with the most co-residents had the lowest risks of death. Mor and others (1989), using data from another longitudinal study, the United States Longitudinal Study of Aging, found that after controlling quite carefully for initial health status, elderly people living alone had a higher risk of functional decline than did others. Sarwari and others (1998), in a prospective study of elderly white women in Baltimore, Maryland, found that among women with severe impairment at the baseline, those who lived alone experienced significantly greater deterioration in functional status than did those living with others, particularly those living with non-spouse others. However, among the women without severe impairment at the baseline, the reverse was the case—those living alone experienced the least deterioration.

A wider range of research has reported relationships between living arrangements and mental health. Harrison and others (1999), in a survey of adults aged 18 and over in the north-west of England, found that

those living alone had a 50 per cent higher risk of anxiety and depression (measured by score on the General Health Questionnaire (GHQ)) than did those living with at least one other adult, even after controlling for age and sex. (The risk for adults living only with children was even higher.) However, marital status was not controlled for. Results from the 1984 Health and Lifestyle Survey in the United Kingdom also showed poorer mental health (indicated by GHQ score) among those living alone, including elderly men. In that study, 40 per cent of men aged 65 and over who lived alone were above the threshold indicating probable psychiatric morbidity compared with 26 per cent of those living with a spouse and 29 per cent of those living with people other than a spouse. A slightly higher proportion of elderly women living alone were also above this threshold when compared with women living with persons other than a spouse, but this latter difference was not statistically significant (Grundy, 1989). (These differences, in cross-sectional studies, do not, of course, indicate a causal link; it may be that those prone to depression and anxiety have fewer chances of finding, or remaining with, co-residents.)

The studies referred to above show associations between living alone, or with fewer people, and various indicators of poor health, particularly poor psychological health, although in only a few of them is this relationship apparent in elderly age groups. More numerous are studies of elderly people that show those living alone, at least in the older old age groups, to be healthier than their counterparts living with adults other than a spouse, or in some cases, even than married adults (Fengler and others, 1983; Cafferata, 1987; Dale, Evandrou and Arber, 1987; Arber, Gilbert and Evandrou, 1988; Magaziner and others, 1988; Crimmins and Ingegneri, 1990; Soldo, Wolf and Agree, 1990; Stinner, Byun and Paita, 1990; Spitze, Logan and Robinson, 1992; Prohanska, Mermelstein and Van Nostrand, 1993; Glaser, Murphy and Grundy, 1997; Hebert, Brayne and Spiegelhalter, 1999).

LIVING ARRANGEMENTS AND HEALTH: EVIDENCE FROM THE UNITED KINGDOM

In the following section, we use data from a microsample drawn from the 1991 census of the United Kingdom (the 1 per cent sample of anonymized records) and from the 1993-1995 health surveys for England to examine variations in indicators of health in the older population. Table 1 shows the prevalence of self-reported limiting long-term illness by age group and gender according to family/household type and relationship to the household "reference person" (roughly equivalent to head of household).

(TABLE 1 HERE)

It can be seen that, as would be expected, the prevalence of poor health as measured here increases with age; the extent of variation by living arrangement also increases with age. Among men aged 65-74, those

living with a partner and a child have the lowest rates of illness, and lone parents and those who are not part of a family the highest. (Families are defined as co-resident couples or single persons living with never-married children.) Among women of this age, those with a spouse and children (who, within the broad age band would be younger on average) also have slightly lower rates of long-term illness than those in other groups. Among older women, lone parents appear to have the worst health. Among both men and women, rates of long-term illness among those living alone and those who, although not part of a family, lived with others (for example, ever-married children or siblings) were identical. Looking at variations by relationship to the head of household, it can be seen that rates of poor health are elevated among those who are the parent or parent-in-law of the household head. A similar picture is evident when the prevalence of long-term illness according to the number of generations in the household are examined (see figures IIIa and IIIb). Differences are slight among the younger elderly, but in older groups of women are lowest for those in one-generation households. Among men, those in three-generation households report the highest prevalence of ill health in the age groups 75-79 and 80-84, while at age 85+, living in a two-generation household appears most disadvantageous.

(FIGURES IIIa AND IIIb HERE)

The health survey for England (a large, nationally representative survey) includes more detailed information on health status and on health-related behaviours. These data are used below to compare elderly people living alone with those living with a spouse and those not living with a spouse but with at least one other person. Three aspects of health are examined: smoking behaviour, psychiatric morbidity as indicated by GHQ score, and self-rated health status.

Figures IVa and IVb show the prevalence of smoking among men and women, respectively, according to whether they lived alone, with a spouse (with or without others) or in some other type of private household (for example, with a child). Rates of smoking were lower among married persons (except among women aged 85 and over), although variations between those living alone and those living with others were less consistent.

