

Health risk appraisal in older people 2: the implications for clinicians and commissioners of social isolation risk in older people

Steve Iliffe, Kalpa Kharicha, Danielle Harari, Cameron Swift, Gerhard Gillmann and Andreas E Stuck

ABSTRACT

Background

Social isolation is associated with poorer health, and is seen by the World Health Organisation (WHO) as one of the major issues facing the industrialised world.

Aim

To explore the significance of social isolation in the older population for GPs and for service commissioners.

Design of study

Secondary analysis of baseline data from a randomised controlled trial of health risk appraisal.

Setting

A total of 2641 community-dwelling, non-disabled people aged 65 years and over in suburban London.

Method

Demographic details, social network and risk for social isolation based on the 6-item Lubben Social Network Scale, measures of depressed mood, memory problems, numbers of chronic conditions, medication use, functional ability, self-reported use of medical services.

Results

More than 15% of the older age group were at risk of social isolation, and this risk increased with advancing age. In bivariate analyses risk of social isolation was associated with older age, education up to 16 years only, depressed mood and impaired memory, perceived fair or poor health, perceived difficulty with both basic and instrumental activities of daily living, diminishing functional ability, and fear of falling. Despite poorer health status, those at risk of social isolation did not appear to make greater use of medical services, nor were they at greater risk of hospital admission. Half of those who scored as at risk of social isolation lived with others. Multivariate analysis showed significant independent associations between risk of social isolation and depressed mood and living alone, and weak associations with male sex, impaired memory and perceived poor health.

Conclusion

The risk of social isolation is elevated in older men, older persons who live alone, persons with mood or cognitive problems, but is not associated with greater use of services. These findings would not support population screening for individuals at risk of social isolation with a view to averting service use by timely intervention. Awareness of social isolation should trigger further assessment, and consideration of interventions to alleviate social isolation, treat depression or ameliorate cognitive impairment.

Keywords

depression; elderly, screening; risk; service use; social isolation.

INTRODUCTION

Social isolation is one of the major issues facing the industrialised world,¹ and its prevention has been an aim of the World Health Organisation (WHO) for 30 years.² Social interaction is beneficial for both health and wellbeing,³⁻⁵ while social isolation is associated with elevated blood pressure,⁶ poor physical health and increased mortality,⁶ and mental ill-health including depression,^{7,8} suicide,⁹ and dementia.¹⁰ Supportive social ties enhance physical and mental health among older adults whereas social isolation, loneliness and stressful social ties contribute to a higher risk of disability, poor recovery from illness, and early death.¹¹⁻¹⁴ The magnitude of health risk associated with social isolation is seen as comparable with that of cigarette smoking and other major risk factors.¹⁵

These associations suggest that isolated older people will need, and use, more health and social services than their less isolated peers,¹⁶ a possibility that will interest commissioners as well as service providers. The numbers involved appear to be large. Around 10% of those aged 65 years and over appear to be socially isolated when an objective measure of social interaction is used, while about 12% express

S Iliffe, FRCGP, reader in general practice; K Kharicha, MHS, senior research fellow, Department of Primary Care and Population Sciences, University College London.

D Harari, FRCP, consultant geriatrician and senior lecturer (Hon), Department of Ageing and Health, St Thomas' Hospital, London. C Swift, PhD, FRCP, FRCPI, professor of health care of the elderly, King's College London, Clinical Age Research Unit, Kings College Hospital, London. G Gillmann, MSc, statistician, Department of Social and Preventative Medicine, University of Bern, Switzerland. AE Stuck, MD, professor of geriatrics, University Department of Geriatrics, Spital Bern-Siegler and Inselspital, Bern, Switzerland.

Address for correspondence

Steve Iliffe, Department of Primary Care and Population Sciences, University College London, Hampstead Campus, Rowland Hill Street, London, NW3 2PF.
E-mail: s.iliffe@pcps.ucl.ac.uk

Submitted: 21 January 2006; **Editor's response:** 6 June 2006; **final acceptance:** 19 September 2006.

©British Journal of General Practice 2007; 57: 277-282.

