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Eating alone and depression in older men and women by cohabitation status: The JAGES longitudinal survey

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Abstract

Background: eating by oneself may be a risk factor for mental illness among older adults, but may be influenced by cohabitation status. We examined the association between eating alone and depression in the context of cohabitation status in older adults in Japan.
Design: a longitudinal, population-based study.
Setting: data from the Japan Gerontological Evaluation Study.
Subjects: we analysed 17,612 men and 19,581 women aged ≥65 without depression (Geriatric Depression Scale <5) at baseline in 2010.
Methods: eating status was classified into two categories: eating with others and eating alone. The risk of depression onset by 2013 was estimated using Poisson regression.
Results: after adjusting for socioeconomic status, physical health, nutritional status, social support, social participation, frequency of meet friends, employment status and marital status, the adjusted rate ratio (ARR) for depression onset in men who ate alone compared with those who ate with others was 2.36 (95% confidence intervals [CI]: 1.18–4.71) for those living alone and 1.03 (95% CI: 0.81–1.32) for those living with others. Among women, the ARR for depression for those who ate alone compared with those who ate with others was 1.31 (95% CI: 1.00–1.72) for those living alone and 1.21 (95% CI: 1.01–1.44) for those living with others.
Conclusions: eating alone may be a risk factor for depression. Among men, the effect of eating alone on depression may be reinforced by living alone, but appears to be broadly comparable in women living alone and women living with others.

Keywords: *eating alone, living alone, depressive symptoms, older people*

Introduction

In addition to increased physical health risks, ageing is a risk factor for depression because of the loss of social contact resulting from retirement, the independence of children and limited mobility. Depression may lead to a deterioration in physical and cognitive functioning and increase the risk of premature death (e.g. by suicide) [1, 2].

Theoretically, eating alone may cause depression in two ways: through reduced social interactions or through insufficient nutrition. Some studies have suggested that eating with others affords the opportunity to socialise. For example, Vesnaver and Keller [3] indicated that eating with others affords older adults a sense of belonging to the community, social support and increased enjoyment of food. Vailas *et al.* [4] found that food enjoyment is important for older adults' quality of life. These findings suggest that for older adults who are retired or bereaved, mealtimes may offer important communication opportunities. Eating alone may deprive people of social interactions and enjoyment, which is detrimental to mental health.

Preparing meals for oneself may lead to insufficient meal variety because of the lack of a regular stock of ingredients and less motivation to make 'good' everyday meals. For instance, one study suggested that divorced or bereaved adults had a decreased vegetable intake compared with those who stayed married [5, 6]. There is evidence that older adults who eat alone have increased risks of nutritional deficits, poor weight control [7–9] and death [10, 11].

Cohabitation status—especially living alone—is another factor that potentially affects mental illness in older adults. In Japan in 1980, 4.3% of men and 11.2% of women lived alone, increasing to 11.1% of men and 20.3% of women by 2010 [12]. A recent Japanese study has suggested that living alone is associated with depression [13, 14]. The research suggests that although eating alone may increase the risk of psychological illness in older Japanese adults, these risks may be modified by cohabitation status. Although men and women have different social and domestic roles, to our knowledge, no studies have examined whether gender differences influence the association between eating alone and psychological illness. Therefore, we used data from a large-scale, population-based, longitudinal study to examine the effect of eating alone on depression among older Japanese women and men by cohabitation status.