(FIGURES IVa AND IVb HERE)

Among men, the prevalence of probable psychiatric morbidity (indicated by a score of 4 or more on the GHQ) was also lowest among the married (see figure Va), although differences between those living alone and those living with others were slight. Among women over 80, however, the lowest rates of morbidity were observed among those living alone.

(FIGURE Va and Vb HERE)

Results from multivariate analyses of variations in psychiatric morbidity, and of poor self-rated health, are shown in table 2. Among men, psychiatric morbidity was significantly higher among those living alone or with others compared with those living with a spouse, even after control for age, smoking, social class and physical health. However, the difference between those living alone and those living with others was not significant. The proportions rating their health as poor (bad or very bad) were also higher among men living alone and men living with others, compared with those living with a spouse, but these differences were not significant once other factors were controlled for.

(TABLE 2 HERE)

These results show lower rates of smoking among people living with a spouse, consistent with social control hypotheses, and that men living with a spouse had a lower prevalence of probable psychiatric morbidity than did other men, even after taking other factors like smoking, social class and physical health into account. However, for those not living with a spouse, there is no apparent advantage in living with others rather than living alone; indeed, among women, the reverse seems to be the case. For women, the odds of psychiatric morbidity were higher for those living with others, both when compared with those living with a spouse and in comparison with those living alone. There were no significant differences in reported poor health.

Interpretation of these results is complicated by the need to allow for selection effects, including the omission of the population in institutions. A first glance at tables 1 and 2, and at similar representations in the literature, might suggest that living with relatives is damaging to health. Before dismissing this hypothesis, it should be noted that there are circumstances in which co-residence might have potentially health-damaging effects. Among younger elderly people, intergenerational co-residence may arise because of the return home of adult children who have experienced divorce or other adversity, or the failure of health-impaired or otherwise disadvantaged children to leave home at all (Grundy, 2000). Such circumstances, we may hypothesize, are potentially stressful and so possibly damaging to health. In older elderly groups in societies that place a high value on independence and autonomy, such as those of Northern Europe and North America, dependence on younger relatives may also cause stress (Lee, 1985). Wenger (1984), for example, found in a survey of elderly people in Wales that those who lived with their children expressed higher levels of loneliness and dissatisfaction than did those who lived alone. Finally, in a small minority of cases, disabled elderly people may be subject to physical or mental abuse by co-residents (Wolf, 1997). However, these caveats

aside, it is clear that a crucial factor underlying observed relationships between living arrangements and health is that of health-related selection in particular types of living arrangements.

HEALTH SELECTION AND LIVING ARRANGEMENTS

The very extensive literature on associations between marital status and health has shown that the married have the best health, followed by the single, the widowed and then the divorced. Apart from the direct benefits of marriage considered earlier on, a major explanation for this pattern is health-related selection in and out of marriage. Ill people are less likely to marry, or remarry (Brown and Giesy, 1986). Those who are widowed, especially at relatively young ages, may also share various characteristics with their deceased spouse, including a common environment, and so may themselves be selected for poor health; additionally, the stress of bereavement or marital breakdown may itself have negative consequences for health (Bowling, 1994). Most studies have found that relationships between indicators of health and marital status are weaker in older age groups. Goldman, Korenman and Weinstein (1995) found that, at older ages, never-married women had better health outcomes than did their married counterparts. However, their analyses were based on data that excluded the population in institutions, a potential source of bias because the likelihood of entering an institution is strongly associated with both marital status and health. Analyses based on the whole population, including those in institutions, have shown a continuing, although weaker, advantage for the married even in the oldest age groups (Murphy, Glaser and Grundy, 1997).

The importance of marriage-related selection effects will vary according to the proportions in different marital status groups. Cross-national studies have shown that the smaller the proportions in the non-married groups, the greater their excess risk, as in these countries single people are more "selected" than in populations that include larger proportions of unmarried individuals (Hu and Goldman, 1990). This is an important point to remember in interpreting associations between marital status and health (or living arrangements and health) in developed countries, as there are considerable variations in marital status distributions between, for example, Western and Eastern Europe, Western Europe and North America and Western countries and Japan and other newly industrialized South-east Asian countries (Grundy, 1996). There are also large variations in the proportions living alone and, conversely, in co-residence with children, with solitary living being most prevalent in Northern Europe and the United States of America and living with children more common in Eastern and Southern Europe and Japan (Wall, 1989; Wolf, 1990; Grundy, 1992b; Sundstrom, 1994).

Whereas in the case of marriage, selective and protective effects are hypothesized to operate in the same direction (both tending to confer advantage on the married), in the case of the association between living

arrangements and health in the older age groups, the impact of "protection" and "selection" is likely to operate differentially.

