

Association between self-reported care needs and the allocation of care in Norwegian home nursing care recipients

Hans Inge Sævareid RN, Cand Polit

Assistant Professor, Faculty of Health and Sport Sciences, University of Agder, Arendal, Norway

Elin Thygesen RN, Cand Polit

Assistant Professor, Faculty of Health and Sport Sciences, University of Agder, Arendal, Norway

Torill Christine Lindstrom Cand Psychol, PhD

Professor, Faculty of Psychology, Department of Psychosocial Science, University of Bergen, Bergen, Norway

Harald A. Nygaard MD, PhD

Professor, Hospital for Old Psychiatry, NKS Olaviken, Erdal, Norway

Submitted for publication: 1 February 2010

Accepted for publication: 16 July 2010

Correspondence:

Hans Inge Sævareid
Faculty of Health and Sport Sciences
University of Agder
Jon Liletuns vei 9
4879 Grimstad
Norway
Telephone: +47 90618927
E-mail: hans.i.savareid@uia.no

SÆVAREID H.I., THYGESEN E., LINDSTROM T.C. & NYGAARD H.A. (2010) Association between self-reported care needs and the allocation of care in Norwegian home nursing care recipients. *International Journal of Older People Nursing*

doi: 10.1111/j.1748-3743.2010.00247.x

Objectives. This study investigated the relationship between patients' self-reported illness, daily afflictions, and the frequency of home nursing care, and whether patients' coping resources influenced the allocation of care.

Design, sample and measurements. A cross-sectional survey was adopted. Two hundred and forty-two people aged 75 years and above receiving home nursing care participated in the study. Binary logistic regression model was used to test the effects of the independent variables on home nursing care.

Results. Poor capacity to perform activities of daily living and high level of education were directly associated with a high frequency of home nursing care. Lack of perceived social support affected the amount of home nursing care allocated only when feelings of loneliness were connected with poor activities of daily living functioning. Interaction effects revealed that perceived social support influenced the amount of home nursing care in persons with higher education, in persons with low education, no such association were found. No associations were found between coping resources and home nursing care.

Conclusions. Impaired capacity to perform activities of daily living was the main reason for care allocation. Education was associated with more formal care. Patients with low perceived social support combined with a low education level was a particularly vulnerable group.

Key words: care needs, home nursing care, perceived social support, sense of coherence

Introduction

The main objective of home nursing care (HNC) is to improve the quality of life and/or maintain the independence of patients (Thome *et al.*, 2003). Based on the idea of patient empowerment, there has been a change from the provision of HNC based on availability, to its provision based on an assessment of patient needs. This has resulted in an emphasis on 'tailor-made care', implying a balance between the individual patient's care needs and the actual amount of care allocated (Algera *et al.*, 2004). However, this needs-based approach is often limited by the need to optimise the allocation of limited resources, and is therefore not always achieved. This disproportion emphasises the need for greater focus on the balance between the needs of individual patients and the amount of care allocated.

Numerous studies have focused on factors that predict the use versus non-use of health care services in the general population (community samples) of older people. Functional impairment, problems with performing basic and instrumental activities of daily living (ADL), incurable and advanced chronic diseases, comorbidity and cognitive impairment are established as major predictors of HNC and institutional care (Chappell, 1994; Miller & Weissert, 2000; Hall & Coyte, 2001; Thorslund *et al.*, 2001; Larsson & Thorslund, 2002; Stoddart *et al.*, 2002; Kadushin, 2004). However, a major weakness in these studies on general populations of senior citizens has been that the very old people (80 years and older), who are the predominant consumers of home care services; in general constitute only a moderate fraction in these samples. Therefore, there is still limited knowledge about the relationships between the care needs of the oldest old and the amount of care offered.

Few studies have addressed the need/use match in professional home care (Algera *et al.*, 2004). The term 'home care services' has not been consistently operationalised or measured, and include both HNC and home help services. Comorbidities and problems with performing ADL are the major predictors of HNC allocation (Albert *et al.*, 1998; Lagergren & Johansson, 1998; Meinow *et al.*, 2005). The influence of social support on the allocation of HNC is complex and appears to vary depending on the type of support evaluated (Penning, 1995; Mustard *et al.*, 1999; Miller & Weissert, 2000). Finally, findings regarding the impact of cognitive impairment and mental disorders on the use of HNC are mixed (Larsson *et al.*, 2004).

Obviously, somatic need factors are prominent predictors. Interestingly, during recent decades, increasing attention on the capacity for self-care has directed focus on the patients' coping resources. However, there appears to be a lack of

documentation on how coping factors correlate with the allocation of HNC. A sense of coherence (SOC) is suggested as a global coping resource influencing health (Antonovsky, 1987). A person possessing a strong SOC will be motivated to cope, will consider problems as challenges, comprehensible and manageable, and will tend to believe that he/she has the resources to resolve problems. Because a capacity to cope seems to influence the lives of diseased and impaired older people by moderating stress, coping is expected to influence their self-care capacity and thus their need for HNC. Few studies have questioned whether SOC may predict health outcomes in care-dependent older persons (Eriksson & Lindstrom, 2005, 2006), and the results are varied.

