



Postprint Version	1.0
Journal website	http://gerontologist.oxfordjournals.org/content/43/2/213.full
Pubmed link	http://www.ncbi.nlm.nih.gov/pubmed/12677078
DOI	10.1093/geront/43.2.213

This is a NIVEL certified Post Print, more info at <http://www.nivel.eu>

The Effect of Depression on Social Engagement in Newly Admitted Dutch Nursing Home Residents

WILCO ACHTERBERG, MD^{1,2}, ANNE MARGRIET POT, PHD², ADA KERKSTRA, PHD³, MARCEL OOMS, PHD², MARTIEN MULLER, PHD² AND MIEL RIBBE, MD, PHD²

We thank the participating nursing homes and trainee nursing home physicians for their assistance in the data collection. We also thank Debby Gerritsen of the EMGO-Institute for her critical review of the manuscript.

¹ Cascade Zorgcentrum Rosendael, Utrecht, The Netherlands.

² Department of Nursing Home Medicine & EMGO-Institute, Amsterdam, The Netherlands.

³ Department of Nursing and Caring Research, Netherlands Institute of Primary Health Care, Utrecht.

ABSTRACT

Purpose: To study the effect of depression (high levels of depressive symptoms) on social engagement. **Design and Methods:** In 65 nursing homes in the Netherlands, 562 newly admitted residents were assessed at admission. Social engagement was measured with the MDS Index of Social Engagement. A multivariate logistic regression model was used to study the effect of depression, measured according to the MDS-depression rating scale and controlled for confounders, on social engagement. **Results:** Fifty-one percent of the newly admitted residents had a low level of social engagement; twenty seven percent were depressed (high levels of depressive symptoms). Residents with a depression were significantly more often found to have low social engagement (OR 3.3), and confounders did not influence the strength of this relationship. Low social engagement on admission is predicted by depression and low cognitive performance, and to a lesser extent by impairments in vision and ADL. **Implications:** Low social engagement is very common in newly admitted nursing home residents, and depression is an important independent risk factor.

Admission to a nursing home involves adapting to other people and other activities, creating new social relationships, and finding resources for support while handicapped by various impairments. Well-being and satisfactory social functioning are not easy to establish in this context. Being successful in social engagement can be regarded as a critical component of quality of life for nursing home residents (Mor et al., 1995). It means that the resident has a high sense of initiative and involvement

and can respond adequately to social stimuli in the social environment—participate in social activities and interact with other residents and staff. Previous research has associated low social engagement with increased mortality (Bennett, 2002; Kiely, Simon, Jones, & Morris, 2000) and cognitive decline (Bassuk, Glass, & Berkman, 1999).

In the United States, positive aspects of social functioning were included in the Resident Assessment Instrument (RAI) that was mandated by Congress (Morris, Hawes, & Fries, 1990). In constructing the Minimum Data Set (MDS) for the RAI, considerable attention has been paid to well-being and social functioning. The MDS items concerning social functioning focus on the engagement of residents in the social environment around them and aim to measure their sense of initiative and involvement. The Index of Social Engagement, which is constructed from the 6 MDS items on social engagement, reflects both social involvement and autonomy (Mor et al., 1995). The effect of several resident characteristics on social engagement have been studied; cognitive and ADL impairment were found to be related to low social engagement (Frijters et al., 2001; Mor et al., 1995; Schroll, Jónsson, Mor, Berg, & Sherwood, 1997), as were sensory and communication losses (Resnick, Fries, & Verbrugge, 1997). The effect of depression on social engagement is unknown. Several studies have found that (minor or major) depression has a much higher prevalence in older inpatient populations than in the community (Abrams, Teresi, & Butin, 1992; Falck, Pot, Braam, Hanewald, & Ribbe, 1999; Parmelee, Katz, & Lawton, 1992; Rovner, German, Brant, Burton, & Folstein 1991). Furthermore, it is frequently not recognized and/or treated. Depressed residents are likely to have more difficulty in engaging themselves in the new environment, as residents who are not socially engaged are more likely to be depressed. Successful treatment of depression in addition to or instead of offering social activities may be the key to successful social engagement.

Previous research has been based on cross-sectional data, with a mixture of residents who had been in the nursing home for a variable period of time (Frijters et al., 2001; Mor et al., 1995; Resnick et al., 1997; Schroll et al., 1997). There is little known about the predictors, course, and prevention of low social engagement. It is important to study the concept of low social engagement in newly admitted residents because this can facilitate the development of preventive strategies.