There is considerable evidence to indicate that increases in disability among older people lead to changes in their living arrangements, in particular to moves into institutions or the households of relatives (Wolf and Soldo, 1988; Crimmins and Ingegneri, 1990; Stinner, Byun and Paita, 1990; Speare, Avery and Lawton, 1991; Angel, Angel and Himes, 1992; Grundy, 1993;). The health status, and subsequent mortality, of individuals making these kinds of household transitions has been shown to be much worse than that of other elderly people (Speare, Avery and Lawton, 1991; Spitze, Logan and Robinson, 1991; Glaser and Grundy, 1998). Wolf , Burch and Matthews (1990) found that limitations in the ability to undertake very specific tasks (such as meal preparation) were associated with a reduced chance of living alone, suggesting that future studies on the effects of health status on living arrangements would benefit from the use of detailed, rather than global, assessments of health status.

DISCUSSION

The living arrangements of older people have changed dramatically in the recent past, with increases in the proportions living alone, and decreases among those living with others, that is, siblings, parents and children. Hypotheses concerning changes in household structure have examined the impact of demographic, cultural and economic factors (see Grundy, 1992b, and Glaser, 1997, for reviews of this literature). Demographic factors are important, in that changes in kin availability, and the timing of fertility, affect both the feasibility of living with relatives and whether or not children are still likely to be at home when parents reach early old age. Cultural factors may reflect adherence to family norms and values affecting the likelihood of co-residence with an aged parent. Economic factors are believed to determine the extent to which individuals are able to achieve their goals of privacy and independence. A fourth factor that perhaps should be more explicitly considered is the extent to which changes in living arrangements have been facilitated by improvements in the health status of the older population.

Although there are a number of theoretical reasons that suggest that living alone might have adverse effects on the health of at least some older people, the empirical evidence tends not to support this finding, except perhaps in the case of psychiatric morbidity among men. However, in interpreting the data it is essential to take account of the importance of selective moves to institutions and to the households of relatives. Particularly among the very old, living alone may only be an "attractive" or possible option for those in reasonably good health with good support systems. Given that surviving spouses, attentive daughters and personality cannot be randomly allocated, it is unlikely that the "true" effects of living arrangements on the

health of elderly adults can ever be quantified. Moreover, these are certain to vary between populations and individuals. The psychological effect of living alone, for example, may be damaging for older people who regard this situation as undesirable or stigmatizing, but beneficial for those who regard it as a positive indication of independence and autonomy. Social consequences will vary according to other social support opportunities available. Most elderly people in developed countries are in frequent contact with relatives, even though they do not live together, and the proportions at risk of isolation may be small (Crimmins and Ingegneri, 1990; Wolf, 1994; Grundy, Murphy and Shelton, 1999). Murphy (1982), in a study of risk factors for clinical depression, found that among elderly people in the United Kingdom, having a close relationship with someone seen only every two or three weeks was just as "protective" as having a confidant in the same household. It was those who had no close relationship—many of whom had never had such a relationship—who were most at risk. Similarly, we could hypothesize that the reduced possibilities of economies of scale in purchasing adequate housing, heating and food may mean that living alone has adverse consequences for elderly people on low incomes, but no similar effect on the well-off. Lack of domestic services, such as cooking and cleaning, may disadvantage those who lack the relevant skills or ability to undertake these tasks themselves, but have no effect on "competent" elderly people. Hypothesized interactions of this kind are illustrated schematically in table 3. It would seem that future research on unravelling the complex relationships between households and health could be fruitfully focused on investigating these kinds of interactions both within and between countries. Finally, it is important to note that many of the co-residents of elderly people with health problems may themselves be in poor health; data from the United Kingdom show that those with a long-term illness are more likely than others to live in households including others with long-term illness (Glaser, Murphy and Grundy, 1997). This suggests that policy makers need to consider household, rather than just individual, characteristics when deciding on the allocation of services.

(TABLE 3 HERE)

NOTES

[1]As one contributory factor to declines in co-residence may be declines in the availability of kin resulting from falls in fertility (and consequent age-structure changes), these two trends are interrelated.

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TABLE 1. PREVALENCE OF LIMITING LONG-TERM ILLNESS BY FAMILY/HOUSEHOLD TYPE AND RELATIONSHIP TO HOUSEHOLD HEAD, UNITED KINGDOM, 1991

(Percentage)

	Men			*Women*		
Household type	*65-74*	*75-84*	*85+*	*65-74*	*75-84*	*85+*
Couple+children	32	39	60	26	48	-
Couple no children	34	41	55	30	45	58
Lone parent	39	44	63	32	52	74
Not in family, lives with others	38	48	55	33	47	62
Lives alone	38	48	55	33	47	62
Relationship to head of household						
Head or partner	34	43	55	31	46	62
Parent or parent-in-law	39	54	69	38	59	73
Other	35	41	70	29	50	64

Source: Analysis of samples of anonymized records.