Methods

Study design and subjects

We used longitudinal data from the Japan Gerontological Evaluation Study (JAGES) performed in 2010 and 2013. In 2010, self-reported questionnaires were mailed to community-dwelling individuals aged ≥65 who were physically and cognitively independent (i.e. they were not eligible to receive any benefits from public long-term care insurance). The survey covered 24 municipalities in 9 of the 47 prefectures in Japan. It was conducted using a random sampling method in 14 large municipalities and administered to all eligible residents in 10 small municipalities. The baseline sample in 2010 comprised 77,714 subjects. Approximately 80% of the subjects (n = 62,438) who completed the baseline questionnaire in 2010 completed follow-up self-reported questionnaires in 2013. The mean follow-up period was 2.6 years. We used data from 37,193 subjects (17,612 men and 19,581 women), excluding the following: those who reported limitations in activities of daily living, defined as being unable to walk, bathe or use the toilet without assistance in 2010 or 2013 (n = 2,509), as they may have been eating alone because of functional limitations; subjects whose data on eating status or cohabitation status were missing (n = 5,649); subjects whose cohabitation status changed between 2010 and 2013 (n = 2,109), as we wanted to evaluate the association between a certain period of cohabitation and eating status and the subsequent onset of depression; and subjects who reported symptoms of depression (defined as a score of ≥5 on the Geriatric Depression Scale, GDS) in the baseline survey (n = 11,567, Supplementary data, Appendix S1 and S2, available in *Age and Ageing* online). The JAGES protocol was approved by the Ethics Committee on Research of Human Subjects at Nihon Fukushi University (No. 10–05). Use of the data for this study was approved by the Ethics Committee of The University of Tokyo Faculty of Medicine (No. 10555).

Depressive symptoms

Depressive symptoms were measured in both the baseline survey in 2010 and the follow-up survey in 2013, and were assessed with the Japanese short version of the GDS (the GDS-15) [15] using a simple yes/no format suitable for self-administration [16]. Following previous research [17, 18], subjects were classified into two groups: non-depressed (GDS <5) and depressed (GDS ≥5). To identify those with newly developed depression during the follow-up period, respondents who scored ≥5 at baseline were excluded.

Eating and living status

Eating status was assessed using the question 'Who do you usually have meals with?' for which the responses were 'no one', 'spouse', 'children', 'grandchildren', 'friends' or 'other' [9]. Multiple responses were allowed. Eating status was classified as 'eat with others' (for the latter five responses) or 'eat alone' (for a response of 'no one'). Responses of 'no one' together with another response were classified as 'eat with others.' Respondents were also asked whether they lived alone or with someone else to determine their cohabitation status.

Covariates

In Model 1, we adjusted for age, education and equivalised household income as potential confounders. In Model 2, we added nutrition and physical health status as potential mediating factors linking eating status and mental health. In Model 3, we further adjusted for another potential mediator: social connectedness. Variables representing physical health and nutritional status included the history of disease(s)/symptom(s) (yes or no), higher level functional capacity limitations, body mass index (BMI) and the frequency of vegetable/fruit intake. Higher level functional capacity was assessed using the Tokyo Metropolitan Institute of Gerontology Index of Competence,

which comprises 13 items. Responses on this scale were categorised as either fully capable (score = 13) or less capable (score ≤12) [19]. BMI was categorised as underweight (<18.5 kg/m^2), normal (18.5–24.9 kg/m^2), overweight (25.0–29.9 kg/m^2) and obese (≥30.0 kg/m^2) [9]. Five questions about social support, social participation, frequency of meet friends [20], employment status (working, retired or never worked) and marital status (married, bereaved, divorced or other) were used to measure social connectedness. Social support was assessed using the question 'Do you have someone who listens to your concerns and complaints?' Responses were classified into four categories: 'both relative and friend/neighbor', 'only relative', 'only friend/neighbor' or 'no one'. Social participation was assessed by asking the respondents if they belonged to one or more of the following groups: volunteer group, sports group or club, leisure activity group, senior citizen club, neighborhood association or residents' association, study or cultural group, nursing care prevention or health-building, teaching skills or passing on experiences to others, local events, protection for older people, assistance for older adults, child-rearing support, local environment improvement and others. Social participation was classified as 'yes' for participation in one or more of these groups. Frequency of meet friends was classified into three categories (once or more/week, once or twice/month or rarely).