The aim of this study is to explore the effects of depression on social engagement in newly admitted Dutch nursing home residents.

DESIGN AND METHODS

Design and Sample

In the Netherlands, there are 325 nursing homes with 53,800 beds (26 beds per 1,000 elderly people; Ribbe et al., 1997). Residents with dementia are admitted on specialized psychogeriatric units and residents with other diseases are often also differentiated in long-term care, palliative, or rehabilitation units. All nursing homes have specialized nursing home physicians in their staff (approximately 1 physician for every 100 residents). The participants in this study are part of an observational study among newly admitted nursing home residents. Registered physicians in a specialist training program for nursing home physicians carried out the data collection. This vocational training consists of 2 years of medical practice in a

teaching nursing home with a 1-day theoretical course per week at a University Institute for Nursing Home Medicine (Hoek, Ribbe, Hertogh & van der Vleuten, 2001). This study was part of the research training, which is one of the elements of the core curriculum. In 65 nursing homes throughout the country, the physicians were asked to include and assess newly admitted residents. Residents who were readmitted after a temporary discharge (less than 90 days) were excluded. In total, the physicians assessed 562 residents, 64.6% of whom were female. The mean age was 78.5 years (for females: 79.8, for males: 76.2), which is a representative sample compared with the national average. A relative large number of residents were admitted to psychogeriatric wards: 247 (44%), compared with the national average of 33.6% (Arcares, 1999; SIG Zorginformatie, 1998; see Table 1). Two hundred fifty four residents (45.2%) were admitted for long-term care. Two hundred twenty-six (40.2%) were admitted for rehabilitation (117 of them [20.8%] in a ward for specialized rehabilitation care), 81 (14.4%) were admitted for other reasons (such as terminal care, screening/observation or crisis intervention), and 1 (.2%) was not registered. As there are no national data available on the aims and type of ward described, it is not possible to make comparisons with our data. Because of missing values in independent variables, 543 residents were included in the multivariate logistic model.

[TABLE 1]

Measurement Instruments

We derived all the variables from the Resident Assessment Instrument (RAI) Minimum Data Set (MDS) 2.0 items on nursing home care (Morris et al., 1990). These items have shown good reliability in several countries (Morris et al., 1997; Sgadari et al., 1997). Because the Dutch nursing home physicians in training received instruction in the RAI-MDS, and they were on the ward on a daily basis, they were expected to fill out the MDS themselves. Consultation with others, however, could take place.

Dependent Variable

We measured social engagement with the Index of Social Engagement (ISE), which is constructed from the following six (dichotomous) MDS items: (a) at ease interacting with others, (b) at ease doing planned or structured activities, (c) at ease doing self-initiated activities, (d) establishes own goals, (e) pursues involvement in life of facility, and (f) accepts invitations into most group activities. The ISE ranges from 0 (lowest level of social engagement) to 6 (highest level of social engagement). The items have shown moderately good inter-rater reliability (Sgadari et al., 1997). In the present sample, the six items demonstrated reasonable internal consistency (Cronbach's $\alpha = .72$).

The ISE measures a single construct that is correlated with actual participation in the activities in the nursing home and is distinct from measures for mood, behavioral problems, and conflicts in relationships (Mor et al., 1995).

The ISE has been dichotomized in two different ways: 0–2 versus 3–6 (sensitive for low social engagement; Resnick et al., 1997) and 0–4 versus 5–6 (sensitive for high social engagement; Schroll et al., 1997). Because this study is looking for factors

associated with low social engagement, the 0–2 (low) versus 3–6 (not low) dichotomy is used.

Independent Variable

The MDS Depression Rating Scale (DRS) is a seven-item scale, with all items to be scored 0 (indicator not exhibited), 1 (indicator of this type exhibited at least once in the last 30 days and up to 5 days a week), or 2 (indicator exhibited daily or almost daily; Burrows, Morris, Simon, Hirdes, & Phillips, 2000). The scores range between 0 and 14. The mood items in the MDS 2.0 have good inter-rater reliability (Morris et al., 1997). In the present sample, the seven items demonstrated good internal consistency (Cronbach's $\alpha = .87$).

With a cut point of 3, it differentiates well between residents with few or many depressive symptoms. Compared with psychiatric criteria for depression (American Psychiatric Association, 1994) it has a high sensitivity (91%) and a lower specificity (69%; Burrows et al., 2000). Therefore, this scale has been used in this study to distinguish between residents with or without (easily observed) depressive symptoms. Thus, where the word depression is used, it means a relatively high level of depressive symptoms.