How this fits in

Social isolation appears to be a common problem in later life, and is associated with higher levels of morbidity and service use. Policies and interventions that reduce such social isolation could reduce the illness burden in the most vulnerable stratum of the older population and have implications for service utilisation. The single assessment process now being introduced may be a vehicle for assessing social isolation among older people. However, a number of questions remain unanswered. Do those identified as socially isolated have a significantly higher burden of morbidity and make significantly greater use of services than their more socially-embedded peers? This study's results suggest that being at risk of social isolation is not necessarily associated with greater service use. Those commissioning services should not assume that interventions to relieve isolation will reduce service use. GPs who become aware of social isolation in older patients should investigate this, with particular attention to depression and memory problems.

dissatisfaction with their social contacts, leading to loneliness and emotional isolation.¹ Targeting attention (and services) may be possible because of the concentration of isolation among the poor. Social network studies suggest that older people with low socioeconomic status (indicated by level of education or income) have smaller networks with a larger proportion of kin relationships, compared with those of higher socioeconomic status,¹⁷ thus making them more vulnerable to isolation. While the higher levels of education and increasing affluence of current older cohorts may protect them from social isolation and its associated morbidity, the isolation of the poorest old should remain the centre of policymakers' and practitioners' attention.¹⁷

Given the ageing of the population, policies and interventions that reduce social isolation could reduce the illness burden in the most vulnerable stratum of the older population and have implications for service utilisation. In the UK, the single assessment process of the National Service Framework for Older People¹⁹ expects GPs and community nurses to make initial assessments of the needs of older people, leading, where necessary, to more detailed assessments by social workers, nurses or geriatricians. There is evidence that group-based educational and social activity interventions can alleviate social isolation, although individual interventions (like befriending schemes) do not appear to be effective.²⁰ Assuming that such group interventions were available, practical tools for identifying social isolation would seem useful additions to the clinical and social care repertoire, in brief forms suitable for routine use in clinical encounters and fuller forms for an in-depth, 'diagnostic' interview.

However, before such tools are deployed across general practice and social work, the conclusions reached in social gerontology must be verified before they are actually applied in clinical practice. Is social

isolation present in a significant proportion of community-living older persons? What health characteristics are associated with risk for social isolation in older people? Do those identified as socially isolated make significantly greater use of services than their more socially-embedded peers?

This paper reports on a cross-sectional study of older people conducted in general practice, and has two hypotheses: the risk of social isolation (measured using a validated and standardised scale) occurs in approximately 10% of the community-dwelling, non-disabled population aged 65 years and over; and, being at risk of social isolation in this population is associated with a higher likelihood of having depression symptoms, self-reported memory impairment (independent of depression), more chronic diseases, more medicines, poorer self-reported functional ability, living alone status, and higher service utilisation.

METHOD

Four large group practices in outer London were invited to participate in a randomised controlled trial of health risk appraisal in older people, the methodology of which is reported elsewhere.²¹⁻²³

A purposive sampling strategy was used to recruit practices, its criteria being known interest in primary care for older people and extensive use of electronic medical records for clinical data capture. Patient recruitment and eligibility criteria are described in the accompanying paper.²⁴

Eligible responders were asked to complete a detailed questionnaire on their health and health risk behaviours, the Health Risk Appraisal Older (HRA-O) people instrument.²¹ The HRA-O is a multidimensional, self-completion questionnaire that collects information on health, functional status, health behaviours, preventive care and psychosocial factors in older people. This included a short (6-item) version²⁵ of the Lubben Social Network Scale,²⁶ which was developed specifically for use among older adult populations and which has been widely used in both research and clinical settings.²⁷⁻³² A scale of 0-30 captures the extent of social contact with family and friends, and being at risk of social isolation is defined as having a score of less than 12. The 5-item Mental Health Inventory Screening test³³ was also used to identify depressed mood, a scale for self-reported memory loss,³⁴ and the basic activities of daily living³⁵ (BADL) and instrumental activities of daily living³⁶ (IADL) scales. Self-reported functional change (changed and decreased functioning in the last 12 months);³⁷ and falls; (multiple falls in the last 12 months; and activity limitation due to the fear of falling)³⁸ were measured, as were demographic details and questions about education and sources of income; and self-reported use of health services over the

Table 1. Characteristics associated with risk of social isolation.