According to the main objectives of public HNC, we hypothesised that physical, functional, psychological and social conditions would contribute to the allocation of care, and that high level of sense of coherence would reduce the need of care assistance.

The objective of this study was to investigate the relationship between patients' self-reported illness, daily afflictions, the frequency of HNC allocated, and whether coping resources influence allocation of care.

The study was conducted within the context of a 'Scandinavian welfare model', which implies that health care services are either fully tax funded or funded with limited copayments. In Norway, HNC is free, and is a right that every citizen has, regardless of economic status. Services are provided around the clock and aim to help people to continue to live in their own home.

Methods

This study forms part of The European Union's *Fifth Framework Programme (FP5): Care for the Aged at Risk of Marginalization (CARMA)*. Key action 6 of this program is *The ageing population and disabilities* (http://www.ageingresearch.group.shef.ac.uk/ka6_care.php#2002-02341).

Sampling procedures

A cross-sectional survey was adopted in order to gather comprehensive data on individual characteristics. This study was set in seven municipalities in southern Norway. Composition of the participating municipalities was based on a distribution according to representative classifications with regard to industrial links, population density, and urban/rural location (Statistics Norway, 1994). In the two most populous municipalities, the selection of participants was made by random sampling, whereas in the five rural communities,

which had fewer inhabitants, all users of HNC were included to ensure representation of rural areas.

The unit nursing officer (responsible for the allocation of nursing care services) in each of the participating offices identified patients fulfilling the inclusion criteria. Research assistants, all Registered Nurses with no previous involvement with the patients, collected the data during an interview in the participants' homes, and entered the participants' answers on questionnaire forms. Data collection lasted about 90 minutes, with some interviews completed over two or more sessions because of fatigue in the participants. Baseline data were collected during the period 1998–2001.

Description of the sample

Inclusion criteria were age 75 years or older, receiving HNC, being able to understand the purpose of the investigation and to communicate orally, and to give their autonomous (informed) consent. The only exclusion criterion was difficulty in conversing with the research assistant.

The potential population of participants comprised 348 individuals. Seventy-eight individuals (22.4%) refused to participate, nine died, and nine were permanently institutionalised before data were collected. Ten interviews were not completed, resulting in a baseline sample of 242 respondents. Participants with missing data were excluded from statistical analysis, leaving a final total sample of 212 people (148 women and 64 men) giving an actual final response rate of 69.5%. The mean age was 84.5 years.

Variables

This investigation is part of a comprehensive survey on whether coping skills influence the ability to independent living in Norwegian patients receiving HNC (also included in the EU's *Fifth Framework Programme*), and this has influenced the selection of variables and scales in the present study.

Outcome variable

The dependent variable was the *frequency of HNC* (less than once a day = 0, once a day or more = 1) offered by the community health care department.

Explanatory variables

Demographic variables: *sex* (men = 0, women = 1); *age*; *education* (less than/or elementary school or continuation school = 0 or further education = 1); *living with someone*

(living alone = 0, living with someone = 1); and *housing conditions* (living in their own home = 0, in sheltered housing = 1).

The 13-item version of *Sense of Coherence (SOC) scale* (Antonovsky, 1987) was used to measure coping. The SOC scale contains three sections: comprehensibility (five items), manageability (four items), and meaningfulness (four items). Each question is rated on a Likert scale, ranging from 1 (lowest) to 7 (highest), producing total scores from 13 (poor coping) to 91 (excellent coping). Cronbach's alpha in the present study was 0.80.

The social network variables (*seeing children* and *seeing friends*) were measured by the questions 'How often are you together with ...?' (irrelevant/never = 0, practically never = 1, once or a few times a year = 2, 1–3 times a month = 3, once a week = 4, several times a week = 5, or daily = 6).

The Revised Social Provisions Scale (SPS) (Cutrona *et al.*, 1986; Cutrona & Russell, 1987), was used to assess social support. It has six subscales: attachment, social integration, nurturance, reassurance of worth, reliable alliance, and guidance. The first four being most important to the oldest old, and were therefore used in this study (Cutrona & Russell, 1987; Bondevik & Skogstad, 1998). Four statements assessed each social provision. The total score for the complete 16-item version was used to assess the level of social support, and ranged from 16 (low social support) to 64 (high social support). Cronbach's alpha = 0.81 in the present study.

Practical assistance from next of kin was recorded: (no/irrelevant, does not get help = 0, less than weekly = 1, 1–6 times a week = 2, 1–2 times a day = 3, or three or more times a day = 4).