TABLE 2. ASSOCIATIONS BETWEEN LIVING ARRANGEMENTS AND HEALTH AMONG PEOPLE AGED 65 AND OVER IN PRIVATE HOUSEHOLDS, ENGLAND, 1993-1995

	Psychiatric morbidity (GHQ 4+)		*Poor self rated health*[a]	
Household type	*Model 1*[b] *odds ratio*	*Model 2*[c] *odds ratio*	*Model 1*[b] *odds ratio*	*Model 2*[c] *odds ratio*
Men				
Lives alone	1.68[d]	1.60[d]	1.18[e]	1.07
Lives with spouse (ref)	1.00	1.00	1.00	1.00
Lives with others	1.67[f]	1.47[e]	1.55[f]	1.32
Number of observations	4 124	4 108	4 199	4 103
Women				
Lives alone	1.05	1.01	0.99	0.89
Lives with spouse (ref)	1.00	1.00	1.00	1.00
Lives with others	1.37[f]	1.28[e]	1.19	1.09
Number of observations	5 744	5 724	5 728	5 709

[a]Rated health "bad" or "very bad" on five-point scale also including "very good", "good" and "fair".
[b]Controlling for age.
[c]Controlling for age, smoking habit, social class, number of somatic health conditions and year of survey.
[d]Probability <0.001.
[e]Probability <0.05.
[f]Probability <0.01.
Source: Analysis of health surveys for England, 1993-1995.

TABLE 3. POSSIBLE EFFECTS OF LIVING ALONE: INTERACTIONS WITH OTHER DOMAINS AND POPULATIONS IN WHICH THE EFFECT MAY BE OBSERVED

Type of effect	*Negative*	*Positive/neutral*
Psychological	If living alone is seen as stigmatizing (lower educated in Japan/ S. Europe)	If independence and autonomy are valued (highly educated in N. Europe/USA)
Economic	Low-income elderly lose opportunities for economies of scale (E. Europe, Greece)	No effect on high-income elderly (high-income USA, N. Europe)
Services/care	Elderly lacking domestic skills ("traditional" men; elderly with short-interval care needs)	No effect on "competent" elderly
Social support	If few other social ties (childless widowers/divorced men, especially in Northern Europe/USA; recent migrants; housebound)	No effect on well-supported