Domain	Socially isolated (%) (total n = 397)	Not socially isolated (%) (total n = 2201)	χ^2 (df)	P-value
Aged 65–74 years (n = 1493)	183 (46.1)	1310 (59.5)	24.79, (1)	0.001
Aged 75 years and over (n = 1105)	214 (53.9)	891 (40.5)		
Female	225/397 (56.7)	1190/2201 (54.1)	0.92 (1)	0.340
Basic education only	269/386 (69.7)	1349/2172 (62.1)	8.10 (1)	0.004
State pension only	144/388 (37.1)	729/2166 (33.7)	1.75 (1)	0.190
Depressed mood	117/392 (29.8)	305/2193 (13.9)	61.85 (1)	0.001
Impaired memory	71/369 (19.2)	183/2139 (8.6)	39.48 (1)	0.001
Two or more chronic conditions	242/386 (62.7)	1256/2153 (58.3)	2.57 (1)	0.110
Takes four or more medicines	126/374 (33.7)	713/2138 (33.3)	0.02 (1)	0.900
Difficulty in one or more BADLs ^a	53/393 (13.5)	98/2175 (4.5)	48.50 (1)	0.001
Difficulty in one or more IADLs ^b	197/379 (52.0)	775/2123 (36.5)	32.41 (1)	0.001
Decreased functioning	176/366 (48.1)	791/2086 (37.9)	13.48 (1)	0.001
Multiple falls in last 12 months	50/368 (13.6)	229/2133 (10.7)	2.57 (1)	0.110
Activity limitation through fear of falling	142/380 (37.4)	505/2164 (23.3)	33.56 (1)	0.001
Fair and/or poor health ^c	143/397 (36.0)	500/2201 (22.7)	33.95 (1)	0.001
Stayed overnight in hospital more than once in last 12 months ^d	20/397 (5.0)	80/2201 (3.6)	1.40 (1)	0.240
Visited a doctor more than six times in last 12 months ^d	84/397 (21.2)	508/2201 (23.1)	0.71 (1)	0.400
At risk of hospital admission ^d	154/397 (38.8)	874/2201 (39.7)	0.12 (1)	0.730
Living alone	190/387 (49.1)	652/2176 (30.0)	54.5 (1)	0.001

^aBADL = basic activities of daily living, self-perceived difficulty or need for assistance with: feeding, moving from bed to chair, getting to the toilet, dressing, and bathing). ^bIADL = instrumental activities of daily living, self-perceived difficulty or need for assistance with: using the telephone, driving or using public transport, shopping, preparing meals, housework, DIY, laundry, taking medication, and managing money. ^cOut of: excellent, good, fair, poor. ^dFrom the HRA-O questionnaire. df = degrees of freedom.

previous 12 months (hospital admission and primary care or outpatient appointments). Non-responders to the HRA-O mailing were sent a postal reminder.

Data entry methods and statistical tests used are described in the accompanying paper.²⁴ The data was analysed in two stages. Firstly, in a bivariate analysis, χ^2 tests were used to compare the proportions of those at risk of social isolation with those not at risk by health behaviours, health risk factors, diagnosed chronic conditions and use of health services. This descriptive data provides a clinical impression of social isolation risk in older people. Secondly, the epidemiology of social isolation risk was explored, using multiple logistic regression to examine its relationships with health behaviour, health risk, chronic conditions and use of health services, when controlling for the confounders of increasing age (65–74 years versus 75 years and over), female sex, educational level (basic education up to the age of 15 or 16 years versus more than basic education) and income (receipt of the state pension alone versus receipt of additional income from other sources), the latter two being used as proxies for socioeconomic status. All associations that were found to be

statistically significant in the bivariate analyses were included in the regression model.

RESULTS

Complete data from the short Lubben Social Network Scale was available for 2598 (82.8%) of the total sample of 3139 responders. Those who did not complete the scale were significantly more likely to be women with depressed mood and a history of two or more hospital admissions in the previous 12 months. After controlling for age, sex, and two proxies for socioeconomic status (state pension only and educational attainment) only depressed mood remained significantly associated with non-completion of the Lubben scale.

The factors associated with risk of social isolation are shown in Table 1. Analysis of the factors associated with risk of social isolation, confirms our first hypothesis. The risk of social isolation occurs in more than 15% of the older age group, and increases with advancing age, affecting 12.3% in the 65–74 years age band, 15.2% of those aged 75–79 years, 20.2% of the 80–84 years age band, and 31.8% of those aged 85 years and over. The mean age of those scoring in the

Table 2. Characteristics of those at risk of social isolation (n = 397) by living alone versus not living alone.