Statistical analysis

We used a gender-stratified analysis, because our preliminary analysis revealed different associations between eating and cohabitation status and depression, and different confounding patterns, for men and women. Subjects who developed depression during the follow-up period were not uncommon—over 10% of the cohort—so the odds ratio derived from the logistic regression was unable to approximate the prevalence ratio [21]. Therefore, Poisson regression analysis was used to calculate the adjusted rate ratio (ARR) and its 95% confidence intervals (CIs) for depression by eating status. All analyses were conducted using Statistical Analysis Systems software version 9.4 (SAS Institute Inc., Cary, NC, USA).

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Results

Among the subjects, 3.3% of men and 5.7% of women who lived with others, and 84.7% of men and 79.3% of women who lived alone, ate alone (Table 1). Among those who lived with others, 11.5% of men and 11.3% of women who did not report depression in 2010 newly reported depression in 2013. Among those who lived alone, 18.5% of men and 13.9% of women who did not report depression in 2010 newly reported depression in 2013 (Table 1).

The interaction between eating status and cohabitation status was significant for men (Supplementary data, Appendix S3, available in *Age and Ageing* online), indicating that depression was exacerbated only for men who reported both eating alone and living alone (ARR 2.54, 95% CI 1.25–5.18, $P = 0.01$). This interaction was not significant among women (ARR 1.02, 95% CI 0.74–1.39, $P = 0.93$).

The effects of eating alone on depression by cohabitation status are shown in Table 2 (for men) and Table 3 (for women). After adjusting for age, socioeconomic status, and physical health and nutritional status (Model 2), the ARR for depression onset for men who ate alone compared with men who ate with others was 1.08 (95% CI: 0.85–1.36) for men living with others and 2.64 (95% CI: 1.34–5.20) for men living alone. In contrast, the ARR for depression for women who ate alone compared with women who ate with others was 1.30 (95% CI: 1.10–1.54) for women living with others and 1.35 (95% CI: 1.03–1.76) for women living alone. To determine whether sharing meals was acting as a proxy for social connectedness, Model 3 examined the effect of eating alone on depression, controlling for social connectedness. For men and women, the ARR for depression was attenuated but remained significant.

Discussion

To the best of our knowledge, this is the first study to examine the effect of eating alone on depression by cohabitation status among older adults. We found strong evidence that the combined effect of eating alone and living alone on depression is more prominent in men. This relationship was slightly attenuated—but still remained—even after controlling for social connectedness. Conversely, women who ate alone were depressed even if they lived with others. We suggest that this may reflect either family discord or different lifestyles among family members. More than half of the subjects who reported eating alone despite living with others lived with children [9]. Some children may not be able to find the time to eat with the family. Programs to prevent depression may be important for older adults who live with others as well as for those who live alone.

Our findings on the association between eating alone and the development of depression are consistent with other studies on children and adolescents [22–24]. The significant relationship between eating alone and depression was independent of social connectedness. This suggests that eating together may be a specific type of social activity that has

Table 1. Characteristics of subjects in the longitudinal samples of older Japanese men (n = 17,612) and women (n = 19,581) by cohabitation status