Control Variables

Cognitive function was measured according to the MDS-Cognitive Performance Scale (CPS), which is based on five MDS items. The CPS is a seven-category index, ranging from cognitively intact to very severely impaired (Morris et al., 1994). It has shown substantial agreement with the Mini-Mental State Examination in the identification of cognitive impairment in research settings (Hartmaier et al., 1995). The index is dichotomized by combining the three severe categories as low cognitive performance and the four other categories as high cognitive performance (Mor et al., 1995).

The activity of daily living (ADL) classification is based on six MDS items on self-performance of ADLs, each consisting of five categories, ranging from independent to totally dependent, and one item concerning urinary incontinence.

The seven-category (hierarchical) ADL index ranges from minor oversight to highly dependent. The ADL index is dichotomized, with the four highest scores classified as dependent, and the three lower scores classified as relatively independent (Mor et al., 1995).

Hearing and vision were measured according to two four-level ordinal MDS items that assess the ability to see or hear with environmental adjustments (such as glasses or hearing aids). Adequate and minimal impairment is dichotomized as no problems, and moderate impairment and severe impairment are dichotomized as problems with hearing or seeing.

The demographic variables are sex, ward type (somatic, psychogeriatric, or rehabilitation), and age (in four categories: <65, 65–74, 75–84, ≥ 85).

Analysis

First, we applied univariate logistic regression analysis (SPSS, Version 10.1) to identify variables related to low social engagement. Subsequently, we studied correlations between dependent and independent variables by using chi square

statistics. To determine the true effect of depression on social engagement, we entered possible confounders one by one in a multivariate logistic regression model. In the final equation, we calculated the 95% confidence intervals.

RESULTS

The mean ISE for all residents was 2.62 (SD = 1.84), and 51.4% had low social engagement (0, 1, and 2). The item with the most positive answers was “at ease interacting with others” (71.2%); the item with the least positive answers (30.6%) was “pursues involvement in life of facility.” The prevalence of depression in the sample, according to the DRS (>2), was 27%; 19% had low cognition (CPS score = 4–6), 56.7% had ADL loss (ADL index score = 3–6), 34.7% had problems with vision, and 27.0% had problems with hearing.

Cognition had a strong relation with low social engagement ($p < .001$) and a weaker relation with depression ($p = .045$; see Table 2). Problems with cognition, hearing and seeing, and ward type were all associated with depression and low social engagement and could, therefore, be potential confounders (correlation with both dependent and independent variable) in the relation between depression and social engagement (see Table 2).

[TABLE 2]

There were no significant correlations for ADL and/or depression or sex and age and depression and/or social engagement. Despite this, we included ADL and sex and age as possible confounders in the model because of the plausibility that these impairments could alter the strength of the effect of depression on social engagement.

In univariate regression, cognition (odds ratio [OR] = 4.2), vision (OR = 2.2), hearing (OR = 1.5), and ADL (OR = 1.9) were significantly related to low social engagement; the demographic variables of sex and age were not.

Depression was highly associated with low social engagement (OR = 3.5, 95% CI: 2.3–5.3). When we controlled for possible confounders in the multivariate logistic model, it made little difference to the strength of this association (OR = 3.3, 95% CI: 2.1–5.1; see Table 3). In this model, low cognitive performance was predictive (OR = 3.5, $p < .001$), as was vision (OR = 1.7, $p = .011$; Table 3). The presented multivariate logistic model creates a predictive model with 66.4% overall correctly predicted (.5 = cut-off value).

[TABLE 3]

DISCUSSION

More than half of all newly admitted Dutch nursing home residents have low social engagement. This high prevalence rate is meaningful because social engagement is a measure for quality of life, and low social engagement is associated with cognitive decline and mortality (Bassuk et al., 1999; Bennett, 2002; Kiely et al., 2000; Mor et al., 1995). In this study, residents were assessed within 10 days after admission. It is

possible that it takes residents longer to achieve optimal social engagement. However, in the available cross-sectional data on social engagement, even higher scores are reported: 68% low social engagement in the United States (Resnick et al., 1997) and apparently even higher in European countries and Japan (Schroll et al., 1997). It is still unclear whether social engagement declines or increases in the weeks and months after admission. This question will be addressed in a future study using longitudinal data.