The abbreviated *Subjective Health Complaints Inventory (SHC)* (Eriksen *et al.*, 1999) is a 22-item scale that registers subjective somatic and psychological complaints experienced during the past 30 days. The SHC measures subjective experience, occurrence, intensity, and duration of health complaints in three categories: musculoskeletal pain, pseudo-neurology, and gastrointestinal problems, but without reference to specific diagnostic categories (Eriksen *et al.*, 1999). The scores range from 0 to 3, with a total score ranging from 0 (excellent) to 66 (poor). The questionnaire has satisfactory validity and reliability (Eriksen *et al.*, 1999). In the present study, Cronbach's alpha was 0.84.

Self-rated health (SRH) was measured by the question 'How is your health now?' The answer categories were poor = 1, not very good = 2, good = 3, or very good = 4. SRH is a good predictor of future health status, as measured by mortality and morbidity (Benyamini & Idler, 1999).

The *General Health Questionnaire* (GHQ) (Goldberg, 1972; Goldberg & Williams, 1988; Malt *et al.*, 1989) was used to measure psychological distress. GHQ (30 items) measures symptoms of depressed mood, anxiety, social inadequacy, and hypochondriasis. Each question is scored on a Likert scale of 0–3, giving a total score range of 0–90. A low score indicates an absence of psychological distress. Cronbach's alpha in the present study was 0.92.

The *Clinical Dementia Rating* (CDR) scale assesses cognitive impairment (Hughes *et al.*, 1982; Engedal & Haugen, 1993). It consists of a global score derived from six domains of cognitive and functional performance: memory, orientation, judgement and problem solving, community affairs, home and hobbies, and personal care. The summed domain scores were calculated according to the instructions given by Morris (1993). Cronbach's alpha in the present study was 0.79.

The *Barthel ADL index* (Mahoney & Barthel, 1965) was used to measure functional impairment in activities associated with daily living. The ADL was scored as recommended by Wade and Collin (1988). The instrument includes 10 basic functions: bowel and bladder functioning, feeding, grooming, dressing, transfer from bed to chair, toilet use, mobility, climbing stairs, and bathing. In the current study, Cronbach's alpha was 0.82.

Statistical analyses

SPSS 14.1 for Windows (SPSS Inc. 1989–2002) was used for the statistical analyses. Subject characteristics were summarised by calculating means and standard deviations (SD) for continuous variables, and absolute numbers and percentages for categorical variables.

Bivariate statistical associations were tested with the Pearson correlation coefficient for pairs of interval variables, the Point biserial coefficient (equivalent to the Pearson product moment correlation) for dichotomous by interval variables, and the Phi correlation coefficient for pairs of dichotomies; all tests were two-tailed with list-wise deletion (Glass & Hopkins, 1996). Reliability tests of internal consistency in sets of items were made using Cronbach's alpha.

Independent samples *t*-test was used to compare mean scores between groups for continuous dependent variables, and chi-square tests to explore the relationship between categorical variables.

Multiple logistic regression models were used to assess the impact of the independent variables on the dependent; a block-wise entry into the model was used. Differences in the effect sizes by levels of HNC were tested by interaction terms,

one pair at a time, while retaining main effects in the logistic regression model (Pallant, 2005).

Multicollinearity and curvilinearity diagnostics were performed according to the recommendations of the SPSS logistic regression software (Pallant, 2005).

Ethical considerations

This study conformed to the principles embodied in the Declaration of Helsinki (<http://www.wma.net>), was approved by the Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate, and was designed and implemented according to common ethical principles in clinical research (Beauchamp & Childress, 2001).

Results

One hundred and twenty-seven patients (59.9%) had less than one visit per day from home nurses. Thirty-seven patients (17.5%) lived together with a spouse/cohabitant, whereas 54 (25.5%) lived in the same house as a family member. No sex differences were identified.

Variables expected to influence the frequency of HNC (based on research presented in the introduction chapter), were selected and tested in a univariate binary regression model. Only variables with a *P*-value equal to, or less than, 0.2 were selected for further investigation. According to this procedure, the following variables were excluded from further investigation: *Social network: seeing children* (OR = 0.864; *P* = 0.594), *Social network: seeing friends* (OR = 0.730; *P* = 0.250), *Practical assistance from next of kin* (OR = 1.083; *P* = 0.517), *Subjective Health Complaints Inventory* (OR = 0.990; *P* = 0.636) and *GHQ* (OR = 1.022; *P* = 0.274).

Descriptive statistics for independent variables in the two levels of HNC are presented in Tables 1 and 2, and a correlation matrix is shown in Table 3. In general, patients with higher level of education, lower levels of perceived social support and poor ADL-functioning received the most nursing care.