	Live with others				Live alone			
	Male (n = 16,738)		Female (n = 16,501)		Male (n = 874)		Female (n = 3,080)	
	N	%	*N*	%	*N*	%	*N*	%
Age (years)								
65–69	6,152	36.8	6,140	37.2	287	32.8	681	22.1
70–74	5,227	31.2	5,117	31.0	235	26.9	952	30.9
75–79	3,357	20.1	3,320	20.1	197	22.5	858	27.9
≥80	2,002	12.0	1,924	11.7	155	17.7	589	19.1
Eating status								
Eat with others	16,180	96.7	15,566	94.3	134	15.3	637	20.7
Eat alone	558	3.3	935	5.7	740	84.7	2,443	79.3
GDS score in 2013								
Non-depressed (<5)	14,808	88.5	14,640	88.7	718	82.2	2,654	86.2
Depression (≥5)	1,930	11.5	1,861	11.3	156	17.9	426	13.8
Social connectedness								
Social support								
Both relative and friend/neighbour	4,517	27.0	7,191	43.6	129	14.8	1,057	34.3
Only relative	9,810	58.6	6,353	38.5	189	21.6	635	20.6
Only friend/neighbour	931	5.6	1,999	12.1	334	38.2	1,086	35.3
Absent	712	4.3	225	1.4	157	18.0	141	4.6
Missing	768	4.6	733	4.4	65	7.4	161	5.2
Social participation								
Yes	12,701	75.9	11,954	72.4	602	68.9	2,299	74.6
No	2,924	17.5	2,914	17.7	191	21.9	482	15.7
Missing	1,113	6.7	1,633	9.9	81	9.3	299	9.7
Frequency of meet friends								
Once or more/week	8,115	48.5	10,353	62.7	494	56.5	2,145	69.6
Once or twice/month	3,462	20.7	2,955	17.9	147	16.8	477	15.5
Rarely	4,387	26.2	2,203	13.4	186	21.3	260	8.4
Missing	774	4.6	990	6.0	47	5.4	198	6.4
Employment status								
Working	5,293	31.6	2,847	17.3	214	24.5	517	16.8
Retired	10,133	60.5	8,484	51.4	531	60.8	1,586	51.5
Never worked	450	2.7	2,744	16.6	53	6.1	476	15.5
Missing	862	5.2	2,426	14.7	76	8.7	501	16.3
Marital status								
Married	15,801	94.4	12,004	72.8	49	5.6	42	1.4
Bereaved	672	4.0	3,826	23.2	455	52.1	2,334	75.8
Divorced	77	0.5	319	1.9	210	24.0	357	11.6
Other/missing	188	1.1	352	2.1	160	18.3	347	11.3
Socioeconomic status								
Education (years)								
Low (≤9)	6,224	37.2	7,708	46.7	363	41.5	1,343	43.6
Middle (10–12)	5,928	35.4	6,390	38.7	277	31.7	1,181	38.3
High (≥13)	4,480	26.8	2,309	14.0	222	25.4	505	16.4
Other/missing	106	0.6	94	0.6	12	1.4	51	1.7
Equivalised household income (million yen)								
Low (<2.00)	6,024	36.0	5,671	34.4	267	30.6	1,398	45.4
Middle (2.00–3.99)	7,204	43.0	5,901	35.8	375	42.9	777	25.2
High (≥4.00)	2,215	13.2	2,024	12.3	89	10.2	135	4.4
Missing	1,295	7.7	2,905	17.6	143	16.4	770	25.0
Disease(s)/symptom(s)								
Yes	11,109	66.4	11,066	67.1	544	62.2	2,072	67.3
No	4,461	26.7	4,071	24.7	259	29.6	683	22.2
Missing	1,168	7.0	1,364	8.3	71	8.1	325	10.6
Limitation of higher level functional capacity score								
Less capable (≤12)	9,176	54.8	5,951	36.1	472	54.0	1,197	38.9
Fully capable (13)	6,812	40.7	9,517	57.7	347	39.7	1,649	53.5
Missing	750	4.5	1,033	6.3	55	6.3	234	7.6
Frequency of vegetable or fruit intake over the past month								
≥1/day	13,203	78.9	14,372	87.1	572	65.5	2,610	84.7
<1/day	3,402	20.3	1,917	11.6	297	34.0	433	14.1
Missing	133	0.8	212	1.3	5	0.6	37	1.2

Continued

Table 1. Continued

	Live with others				Live alone			
	Male (n = 16,738)		Female (n = 16,501)		Male (n = 874)		Female (n = 3,080)	
	N	%	N	%	N	%	N	%
BMI (kg/m^2)								
Underweight (<18.5)	635	3.8	1,141	6.9	47	5.4	249	8.1
Normal (18.5–24.9)	12,019	71.8	11,543	70.0	599	68.5	2,176	70.7
Overweight (25.0–29.9)	3,599	21.5	2,969	18.0	197	22.5	492	16.0
Obesity (≥30.0)	246	1.5	388	2.4	21	2.4	62	2.0
Missing	239	1.4	460	2.8	10	1.1	101	3.3

BMI, body mass index; GDS, Geriatric Depression Scale; SD, standard deviation.