Figure Ia. Average household size lived in, England and Wales
Males

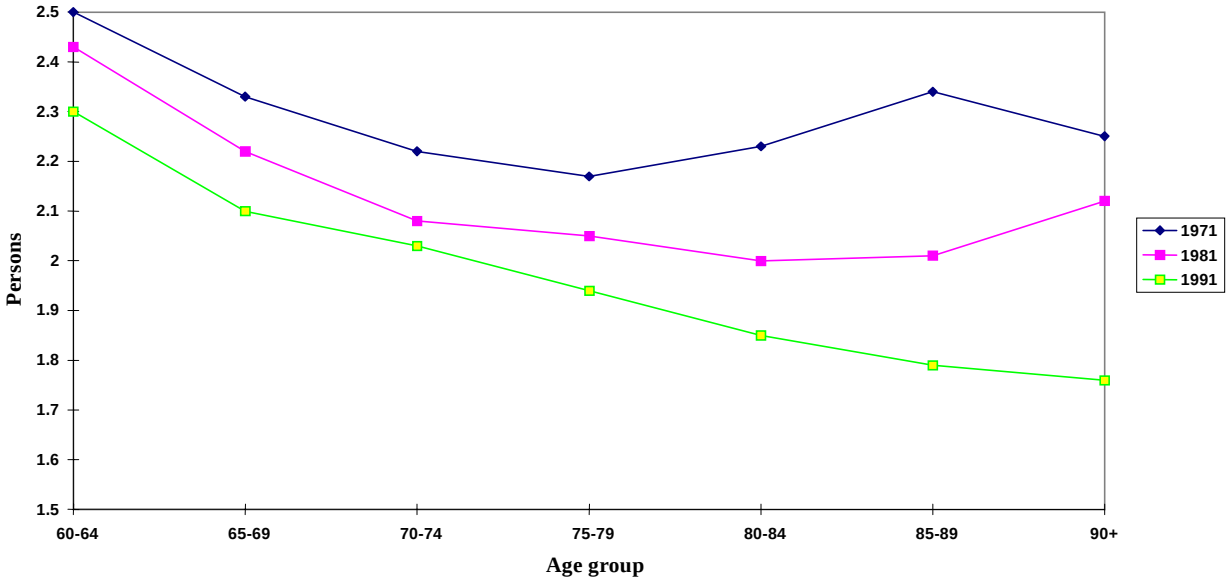

Figure Ib. Average household size lived in, England and Wales
Females

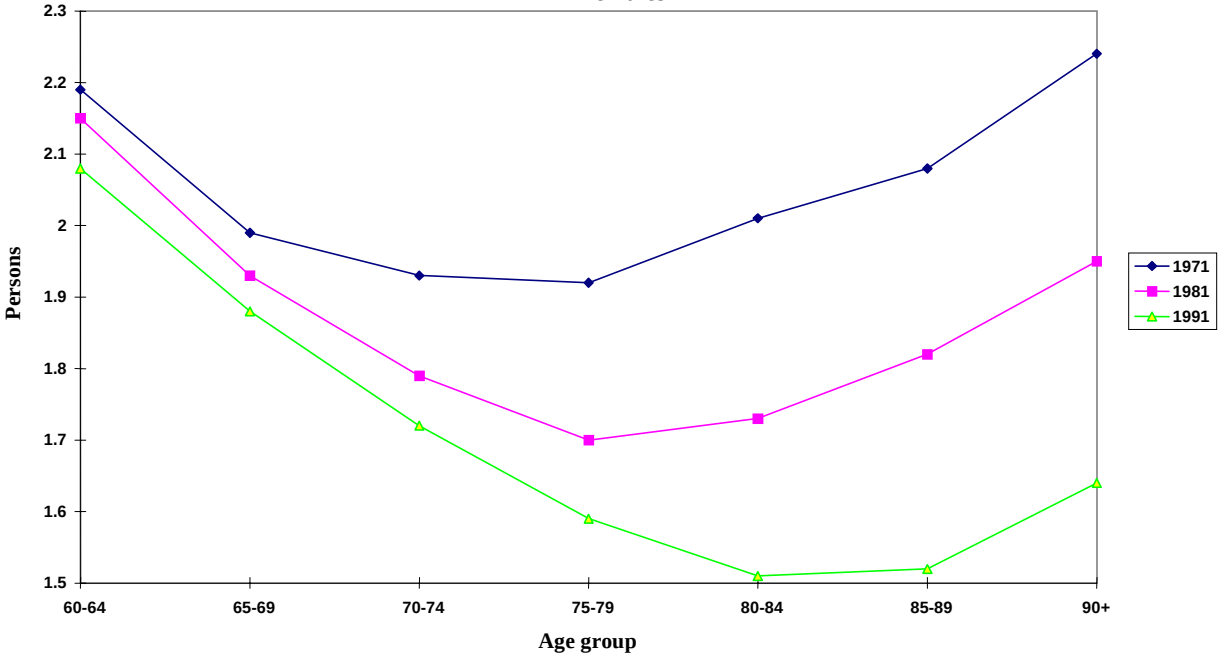

Figure IIa. Household size distribution by age, United Kingdom, 1991

Males

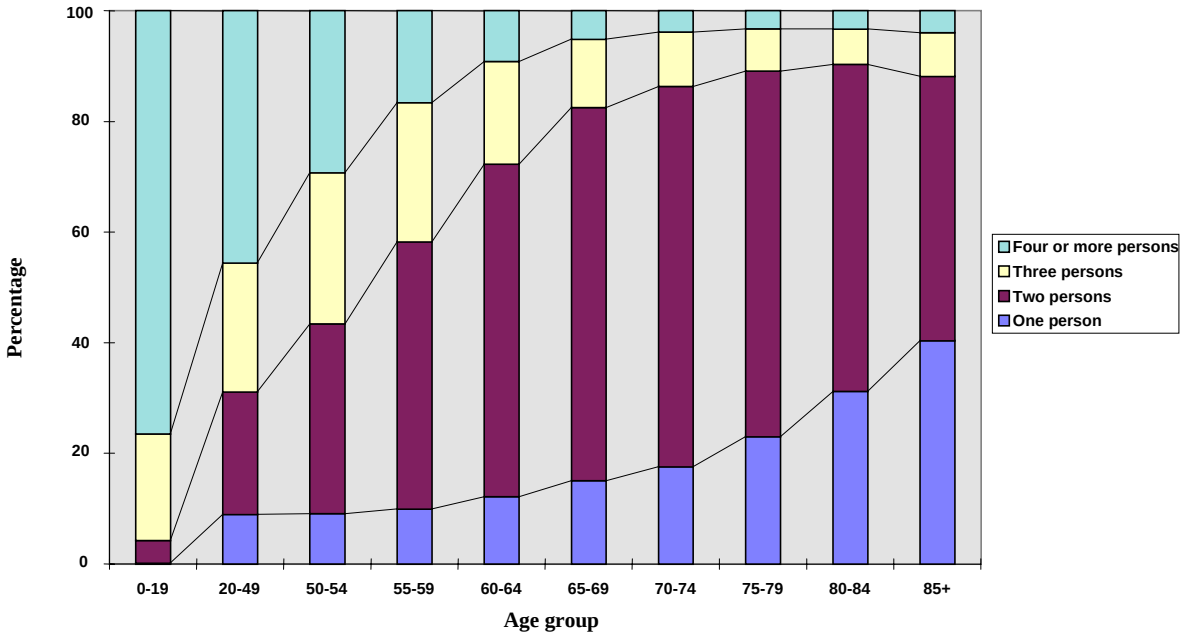