The multiple logistic regression models were performed block-wise according to a theoretical model of the causal ordering obtained between the independent variables (Table 4). Personal and sociodemographic variables were entered in models 1 and 2, coping skills (SOC) and the self-rated health (SRH) in model 3, cognitive (CDR) and functional (ADL) impairment in model 4, and perceived social support (SPS) in model 5. No multicollinearity (too high inter-correlations between independent variables) was identified, and tests of non-linearity in the association

Table 1 Descriptive statistics for nominal independent variables

	Descriptive	Home nursing care		Significant differences
		Less than once a day <i>n</i> = 127 (59.9%)	Once a day or more <i>n</i> = 85 (40.1%)	
Sex	Male (<i>n</i> = 64, 30.2%) Female (<i>n</i> = 148, 69.8%)	40 (62.5%) 87 (58.8)	24 (37.5%) 61 (41.2%)	0.723
Education	Low (<i>n</i> = 125, 59%) High (<i>n</i> = 87, 41%)	85 (68.0%) 42 (48.3%)	40 (32.0%) 45 (51.7%)	0.006
Living with someone	No (<i>n</i> = 158, 74.5%) Yes (<i>n</i> = 54, 25.5%)	90 (57.0%) 37 (68.5%)	68 (43.0%) 17 (31.5%)	0.182
Housing condition	Own home (<i>n</i> = 150, 70.8%) Sheltered housing (<i>n</i> = 62, 29.2%)	95 (63.3%) 32 (51.6%)	55 (36.7%) 30 (48.4%)	0.153

Chi-square test for differences between groups (*n* = 212).

Table 2 Means standard deviation and range for continuous independent variables within each group of the dependent variable

	Descriptive	Range	Home nursing care		<i>t</i>	Sig.
			Less than once a day <i>n</i> = 127 (59.9%)	Once a day or more <i>n</i> = 85 (40.1%)		
Age		75–98	Mean (SD) 84.7 (4.8)	Mean (SD) 84.3 (5.4)	0.512	0.610
Sense of coherence (SOC)	H = Strong SOC	31–88	70.6 (8.9)	68.6 (9.3)	1.598	0.112
Self-rated health (SRH)	H = Good health	1–4	2.3 (0.7)	2.2 (0.7)	1.319	0.189
Clinical dementia rating (CDR)	H = Severe dementia	0–13	1.2 (2.5)	1.8 (2.5)	–1.483	0.140
Activities of daily living (ADL)	H = Independence	5–20	18.7 (1.5)	16.3 (3.6)	7.084	0.000
Social provisions scale (SPS)	H = High perceived support	30–64	54.0 (6.6)	51.0 (6.9)	3.139	0.002

Tests of differences in means by *t*-test (*n* = 212).

H = High.

Table 3 Correlation matrix for home nursing care (HNC) and independent variables

	HNC	Sex	Age	Education LwS	Housing condition	SOC	SRH	CDR	ADL
Sex	0.04 [‡]								
Age	–0.04 [§]	0.03 [§]							
Education	0.20 ^{**†}	–0.10 [‡]	–0.09 [§]						
LwS	–0.10 [‡]	–0.11 [‡]	–0.14 ^{**§}	–0.03 [‡]					
Hous Cond	0.11 [‡]	0.06 [‡]	0.11 [§]	–0.07 [§]	–0.23 ^{**†}				
SOC	–0.11 [§]	–0.07 [§]	0.18 ^{**†}	0.11 [§]	–0.06 [§]	0.01 [§]			
SRH	–0.09 [§]	–0.05 [§]	0.24 ^{**†}	–0.02 [§]	–0.14 ^{**§}	0.01 [§]	0.28 ^{**†}		
CDR	0.10 [§]	–0.19 ^{**§}	–0.08 [†]	–0.07 [§]	0.08 [§]	0.15 ^{**§}	–0.21 ^{**†}	–0.15 ^{**†}	
ADL	–0.44 ^{**§}	–0.06 [§]	0.13 [†]	0.03 [§]	–0.06 [§]	–0.09 [§]	0.15 ^{**†}	0.20 ^{**†}	–0.22 ^{**†}
SPS	–0.21 ^{**§}	0.12 [§]	0.02 [†]	–0.06 [§]	0.03 [§]	0.07 [§]	0.29 ^{**†}	0.11 [†]	–0.28 ^{**†}

P* < 0.05; *P* < 0.01; ****P* < 0.001, analysed by list-wise deletion.

[†]Pearsons *r*; [‡]Phi; [§]Point biserial (*n* = 212).

ADL, activities of daily living; CDR, clinical dementia rating; Hous Cond, housing condition; LwS, living with someone; SOC, sense of coherence; SPS, social provisions scale; SRH, self-rated health.

between the independent variables and the main dependent variable revealed no significant curvilinear trends (*P* < 0.01).

High levels of education and a poor capacity to perform ADL were associated with high levels of HNC also when

controlled for other independent variables (Table 4, model 5).