Table 2. Adjusted rate ratio (95% confidence intervals) of eating status for depression by cohabitation status in older Japanese men (n = 17,612)

	Model 1		Model 2		Model 3	
	Live with others ARR (95% CI)	Live alone ARR (95% CI)	Live with others ARR (95% CI)	Live alone ARR (95% CI)	Live with others ARR (95% CI)	Live alone ARR (95% CI)
Eating status (ref.: eat with others)						
Eat alone	1.12 (0.89–1.42)	2.72 (1.38–5.36)	1.08 (0.85–1.36)	2.64 (1.34–5.20)	1.03 (0.81–1.32)	2.36 (1.18–4.71)
Social connectedness						
Social support (ref.: Both relative and friend/neighbour)						
Only relative					0.98 (0.87–1.10)	1.19 (0.63–2.26)
Only friend/neighbour					0.99 (0.79–1.23)	1.15 (0.64–2.09)
Absent					1.31 (1.07–1.61)	1.61 (0.86–3.03)
Missing					0.85 (0.64–1.13)	0.74 (0.27–2.05)
Social participation (ref.: Yes)						
No					1.21 (1.08–1.35)	1.64 (1.13–2.38)
Missing					1.11 (0.91–1.36)	1.21 (0.65–2.27)
Frequency of meet friends (ref.: Once or more/week)						
Once or twice/month					1.28 (1.13–1.44)	1.18 (0.76–1.83)
Rarely					1.33 (1.18–1.49)	0.94 (0.61–1.46)
Missing					1.37 (1.05–1.79)	1.66 (0.66–4.21)
Employment status (ref.: working)						
Retired					0.91 (0.73–1.13)	1.06 (0.52–2.18)
Never worked					1.21 (0.95–1.55)	1.88 (0.98–3.58)
Missing					1.05 (0.94–1.16)	1.35 (0.87–2.10)
Marital status (ref.: married)						
Bereaved					1.03 (0.82–1.28)	1.18 (0.53–2.59)
Divorced					1.17 (0.66–2.09)	1.42 (0.62–3.24)
Other/missing					1.01 (0.69–1.49)	1.00 (0.42–2.36)

GDS, Geriatric Depression Scale; ARR, adjusted rate ratio; 95% CI, 95% confidence intervals.
Model 1: Adjusted for age, education and equivalised household income.
Model 2: Model 1 + adjusted for disease(s)/symptom(s), higher level of functional ability, frequency of vegetable or fruit intake and body mass index.
Model 3: Model 2 + adjusted for social connectedness (social support, social participation, frequency of meet friends, employment status and marital status).

additional benefits mediated by different mechanisms to those of social participation. Eating together may create a specific positive sense of camaraderie and mutual aid, for example [3]. Attitudes towards food and meals vary greatly across cultures. For example, in the USA, eating is likely to be considered health-oriented, whereas in France it is associated more with relaxation and pleasure; in Japan, attitudes to eating lie somewhere between these two perspectives [25]. One study reported that, of the 17 Organisation for Economic Co-operation and Development (OECD) countries, the French spend the longest and the Japanese the third longest amount of time eating (France: 135 min/day, Japan: 117 min/day) [26]. Japanese people spend nearly 1.6 times more time eating than people in the USA (US: 74 min/day), suggesting that Japanese people value mealtimes and regard food highly. Although there is little information about the general attitudes of Japanese people towards food and meals, eating alone is generally considered pitiable. Eating alone may therefore particularly affect mental health status in Japanese people.