The effect of depression on social engagement is found to be strong, and there are no confounding mechanisms. With our cross-sectional sample, we can not establish a causal relationship, but it is theoretically plausible that depressive symptoms (such as anxiety, withdrawal, and loss of interest) can act as obstacles in the receptiveness of a resident in responding to social stimuli. The relationship of depression and cognitive decline with social engagement is found to be stronger than the relationship between sensory or ADL impairment and social engagement. The strong univariate correlation between ward types and social engagement does not hold in the multivariate model, which means the differences between the wards are explained by different levels of depression and functional (mainly cognitive) impairments.

One limitation of this study might be that the participating residents were recruited in teaching nursing homes. Some physicians/homes included more patients than others, and there was an overrepresentation of psychogeriatric residents. The model controlled for cognitive status, so this is not likely to effect the validity of the results. Moreover, age and sex distributions are representative of all newly admitted nursing home residents in the Netherlands (Arcares, 1999; SIG Zorginformatie, 1998). It is not known whether our sample is representative for the percentage of residents on specialized rehabilitation wards, but in our multivariate logistic model we controlled for ward type. Another limitation is that this is a cross-sectional sample of newly admitted residents. The depression scores might, therefore, be higher and the social engagement scores lower because of the impact of institutionalization and may subsequently change over time. Longitudinal data are needed to study the longitudinal relationship between depression and social engagement.

One of the strengths of this study is that the data collection is solely intended for research purposes and is performed by trained physicians. In such a setting, there is little reason to dispute the reliability of the MDS data (Hawes, Phillips, Mor, Fries, & Morris, 1992; Ouslander, 1994; Teresi & Holmes, 1992). Moreover, the sample is relatively large (1.3% of all Dutch nursing home admissions) and is collected from a wide variety of nursing homes throughout the country (18% of all Dutch nursing homes). There are no data on the reliability of the MDS when physicians fill it out. Dutch nursing home physicians are responsible for the multidisciplinary care planning of all residents and are therefore very well informed about their functional and social abilities. We can not rule out the possibility that the social engagement items would be interpreted in a different way when they are conducted solely by a nurse, but we have no reason to believe this has created any bias.

Nursing homes should provide care and a customized living environment for frail residents. This should include, in addition to adequate treatment and personal care, facilitating psychosocial well-being and social interaction. Thorough assessment, immediately on admission, of these psychosocial needs is imperative. Depression should be recognized and treated. The MDS-depression algorithm (which contains 5 more items compared with the 12 items of the DRS and is triggered when at least one

of them is positive) seems to provide too little specific information: In our sample, 68% of the residents have at least one DRS item scored positive. Such a sensitive trigger in the busy nursing home practice is in time likely to be ignored. Recognition and adequate staff reaction could be improved by using a more specific measure, like the DRS cut point of 3.

The results of this study also suggest that more attention should be paid to activities that are appropriate for residents with cognitive decline and (many) depressive symptoms. This will be a challenge, as depressed residents are not very inclined to respond to invitations to take part in (group) activities. For the well-being of residents with low social engagement and many depressive symptoms (in this sample 19.6% of all newly admitted!), it is essential that this challenge is taken on.