We expected perception of social support (SPS) to be influenced by several of the other independent variables, such

Table 4 Predictors of frequency of home nursing care

	Univariate (OR)	Multivariate (OR and CI)					
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6 without ADL
Sex (Male–Female)	1.17	1.30	1.21	1.15	0.88	0.95 (0.43–2.09)	1.41 (0.71–2.78)
Age	0.99	0.99	0.98	0.10	1.01	1.01 (0.94–1.08)	0.99 (0.93–1.06)
Education (H = High education)	2.28**	2.32**	2.40**	2.61**	3.55***	3.41** (1.69–6.87)	2.57** (1.39–4.74)
LwS (H = Yes)	0.61		0.68	0.64	0.48	0.51 (0.211–1.23)	0.67 (0.32–1.39)
Hous Cond (L = Own, H = Sheltered)	1.62		1.66	1.66	1.32	1.37 (0.65–2.92)	1.74 (0.89–3.40)
SOC (H = Strong SOC)	0.98			0.97	0.97	0.98 (0.94–1.02)	0.99 (0.95–1.02)
SRH (H = Good health)	0.77			0.83	1.05	1.08 (0.65–1.79)	0.86 (0.56–1.33)
CDR (H = Severe dementia)	1.06				1.01	0.99 (0.85–1.15)	1.04 (0.92–1.18)
ADL (H = Independent)	0.64***				0.61***	0.62*** (0.51–0.75)	
SPS (H = High perceived support)	0.97**					0.97 (0.92–1.03)	0.94* (0.90–0.99)

Univariate and multiple logistic regressions. Odds ratio's and 95% CI in best fit models (*n* = 212).

P* < 0.05; *P* < 0.01; ****P* < 0.001.

L = low, H = high.

ADL, activities of daily living; CDR, clinical dementia rating; Hous Cond, housing condition; LwS, living with someone; SOC, sense of coherence; SPS, social provisions scale; SRH, self-rated health.

as self-rated health and functional health. When SPS was entered at the last step of the regression, no direct effect of SPS emerged in the multivariate model (Table 4, model 5). In order to investigate whether this lack of an association was caused by a confounding effect of ADL, subsequently, a model without ADL was tested (Table 4, model 6). This model confirmed our assumption, indicating that the effect of SPS on HNC may be caused by the underlying effect of ADL on perceived social support.

Systematic differences in the effect size of given independent variables by levels of another independent variable were tested by multiplicative (interaction) terms, one pair at a time, while retaining the main effects of this pair of independents in the multiple regression models. The only statistically significant interaction that emerged involved education which to some extent moderated the effects of SPS (Fig. 1). Among respondents with a high level of education a clear inverse relationship between SPS and the dependent variable emerged while there was no association between SPS and HNC among the less educated respondents.

Discussion

We anticipated that the amount of care allocated to each patient would reflect the priorities of the home nursing units (the council office that provides HNC) with regard to maintaining the independence of, or improving the quality of life, of the patients.

The present study confirms previous studies showing that functional impairment of ADL is a significant threat to a person's capacity to live independently and is a major reason for receiving HNC (Banerjee & Macdonald, 1996; Meinow *et al.*, 2005).

Surprisingly, a personal resource, measured as educational level, also had a direct effect on the amount of HNC received. Patients with more education received more HNC than patients with less education, as also reported in other studies

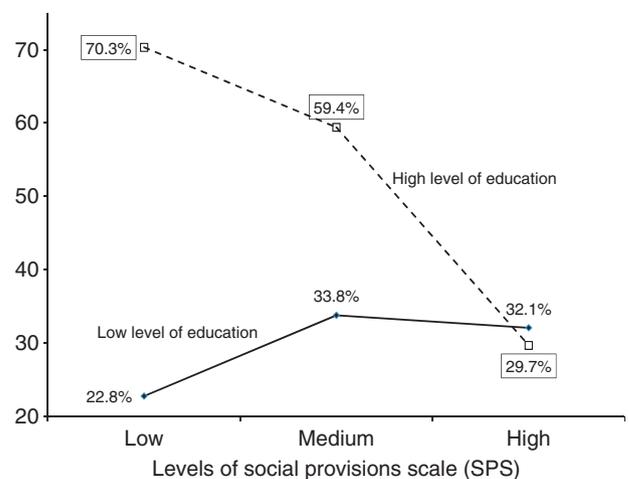


Figure 1 Proportion (%) receiving Home Nursing Care (HNC) at least once a day, by level of social provisions (SPS) and level of education. Proportions estimated by OLS, with controls for all other independent variables (cf. Model 5 in Table 3).

(Möller, 1996; Calsyn & Winter, 2000; Larsson *et al.*, 2004). Educated individuals may be more self-assertive and persistent in their demands for social services, and also more competent in obtaining information about their rights, such as tax funded HNC. Still this argument presupposes that the older person is able to apply for HNC himself.