Figure IIb. Household size distribution by age, United Kingdom, 1991

Females

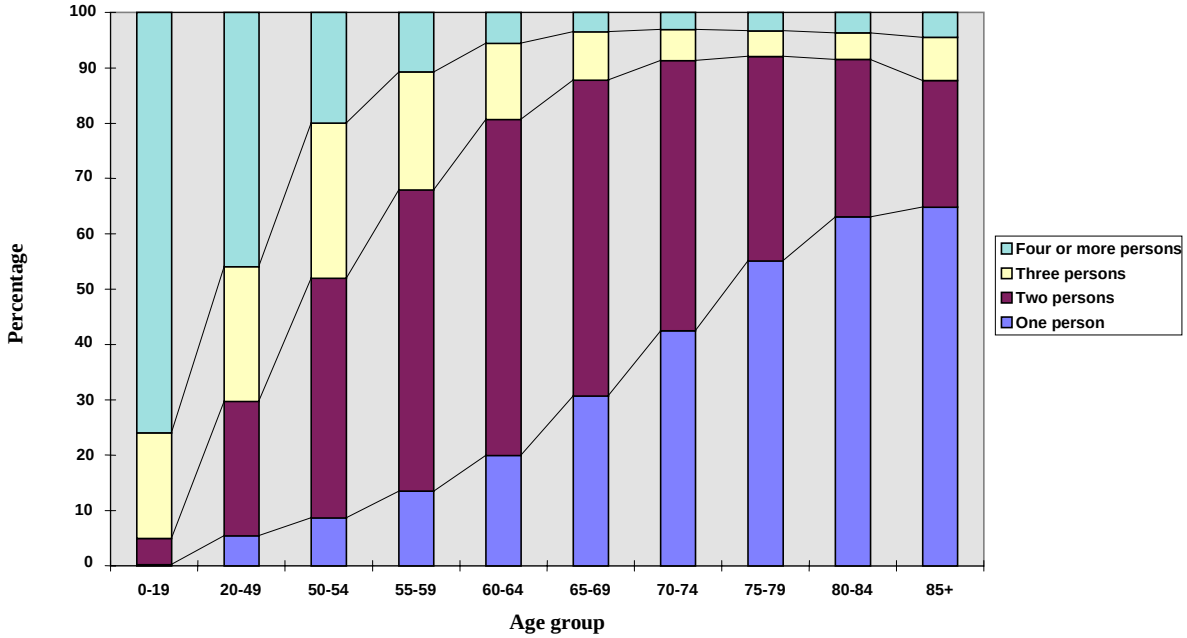

Figure IIIa. Proportion of men with limiting long-term illness by number of generations in the household

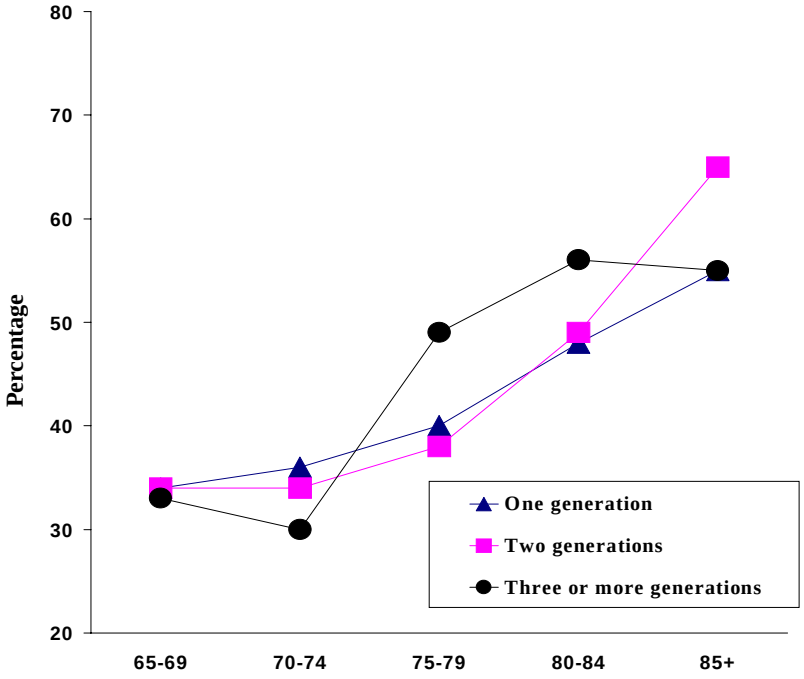

Figure IIIb. Proportion of women with limiting long-term illness by number of generations in the household