REFERENCES

- Abrams, R. C., Teresi, J. A., Butin, D. N., (1992);. Depression in nursing home residents. *Clinics in Geriatric Medicine*,. 8:309-322.
- American Psychiatric Association., (1994);. Diagnostic and statistical manual of mental disorders, 4th ed. Washington, DC:
- Arcares., (1999);. Nursing homes in figures 1998: information from LZV and SIVIS[in Dutch]. Utrecht, The Netherlands: Bassuk, S. S., Glass, T. A., Berkman, L. F., (1999);. Social disengagement and incident cognitive decline in community-dwelling elderly persons. *Annals of Internal Medicine*,. 131:(3), 165-173.
- Bennett, K. M., (2002);. Low level social engagement as a precursor of mortality among people in later life. *Age and Ageing*,. 31:165-168.
- Burrows, A. B., Morris, J. N., Simon, S. E., Hirdes, J. P., Phillips, C., (2000);. Development of a minimum data set-based depression rating scale for use in nursing homes. *Age and Ageing*,. 29:(2), 165-172.
- Falck, R. P., Pot, A. M., Braam, A. W., Hanewald, G. J. F. P., Ribbe, M. W., (1999);. Prevalence and diagnosis of depression in frail nursing home patients; a pilot study [in Dutch]. *Tijdschrift voor Gerontologie en Geriatrie*,. 30:193-199.
- Frijters, D., Achterberg, W., Hirdes, J. P., Fries, B. E., Morris, J. N., Steel, K.,(2001);. Integrated health information system based on Resident Assessment Instruments [in Dutch]. *Tijdschrift voor Gerontologie en Geriatrie*,. 32:8-16.
- Hartmaier, S. L., Sloane, P. D., Guess, H. A., Koch, G. G., Mitchell, C., Phillips, C. D.,(1995);. Validation of the Minimum Data Set Cognitive Performance scale: Agreement with the mini-mental state examination. *Journal of Gerontology: Medical Sciences*,.50A:M128-M133.
- Hawes, C., Phillips, C. D., Mor, V., Fries, B. E., Morris, J. N., (1992);. MDS data should be used for research. *The Gerontologist*,. 32:563-564.
- Hawes, C., Morris, J. N., Phillips, C. D., Mor, V., Fries, B. E., Nonemaker, S., (1995);. Reliability estimates for the Minimum Data Set for nursing home resident assessment and care screening (MDS). *The Gerontologist*,. 35:172-178.
- Hoek, J. F., Ribbe, M. W., Hertogh, C. M. P. M., van der Vleuten, C. P. M., (2001);. The specialist training program for nursing home physicians: A new professional challenge. *Journal of the American Medical Directors Association*,. 6:326-330.
- Kiely, D. K., Simon, S. E., Jones, R. N., Morris, J. N., (2000);. The protective effect of social engagement on mortality in long-term care. *Journal of the American Geriatrics Society*,. 48:1367-1372.
- Mor, V., Branco, K., Fleishman, J., Hawes, C., Phillips, C., Morris, J., et al (1995);. The structure of social engagement among nursing home residents. *Journal of Gerontology: Psychological Sciences*,. 50B:P1-P8.
- Morris J. N., Fries, B. E., Mehr, D. R., Hawes, C., Phillips, C., Mor, V., Lipsitz, L. A.,(1994);. MDS Cognitive Performance Scale. *Journal of Gerontology: Medical Sciences*,.49:M174-M182.

- Morris, J. N., Hawes, C., Fries, B. E., (1990);. Designing the National Resident Assessment Instrument for Nursing Homes. *The Gerontologist*,. 30:293-307.
- Morris, J. N., Nonemaker, S., Murphy, K., Hawes, C., Fries, B. E., Mor, V., et al(1997);. A commitment to change: Revision of HCFA's RAI. *Journal of the American Geriatrics Society*,. 45:1011-1016.
- Ouslander, J. G., (1994);. Maximizing the minimum data set [editorial; comment].*Journal of the American Geriatrics Society*,. 42:1212-1213.
- Parmelee, P. A., Katz, I. R., Lawton, M. P., (1992);. Incidence of depression in long-term care settings. *Journal of Gerontology: Medical Sciences*,. 47:M189-M196.
- Resnick, H. E., Fries, B. E., Verbrugge, L. M., (1997);. Windows to their world: The effect of sensory impairments on social engagement and activity time in nursing home residents. *Journal of Gerontology: Social Sciences*,. 52B:S135-S144.
- Ribbe, M. W., Ljunggren, G., Steel, K., Topinkova, E., Hawes, C., Ikegami, N., et al(1997);. Nursing homes in 10 nations: A comparison between countries and settings.*Age and Ageing*,. 26:(S2), 3-12.
- Rovner, B. W., German, P. S., Brant, L. J., Burton, L., Folstein, M. F., (1991);. Depression and mortality in nursing homes. *Journal of the American Medical Association*,. 265:393-396.
- Schroll, M., Jónsson, P., Mor, V., Berg, K., Sherwood, S., (1997);. An international study of social engagement among nursing home residents. *Age and Ageing*,. 26:(S2),55-58.
- Sgadari, A., Morris, J. N., Fries, B. E., Ljunggren, G., Jonsson, P. V., DuPaquier, J. N., Schroll, M., (1997);. Efforts to establish the reliability of the RAI. *Age and Ageing*,. 26:(S2), 27-30.
- SIG Zorginformatie., (1998);. Annual nursing homes 1997 [in Dutch]. Utrecht, The Netherlands:
- Teresi, J. A., Holmes, D., (1992);. Should MDS data be used for research? *The Gerontologist*,. 32:148-149.
- Trajectories of social engagement and depressive symptoms among long-term care facility residents in Hong Kong *Age Ageing* (2013) 42 (2): 215-222
- Customer Engagement: Conceptual Domain, Fundamental Propositions, and Implications for Research *Journal of Service Research* (2011) 14 (3): 252-271
- Mechanisms Linking Depression to Delinquency for Males and Females *Feminist Criminology* (2010) 5 (1): 8-28
- Certified Nursing Assistants' Explanatory Models of Nursing Home Resident Depression *West J Nurs Res* (2008) 30 (6): 653-672
- Long-Term Effects of Analgesics in a Population of Elderly Nursing Home Residents With Persistent Nonmalignant Pain *J Gerontol A Biol Sci Med Sci* (2006) 61 (2): 165-169
- Factors that relate to activity engagement in nursing home residents *AM J ALZHEIMERS DIS OTHER DEMEN* (2006) 21 (1): 15-22