However, other factors may also influence the process of applying for HNC. The informal support system, as well as formal providers, may influence the decisions to seek care and accept services (Pescosolido, 1992; Penning, 1995; Cole & Miller, 1999). In contrast, according to Penning (1995), informal support resources may reduce unmet needs and substitute for formal services. Therefore, we expected to find an association between frequency of HNC services and factors that constitute an informal support system, such as household composition, practical assistance from next of kin, and contact with friends. No such direct association with the frequency of HNC was observed in the present study. This may be due to the fact that social networks play a dual role. Social network can both preclude the need for nursing by substituting for formal care, but can also negotiate the health services received (Logan & Spitze, 1994; Penning, 1995; Blomgren *et al.*, 2008).

Because maintaining or improving the patient's quality of life is one of the main goals of HNC, we expected that the more qualitative measure of perceived social support would influence the extent of HNC. However, the bivariate correlation between SPS and HNC proved to be spurious. Our analysis showed that the influence of SPS on the amount of HNC received was caused by the effect of ADL levels on the perceived social support. This implies that the level of ADL influences the possibility of maintaining social relations and therefore also influences the perceived social support.

Interestingly, a moderator effect was observed between the high and low levels of SPS and education (Fig. 1). Since there were no direct or indirect relations between level of education and neither perceived social support nor ADL-functioning, we anticipate some plausible explanations: (i) Patients with high levels of education have resources to argue for HNC, despite a low perception of social support; (ii) patients with low education have a lesser amount of such resources and (iii) the latter group is not given priority by the home nurses.

As discussed previously, we have no data in this investigation that can explain the influence of external factors, like for example, the influence of next of kin or the priorities of the home nursing units. This finding, however, underlines that older care dependent persons with low social support and low level of education is a particularly vulnerable group (Fig. 1).

SOC pertains to coping as a general feeling of exerting control and being able to influence one's own life (Antonov-

sky, 1987). The results from this study do not reveal a direct association between SOC and HNC. To our knowledge, this issue has previously not been examined. Research into SOC as a predictor of future health outcomes and primary health care use has produced inconsistent results (Eriksson & Lindstrom, 2005, 2006). However, high SOC score has been found to relate to a reduced use of primary health care services (general practitioners) (Bergh *et al.*, 2006). Another study, based on the same sample as the present one, found no association between SOC and nursing-home admissions (Thygesen *et al.*, 2009). Therefore we conclude that different coping processes may thus underlie the use of various types of health services.

We expected to find an association between emotional factors and cognitive impairment and the amount of care allocated, because depression and cognitive impairment are generally associated with high levels of dependency (Schulz *et al.*, 1995; Wilms *et al.*, 2000; Ormel *et al.*, 2002). There are several possible explanations for the lack of associations here between psychological distress and HNC allocated. It is possible that home care nurses fail to identify the needs of depressed older persons (Hocking *et al.*, 1995; Rogers & Barusch, 2000). Depressive symptoms, by itself, can affect also an individual's motivation and ability to apply for help. Another reason may be that nurses focus more on physical ailments when allocating HNC services, assuming depressive symptoms to decline when physical deficits are alleviated (Hocking *et al.*, 1995).

However, the levels of cognitive impairment and psychological distress were relatively low in the present sample. It is probable that the lack of associations between psychological distress and cognitive impairments, and HNC may, to some extent, be explained by characteristics of the study design. In the selection of participants, persons with severe psychological incapacities were excluded from the study, they could also be overrepresented among those who refused to participate.

Finally, age and sociodemographic conditions, such as household composition, did not affect the allocation of HNC, contrary to the findings of others (Meinow *et al.*, 2005; Blomgren *et al.*, 2008). We believe this is attributable to the composition of this sample. The mean age was very high, almost 85 years, which implies that the sample was more homogeneous than in most other reported studies. Thus, variations in functional impairments, more than natural age, characterise the sample. With a very high mean age, there will also be fewer differences between the respondents with regard to sociodemographic characteristics. Fewer of these patients live with someone else, and if they do, in most cases these persons are also very old and thus unable to provide substantial informal care.

The extraction procedure of participants may limit the generalisation of our findings. Persons with severe psychological incapacities and somatic illness were excluded, implying that a certain number of persons with considerably poorer, or better, health, were not included in the study.

Conclusion

In general, an impaired capacity to perform ADL was the main condition emphasised by nurses when allocating care. Education seemed to be a personal resource that was associated with formal care. Sense of coherence was not related to the allocation of care.

Emotional conditions, like psychological distress (GHQ) and SPS were not directly correlated with the amount of care allocated; again confirming that HNC primarily is directed toward the demands of somatic functional impairments.

It is important to understand how multiple impairments and diminished functional capacity interact, how this interaction is perceived as needs, and given priority in care allocation. A particularly vulnerable group may be patients with low perceived social support combined with a low educational level. This group seems clearly to be in need of thorough examinations of their health and social conditions, in order to prevent adequate care needs being ignored.