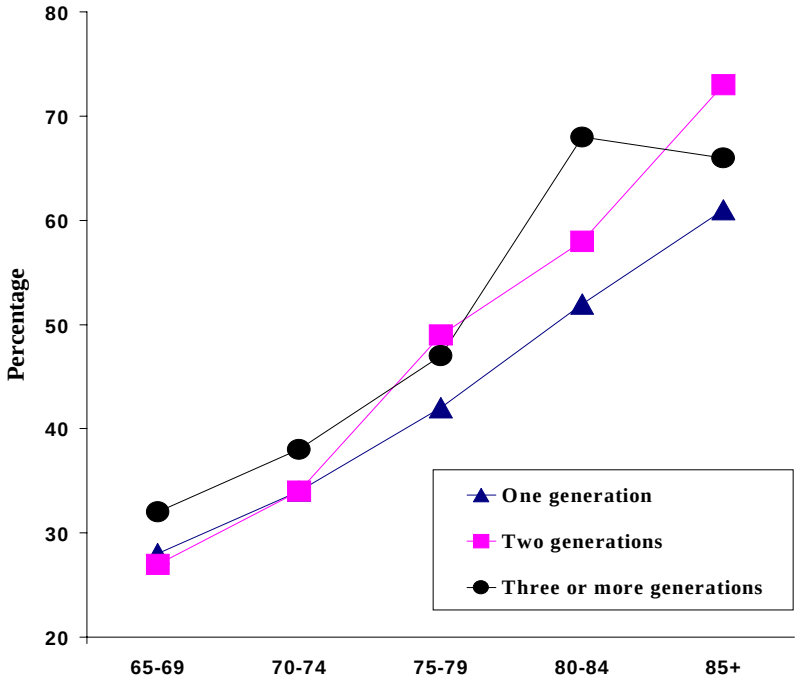

Figure IVa. Prevalence of smoking among elderly men by whether they are living with a spouse, living with others or living alone, England, 1993-1995

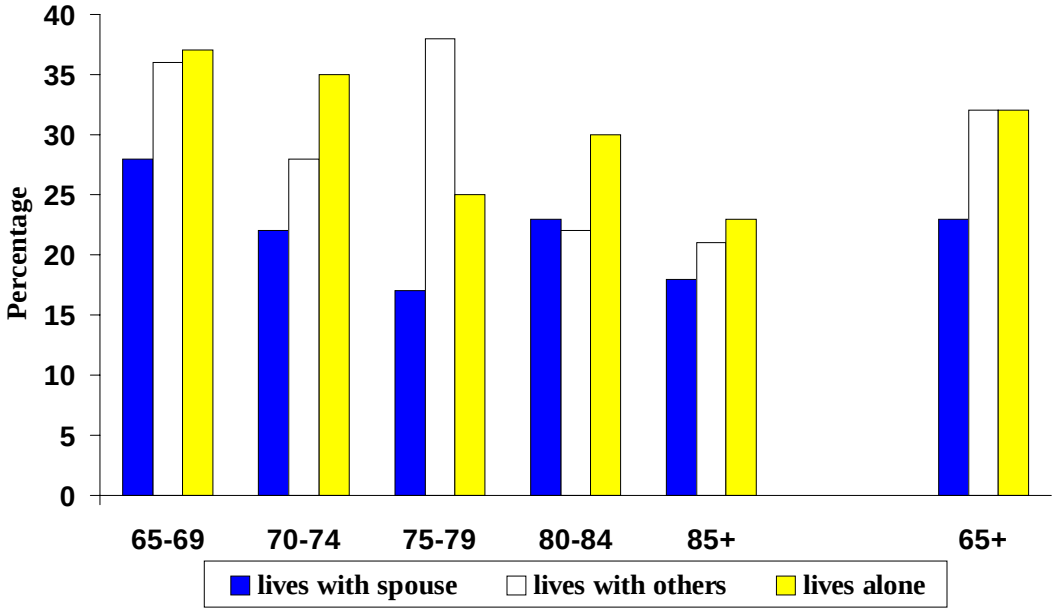

Figure IVb. Prevalence of smoking among elderly women by whether they are living with a spouse, living with others or living alone, England, 1993-1995