Living alone exacerbates the effect of eating alone on depression risk among men, but not among women. This may not be solely related to the marriage bond; differences in

Table 3. Adjusted rate ratio (95% confidence intervals) of eating status for depression by cohabitation status in older Japanese women ($n = 19,581$)

	Model 1		Model 2		Model 3	
	Live with others ARR (95% CI)	Live alone ARR (95% CI)	Live with others ARR (95% CI)	Live alone ARR (95% CI)	Live with others ARR (95% CI)	Live alone ARR (95% CI)
Eating status (ref.: eat with others)						
Eat alone	1.37 (1.16–1.61)	1.38 (1.06–1.81)	1.30 (1.10–1.54)	1.35 (1.03–1.76)	1.21 (1.01–1.44)	1.31 (1.00–1.72)
Social connectedness						
Social support (ref.: Both relative and friend/neighbour)						
Only relative					0.95 (0.85–1.07)	1.31 (1.00–1.73)
Only friend/neighbour					1.26 (1.09–1.45)	1.14 (0.89–1.46)
Absent					1.61 (1.21–2.15)	1.36 (0.89–2.08)
Missing					1.04 (0.81–1.33)	0.91 (0.52–1.60)
Social participation (ref.: Yes)						
No					1.34 (1.19–1.50)	1.09 (0.84–1.41)
Missing					1.34 (1.15–1.57)	1.14 (0.82–1.58)
Frequency of meet friends (ref.: Once or more/week)						
Once or twice/month					1.03 (0.91–1.16)	1.03 (0.79–1.34)
Rarely					1.00 (0.87–1.15)	0.95 (0.68–1.34)
Missing					0.86 (0.69–1.08)	0.80 (0.49–1.28)
Employment status (ref.: working)						
Retired					0.96 (0.81–1.13)	1.12 (0.79–1.60)
Never worked					0.96 (0.82–1.13)	1.24 (0.87–1.76)
Missing					0.97 (0.85–1.11)	1.04 (0.78–1.39)
Marital status (ref.: married)						
Bereaved					1.02 (0.91–1.15)	0.68 (0.34–1.38)
Divorced					1.15 (0.85–1.54)	0.83 (0.39–1.74)
Other/missing					0.87 (0.64–1.18)	0.76 (0.36–1.61)

GDS, Geriatric Depression Scale; ARR, adjusted rate ratio; 95% CI, 95% confidence intervals.

Model 1: Adjusted for age, education and equivalised household income.

Model 2: Model 1 + adjusted for disease(s)/symptom(s), higher level of functional ability, frequency of vegetable or fruit intake and body mass index.

Model 3: Model 2 + adjusted for social connectedness (social support, social participation, frequency of meet friends, employment status and marital status).

domestic roles between men and women may also be important, as the effect of eating alone persisted after controlling for marital status (Tables 2 and 3). Because of the traditional gender roles in Japan, preparing meals may be a stressful task for men who are bereaved or live alone. Changes to the traditional perspectives on Japanese gender roles may mean that fewer men in younger cohorts feel stressed about preparing meals themselves. In the JAGES data, the percentages reporting 'yes' to the question 'Can you prepare meals by yourself?' was, for men, 77% in 2006 and 80% in 2013; for women, it was 96% in 2006 and 97% in 2013. This potential cohort-specific impact of living alone on depression warrants further study. According to a study in the USA, household management is a major cause of depression among men who have lost their spouses [27]. Another possible reason for the gender difference may be the effects of changes in employment status. In Japan, most workers are men. Retired men may be more likely than retired women to eat alone, because they have lost the opportunities to meet colleagues and other business partners. Further study of the relationship between employment status and eating status is warranted.