Implications for practice

Home nurses should notice that:

- The allocation of care is basically connected to needs caused by functional impairment.

Therefore:

- The risk of failing to reveal emotional needs like loneliness and psychological distress is great, if these conditions are not accompanied by functional impairment.
- Older people with low education should be shown particular attention when they are considered for allocation of home nursing care, since this group is in danger of being overlooked with regard to needs for social support.
- In order to achieve the main goals of home nursing care; improving quality of life and maintain independence, subjective health complaints and emotional problems must be given greater attention.
- Priorities of resources in home nursing care should be subject of general discussions in staff, as subjective aspects in the patient's life in general seem to be given low priority.

References

- Albert S.M., Sano M., Bell K., Merchant C., Small S. & Stern Y. (1998) Hourly care received by people with Alzheimer's disease: results from an urban, community survey. *Gerontologist* 38, 704–714.
- Algera M., Francke A.L., Kerkstra A. & Van Der Zee J. (2004) Home care needs of patients with long-term conditions: literature review. *Journal of Advanced Nursing* 46, 417–429.
- Antonovsky A. (1987) *Unraveling the Mystery of Health: How People Manage Stress and Stay Well*. Jossey-Bass, San Francisco.
- Banerjee S. & Macdonald A. (1996) Mental disorder in an elderly home care population: associations with health and social service use. *British Journal of Psychiatry* 168, 750–756.
- Beauchamp T.L. & Childress J.F. (2001) *Principles of Biomedical Ethics*, 5th edn. Oxford University Press, New York.
- Benyamini Y. & Idler E.L. (1999) Community studies reporting association between self-rated health and mortality – additional studies, 1995 to 1998. *Research on Aging* 21, 392–401.
- Bergh H., Baigi A., Fridlund B. & Marklund B. (2006) Life events, social support and sense of coherence among frequent attenders in primary health care. *Public Health* 120, 229–236.
- Blomgren J., Martikainen P., Martelin T. & Koskinen S. (2008) Determinants of home-based formal help in community-dwelling older people in Finland. *European Journal of Ageing* 5, 335–347.
- Bondevik M. & Skogstad A. (1998) The oldest old, ADL, social network, and loneliness. *Western Journal of Nursing Research* 20, 325–343.
- Calsyn R.J. & Winter J.P. (2000) Predicting different types of service use by the elderly: The strength of the behavioral model and the value of interaction terms. *Journal of Applied Gerontology* 19, 284–303.
- Chappell N.L. (1994) Home care research – what does it tell us? *Gerontologist* 34, 116–120.
- Cole S.A. & Miller B. (1999) Pathways to service for older persons. *Journal of Gerontological Social Work* 32, 61–83.
- Cutrona C.E. & Russell D.W. (1987) The provisions of social relationships and adaptation to stress. In *Advances in Personal Relationships* (Jones W.H. & Perlma D. eds). JAI Press, Greenwich, CT, pp. 37–67.
- Cutrona C.E., Russell D.W. & Rose J. (1986) Social support and adaptation to stress by the elderly. *Psychology and Aging* 1, 47–54.
- Engedal K. & Haugen P.K. (1993) The prevalence of dementia in a sample of elderly Norwegians. *International Journal of Geriatric Psychiatry* 8, 565–570.
- Eriksen H.R., Ihlebaek C. & Ursin H. (1999) A scoring system for subjective health complaints (SHC). *Scandinavian Journal of Public Health* 27, 63–72.
- Eriksson M. & Lindstrom B. (2005) Validity of Antonovsky's sense of coherence scale: a systematic review. *Journal of Epidemiology and Community Health* 59, 460–466.
- Eriksson M. & Lindstrom B. (2006) Antonovsky's sense of coherence scale and the relation with health: a systematic review. *Journal of Epidemiology and Community Health* 60, 376–381.
- Glass G.V. & Hopkins K.D. (1996) *Statistical Methods in Education & Psychology*, 3rd edn. Allyn & Bacon, Boston.
- Goldberg D. (ed) (1972) *The Detection of Psychiatric Illness by Questionnaire*. Oxford University Press, Oxford.