	Living alone n (%)	Not living alone n (%)	P-value (χ^2)
Aged ≥ 75 years	113/190 (59.5)	95/197 (48.2)	0.030
Female	133/190 (70.0)	85/197 (43.1)	<0.001
Basic education only	136/188 (72.3)	131/196 (66.8)	0.240
State pension only	57/189 (30.2)	85/196 (43.4)	0.010
Depressed mood	48/188 (25.5)	66/195 (33.8)	0.080
Memory impairment	38/174 (21.8)	31/188 (16.5)	0.200
\geq Two chronic conditions	123/184 (66.8)	112/192 (58.3)	0.090
\geq Four repeat medications	56/177 (31.6)	66/188 (35.1)	0.480
Needs help with one or more BADLs	28/189 (14.8)	22/195 (11.3)	0.300
Needs help with one or more IADLs	105/178 (59.0)	87/193 (45.1)	0.010
Decreasing functional ability	91/177 (51.4)	81/183 (44.3)	0.180
Multiple falls in previous 12 months	28/174 (16.1)	20/187 (10.7)	0.130
Fear of falling	85/183 (46.4)	54/190 (28.4)	<0.001
One episode of in-patient care in previous 12 months	9/190 (4.7)	11/197 (5.6)	0.710
Six doctor consultations	41/190 (21.6)	43/197 (21.8)	0.950
At risk of hospital admission	59/190 (31.1)	91/197 (46.2)	0.002
Poor and/or fair health	72/190 (37.9)	77/196 (39.3)	0.080

BADLs = basic activities of daily living. IADLs = instrumental activities of daily living.

Table 3. Multiple regression analysis: independent associations of risk of social isolation.

	Adjusted OR (95% CI) ^a
Aged 65–74 years	
Aged ≥ 75 years	1.20 (0.92 to 1.57)
Female	0.69 (0.53 to 0.92) ^c
Basic education only	1.10 (0.85 to 1.44)
State pension only	1.13 (0.86 to 1.48)
Depressed mood	1.99 (1.46 to 2.72) ^d
Memory impairment	1.60 (1.11 to 2.32) ^c
Needs help with one or more BADL ^a	1.56 (0.98 to 2.48)
Needs help with one or more IADL ^b	1.16 (0.86 to 1.57)
Decreasing functional ability	0.77 (0.57 to 1.04)
Fear of falling	1.21 (0.88 to 1.65)
Living alone	2.37 (1.81 to 3.10) ^d
Poor and/or fair health ^c	1.55 (1.14 to 2.10) ^c

^aBADL = basic activities of daily living, self-perceived difficulty or need for assistance with: feeding, moving from bed to chair, getting to the toilet, dressing, and bathing).

^bIADL = instrumental activities of daily living, self-perceived difficulty or need for assistance with: using the telephone, driving or using public transport, shopping, preparing meals, housework, DIY, laundry, taking medication, and managing money. ^cOut of: excellent, good, fair, poor.

^dP<0.05. ^eP<0.005. OR = odds ratio.

at risk of social isolation range on the Lubben scale was 76.6 years (standard deviation [SD] = 6.85) compared with 74.2 years (SD = 6.04) for those with

wider networks. This difference was statistically significant ($t = -6.54$, df [degree of freedom] = 513, $P < 0.001$) taking into account that the variances were statistically significant ($F = 18.434$, $P < 0.001$).

Bivariate analysis showed that the risk of social isolation is associated with older age, living alone, depressed mood, poor memory, fear of falling, worse functional ability (both BADLs and IADLs) and self-rated fair or poor health. Those who were found to be at risk of social isolation reported more chronic conditions (mean = 2.15, SD = 1.61) than those who were not (mean = 2.01, SD = 1.52), but this difference did not reach significance. Using Levene's test ($F = 4.315$, suggesting a significant difference of variances with $P = 0.04$), the t -test was non-significant $P = 0.09$ ($t = -1.72$, $df = 2554$). There may be a trend for those at risk of social isolation to have slightly more comorbidity than those with larger social networks. There was no difference between groups in the use of more than four prescribed medications.

Approximately half of those scoring in the at risk of social isolation range of the Lubben Social Network Scale were not living alone (Table 2); 190 of the 397 potentially socially-isolated older people were living alone, compared with 197 people living with others (data was not available for 10 individuals). Those living with others who were also potentially socially isolated on the Lubben scale were significantly more likely to be male ($P < 0.001$), to have only the state pension as income ($P = 0.007$), to be less impaired in IADLs ($P = 0.007$) and less fearful of falling ($P < 0.001$), but to have a higher risk of hospital admission ($P = 0.002$), as compared with those who were living alone and at risk for social isolation. There was also a weak association between the risk of social isolation and being aged 75 years and over ($P = 0.026$).

Multivariate analysis adjusting for the effect of age, sex and two proxies for socioeconomic status (state pension only and educational attainment) plus all significant associations from the bivariate analysis showed a different pattern of associations, as shown in Table 3. Sex shows a weak association with social isolation risk, with men being more likely to be at risk of social isolation, as do memory impairment and perceived poor to fair health. Living alone and low mood remain significantly associated with social-isolation risk, while fear of falling and functional loss have lost their significance. The association of risk for social isolation and difficulties with basic activities of daily living was not statistically significant (odds ratio = 1.56, 95% confidence interval 0.98 to 2.48, $P = 0.058$).