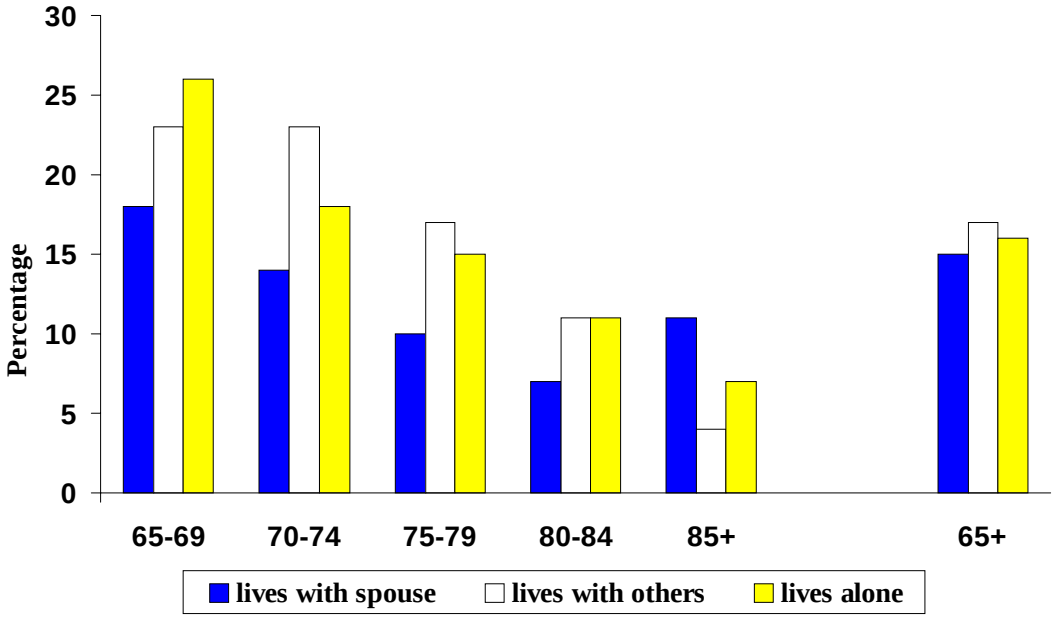

Figure Va. Prevalence of psychiatric morbidity among elderly men by whether they are living with a spouse, living with others or living alone, England, 1993-1995

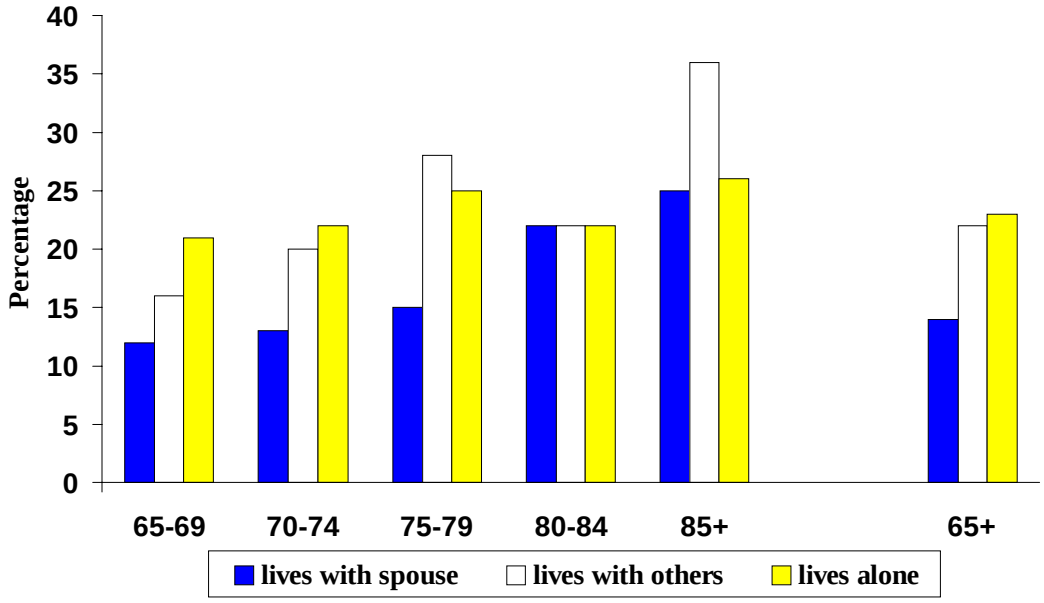

Figure Vb. Prevalence of psychiatric morbidity among elderly women by whether they are living with a spouse, living with others or living alone, England, 1993-1995