Several limitations of this study should be mentioned. First, we measured eating alone using a single-item question; therefore, we have no information about the frequency of eating alone. However, the prevalence of eating alone by cohabitation status in our study was comparable with that reported by Kimura *et al.* [28], who used a different question. Second, we did not account for changes in living status during the follow-up period, household composition, the situation in which meals are eaten alone (e.g. breakfast or dinner), and eating location; however, it is not easy to confirm the possible extent and direction of the resulting bias. For example, there may have been a failure to detect a reverse causation; that is, if a depressed person began living or eating with others, the association between eating and/or living alone and subsequent development of depression may be underestimated. Moreover, the effects of eating alone during breakfast, lunch and dinner may vary. For example, dinner may be more important for family socializing than breakfast [29]. Information on eating situation and location is particularly important to develop effective programs for preventing depression; thus, these factors warrant further research. Third, as information was missing on factors such as personality traits, appetite and the presence of family members requiring nursing care, confounding factors may not have been fully taken into account. Nonetheless, we were able to control for the potential confounding effects of social relationships. Given the number of potentially confounding factors that we could not account for, our results should be interpreted with some caution. Fourth, we lacked data on antidepressant drug use, which may have biased the association between eating status and depression; for example, subjects who eat with others may be more likely to be recognised as

depressed and receive treatment. However, this bias may have been negligible, because very few subjects (<1%) reported treatment for depression (Supplementary data, Appendix S4, available in *Age and Ageing* online). Fifth, most covariates included as measures of social connectedness were assessed using a very simple, single-item scale that has not been validated, although associations between these covariates and health outcomes have been reported [20]. Finally, the generalisability of the results may be weak, because the present analyses used data from subjects who responded to both the baseline and the follow-up survey. The subjects used in the present study were younger, had higher socioeconomic status and had better social relationships than those in the baseline sample (Supplementary data, Appendix S2, available in *Age and Ageing* online). This suggests that our sample lacked subjects who were vulnerable to depression, which may have led us to underestimate the effect of eating status on depression.

Our study has important public health implications. Providing opportunities to eat with others may be effective in maintaining the mental health of older adults. For example, shared meal services at community centres, which allow people to eat with local residents rather than rely on home-delivered meals, may be beneficial for older adults. Future studies should address the mechanisms underlying the effect of gender on eating habits and the protective capacity of shared meals for older adults.

Key points

- Eating alone is a risk factor for depression in older men and women.
- The effect of eating alone on depression remained even after controlling for social connectedness.
- The combined effect of eating alone and living alone on depression is more prominent in men.

Conflicts of interest

None declared.

Supplementary data

Supplementary data mentioned in the text are available to subscribers in *Age and Ageing* online.

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The cost-effectiveness of second-eye cataract surgery in the UK

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Abstract

Background: elective cataract surgery is the most commonly performed surgical procedure in developed countries. However, it is unclear whether cataract surgery on the second eye provides enough incremental benefit to be considered cost-effective. This study conducted a cost-effectiveness analysis of second-eye cataract surgery in the UK.
Design: a cost-effectiveness analysis.
Methods: a decision-analytical model was developed to estimate the cost-effectiveness of second-eye cataract surgery, based on a comprehensive epidemiological and economic review to develop the parameters for the model. The model followed the clinical pathway of cohorts of patients receiving second-eye cataract surgery and included costs and health benefits associated with post-surgical complications.
Results: in the model, second-eye surgery generated 0.68 additional quality-adjusted life years (QALY) with an incremental cost-effectiveness ratio of £1,964 per QALY gained. In sensitivity analyses, model results were most sensitive to changes in the health-related quality of life (HRQoL) gain associated with second-eye surgery, but otherwise robust to changes in parameter values. The probability that second-eye surgery is cost-effective at willingness to pay thresholds of £10,000 and £20,000 was 100%.
Conclusion: second-eye cataract surgery is generally cost-effective based on the best available data and under most assumptions. However, there are only a small number of clinical trials for second-eye cataract surgery, and these have not been conducted in recent years.

Keywords: *cataract, cost-effectiveness, second-eye surgery, older people*