DISCUSSION

Summary of main findings

The risk of social isolation, as measured using the short Lubben Social Network questionnaire, is found

in more than one in six community-dwelling older people, confirming this study's first hypothesis, and half of those at risk of isolation were living with others. The bivariate analyses shows the clinical picture encountered by the practitioner working with older people. The risk of social isolation is associated with older age, education up to 16 years only, depressed mood and impaired memory, perceived fair or poor health, perceived need for help with both basic and instrumental activities of daily living, diminishing functional ability and fear of falling. Social isolation risk appears to be unrelated to sex, low income, multiple chronic conditions or multiple medication use, multiple falls, higher use of medical services, or increased risk of hospital admission.

Multivariate analysis taking into account all statistically significant associations shows a different pattern. The risk of social isolation appears to be associated with depressed mood and living alone, while male sex, memory impairment and perceived poor health may be weakly associated. For the other factors listed in the second hypothesis, no significant associations in bivariate or multivariate analyses were found.

When social isolation risk is identified in older people, a set of circumstances with a potentially complex origin is observed. The rising prevalence of social isolation with advancing age is consistent with isolation being associated with depression, perhaps as an expression of it, or possibly as either a cause or a consequence. It may also be a function of cognitive impairment, which also increases in prevalence with advancing age, but it cannot be confirmed in this data because the self-report instrument used was not designed to capture more than perceived memory loss. Social-isolation risk may also be related to living alone, perhaps reflecting the loss that occurs when a partner dies. But it is clear from this data that living alone should not be used as a proxy for social isolation risk.

Limitations of the study

Due to the cross-sectional nature of the data, it is not possible to determine causality, particularly in the relationships between social isolation, depressed mood and perceived decreasing functional ability. The sample subjected to secondary data analysis was drawn from four, purposively selected general practices in outer London and subject to eligibility criteria and screening for recruitment into a trial of health promotion for older people. The prevalence of health problems identified within this sample may be lower than that in the general population of older primary care patients, partly because disabled older people were excluded and partly because the participants were a self-selecting sub-group who

returned lengthy questionnaires. The extent of social isolation may be underestimated given that those who did not complete the short Lubben scale were significantly more likely to be depressed than those who did complete it. The observation that some factors did not show a statistically significant association with risk for social isolation does not exclude the possibility of relevant associations with these factors. In addition, healthcare use was measured using a self-reported questionnaire capturing information from 1 year before enrolment in the study, while social isolation risk was evaluated up to 1 year after enrolment.

Comparison with existing literature

Given these possibilities, perhaps it is not surprising that service providers experience significant levels of concern and frustration, and a sense of powerlessness in meeting the needs of isolated older people.³⁷ Researchers studying isolation find it so disturbing that they feel that they must be helpful to those who experience it.³⁸ The finding that social isolation is not associated with increased service use differs from previous findings,¹⁶ and may reflect differences in the way that social isolation is measured, the selection biases inherent in this type of study, or the potential inaccuracy of self-report of service use. It may also challenge the assumption that the associations between morbidity and social isolation must lead to higher service use, when isolation actually leads to reduced service use.

Implications for future practice and research

Primary care professionals should pay special attention to isolated older people, to relieve their distress, without expecting to reduce the demands that they might make on a wide range of services. The findings do not support the view that social isolation risk is associated with greater service use, but they do support the belief that isolation and depressed mood are connected. Awareness of social isolation risk could prompt further enquiry about social support and potentially associated factors such as depression, memory problems, and disability, with a view to therapeutic intervention where possible. The short version of the Lubben scale (validated in the ProAge study) could be useful for identifying this risk group in clinical practice.³⁹

If these findings were typical of UK populations, those commissioning health services would be unlikely to reduce downstream use of hospital care by targeting interventions at potentially isolated older people identified using a risk scale. Those commissioning social care, on the other hand, may benefit from knowing the prevalence of social isolation, because it is likely to predict demand for social support during periods of illness.

Funding body

European Commission project QLK6-CT-1999-02205 and the Federal Education Science Ministry, Berne, Switzerland (BBW 990311.1)

Ethics committee

Approval was obtained from Brent Medical Ethics Committee (BEC 745) and King's College Hospital Research Ethics Committee (01-010)

Competing interests

The authors have stated that there are none

Acknowledgements

We thank the practices and patients involved in the study.

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