- Goldberg D. & Williams P. (1988) *A User's Guide to the General Health Questionnaire*. NFER-Nelson, London.
- Hall R. & Coyte P. (2001) Determinants of home care utilization: who uses home care in Ontario? *Canadian Journal on Aging – Revue Canadienne Du Vieillessement* 20, 175–192.
- Hocking L., Koenig H. & Blazer D. (1995) Epidemiology and geriatric psychiatry. In *Textbook in Psychiatric Epidemiology* (Tsuang M., Tohen M. & Zahner G. eds). Wiley-Liss, New York, pp. 437–452.
- Hughes C.P., Berg L., Danziger W.L., Coben L.A. & Martin R.L. (1982) A new clinical scale for the staging of dementia. *British Journal of Psychiatry* 140, 566–572.
- Kadushin G. (2004) Home health care utilization: a review of the research for social work. *Health and Social Work* 29, 219–244.
- Lagergren M. & Johansson P.A. (1998) Are there differences in standard of care for the elderly? A comparative study of assistance decisions in Stockholm. *Scandinavian Journal of Social Welfare* 7, 340–349.
- Larsson K. & Thorslund M. (2002) Does gender matter? Differences in patterns of informal support and formal services in a Swedish urban elderly population. *Research on Aging* 24, 308–336.
- Larsson K., Thorslund M. & Forsell Y. (2004) Dementia and depressive symptoms as predictors of home help utilization among the oldest old: population-based study in an urban area of Sweden. *Journal of Aging and Health* 16, 641–668.
- Logan J.R. & Spitze G. (1994) Informal support and the use of formal services by older Americans. *Journals of Gerontology* 49, S25–S34.
- Mahoney F.I. & Barthel D.W. (1965) Functional evaluation: The Barthel Index. *Maryland State Medical Journal* 14, 61–65.
- Malt U.F., Mogstad T.E. & Refnin I.B. (1989) Goldberg's General Health Questionnaire. *Tidsskrift for Den Norske Laegeforening* 109, 1391–1394.
- Meinow B., Kareholt I. & Lagergren M. (2005) According to need? Predicting the amount of municipal home help allocated to elderly recipients in an urban area of Sweden. *Health & Social Care in the Community* 13, 366–377.
- Miller E.A. & Weissert W.G. (2000) Predicting elderly people's risk for nursing home placement, hospitalization, functional impairment, and mortality: a synthesis. *Medical Care Research and Review* 57, 259–297.
- Möller T. (1996) *Brukare och Klienter i Vålfärdsstaten*. Publica, Stockholm.
- Morris J.C. (1993) The clinical dementia rating (Cdr) – current version and scoring rules. *Neurology* 43, 2412–2414.
- Mustard C., Finlayson M., Derksen S. & Berthelot J.M. (1999) What determines the need for nursing home admission in a universally insured population? *Journal of Health Services & Research Policy* 4, 197–203.
- Ormel J., Rijdsdijk F.V., Sullivan M., Van Sonderen E. & Kempen G. (2002) Temporal and reciprocal relationship between IADL/ADL disability and depressive symptoms in late life. *Journals of Gerontology Series B – Psychological Sciences and Social Sciences* 57, P338–P347.
- Pallant J. (2005). *SPSS Survival Manual*, 2nd edn. Open University Press, Maidenhead, UK.
- Penning M.J. (1995) Health, social support, and the utilization of health services among older adults. *Journals of Gerontology Series B – Psychological Sciences and Social Sciences* 50, S330–S339.
- Pescosolido B.A. (1992) Beyond rational choice – the social dynamics of how people seek help. *American Journal of Sociology* 97, 1096–1138.
- Rogers A. & Barusch A. (2000) Mental health service utilization among frail, low-income elders: perceptions of home service providers and elders in the community. *Journal of Gerontological Social Work* 34, 23–38.
- Schulz R., Obrien A.T., Bookwala J. & Fleissner K. (1995) Psychiatric and physical morbidity effects of dementia caregiving – prevalence, correlates, and causes. *Gerontologist* 35, 771–791.
- Statistics Norway (1994) *Standard Classification of Municipalities 1994*. Statistics Norway, Oslo.
- Stoddart H., Whitley E., Harvey I. & Sharp D. (2002) What determines the use of home care services by elderly people? *Health & Social Care in the Community* 10, 348–360.
- Thome B., Dykes A.-K. & Hallberg I.R. (2003) Home care with regard to definition, care recipients, content and outcome: systematic literature review. *Journal of Clinical Nursing* 12, 860–872.
- Thorslund M., Bergmark Å. & Parker M. (2001) Care for elderly people in Sweden. In: *Aging: Caring for Our Elders* (Weisstub D., Thomasma D., Gauthier S. & Tomosy G.F. eds). Kluwer Academic, Dordrecht, pp. 49–63.
- Thygesen E., Saevareid H.I., Lindstrom T.C. & Engedal K. (2009) Predicting needs for nursing home admission – does sense of coherence delay nursing home admission in care dependent older people? A longitudinal study. *International Journal of Older People Nursing* 4, 12–21.
- Wade D.T. & Collin C. (1988) The Barthel ADL Index: a standard measure of physical disability? *International Disability Studies* 10, 64–67.
- Wilms H.U., Kanowski S. & Baltes M.M. (2000) Limitations in activities of daily living: towards a better understanding of sub-threshold mental disorders in old age. *Comprehensive Psychiatry* 41, 19–25.