TABLES

Table 1. Comparison of Characteristics of Sample With Characteristics of SIG Verpleeghuis Informatiesysteem (SIVIS) 1997/1998

Characteristic	Study Sample (n = 562)	Dutch Average 1997/1998 (SIVIS/Arcares) ^a	Significance of the Difference (p)
% female	64.6	66.2	.43
Mean age male	76.2	76.6	.61
Mean age female	79.8	80.2	.45
% residents on psychogeriatric wards	44.0	32.5 (1998: 33.6)	<.0001 <.0001

^aSIVIS has information on 35,402 new admissions in 1997 (represents 81% of all Dutch NH's in 1997; from *Annual nursing homes 1997* [in Dutch], Utrecht, The Netherlands, SIG Zorginformatie, 1998). For 1998 information on % female and mean age, male and female are not described (from *Nursing homes in figures 1998: Information from LZV and SIVIS* [in Dutch], Utrecht, The Netherlands, Arcares, 1999).

Table 2. Distribution of Dependent and Independent Variables (Chi Square Fischer's Exact 2-Sided for Dichotomous Variables and Pearson Chi Square 2-Sided for Categorical Variables) for 543 Residents Who Were Included in the Multivariate Regression Analysis

Variable	Depression			Social Engagement		
	Yes, % (n = 145)	No, % (n = 398)	p	Low, % (n = 271)	High, % (n = 272)	p
Low social engagement	72.4	41.7	<.001	—	—	
Depression	—	—	—	38.7	14.7	<.001
Cognition low	24.1	16.3	.045	28	8.8	<.001
Seeing problems	45.5	30.7	.002	43.2	26.1	<.001
Hearing problems	33.8	24.4	.037	30.6	23.2	.053
ADL impairment	35.9	34.9	.840	38.7	31.6	.088
Male	35.2	34.7		37.3	32.4	.242
Age						
<65	3.4	8.8		5.5	9.2	
65-74	15.9	16.8		16.6	16.5	
75-84	49	46.5	.182	46.5	47.8	.300
≥85	31.7	27.9		31.4	26.5	
Ward						
Somatic	31	32.2		33.2	30.5	
Psychogeriatric	55.9	40.2	<.001	49.1	39.7	.003
Rehabilitation	13.1	27.6		17.7	29.8	

Table 3. Multivariate Logistic Model for Determinants of Low Social Engagement in Newly Admitted ($n = 543$) Dutch Nursing Home Residents

Variable	OR	95% CI	<i>p</i> (Wald)
Depression	3.3	2.1–5.1	<.001
Cognition	3.5	2.0–6.1	<.001
Vision	1.7	1.1–2.5	.011
Hearing	1.0	0.7–1.6	<i>ns</i> (.846)
ADL	1.4	1.1–2.1	<i>ns</i> (.083)
Sex	0.8	0.5–1.2	<i>ns</i> (.230)
Ward			
Somatic (indicator)			<i>ns</i> (.665)
Psychogeriatric	.9	.5–1.4	<i>ns</i> (.861)
Rehabilitation	.8	.5–1.3	<i>ns</i> (.797)
Age			
<65 (indicator)			<i>ns</i> (.710)
65–74	1.6	.7–3.7	<i>ns</i> (.261)
75–84	1.5	.7–3.2	<i>ns</i> (.322)
≥85	1.6	.7–3.6	<i>ns</i> (.286)

Notes: OR = odds ratio; CI = confidence interval; ADL = activity of daily living index.