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**The AdHOC study of Older Adults' Adherence to Medication in Eleven
Countries**

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KEY WORDS: prescriptions, drug; aged, dementia

ABSTRACT

BACKGROUND: Compared with the resources expended developing, evaluating and making clinical decisions about prescribing medication, we know little about what determines whether people take it. Older adults are prescribed more medication than any other group. Poor adherence is a common reason for non-response to medication.

OBJECTIVES: To investigate cross-nationally the impact of demographic, psychiatric (including cognitive), physical health, behavioural and medication factors on adherence to medication in older adults.

METHODS: Researchers interviewed 3881 people over 65 who receive home care services using a structured interview at participants' places of residence in eleven countries. The main outcome measure was the percentage participants not adherent to medication.

RESULTS: 12.5% (n= 456) of people reported they were not fully adherent to medication. Non-adherence was predicted by problem drinking (OR=3.6), not having a doctor review medication (OR=3.3), dementia (OR=1.4 for every one point increase in impairment), good physical health (OR=1.2), resisting care (OR=2.1) being married (OR=2.3) and living in the Czech Republic (OR=4.7) or Germany (OR=1.4).

CONCLUSION: People, who screen positive for problem drinking and with dementia, often undiagnosed are less likely to adhere to medication. Therefore doctors should consider dementia and problem drinking when prescribing for older adults. Interventions to improve adherence in older adults might be more effective if

targeted at these groups. It is possible that medication review enhances adherence, by improving the patient-doctor relationship, or by emphasising the relevance of medications.

INTRODUCTION

Older adults receive more prescriptions per head than any other group¹, but may adhere to only 60% of medication². Compared with the resources expended developing, evaluating and making clinical decisions about prescribing medication for older adults, we know little about what determines whether patients actually take it. Adherence, defined as the extent to which a person's behaviour conforms to medical or health advice³ determines response to treatment in all medical conditions. In North America, more than 10% of older peoples' medical emergency admissions and 25% of nursing home admissions^{4,5} relate to medication non-adherence⁶.

Factors previously associated with non-adherence include being male⁷; less fear of illness, not living with a relative⁸; adverse effects, poor instructions, patients' disagreement with the need for treatment⁹ and cost¹⁰. Reasons older adults might be less adherent than younger adults include greater likelihood of cognitive deficits, poor physical health, polypharmacy and adverse effects. Conversely older adults may be more likely to adhere to medication, because of, for example lower rates of substance misuse. Some studies have excluded people with cognitive impairment so may overestimate adherence in older people. Findings concerning the relationship of age with adherence have been inconsistent e.g. improved adherence in people over 50¹¹, decreased adherence in older age^{12,13}, greater adherence in patients aged 55-64 years compared older and younger groups¹⁴, and, in people over 65, no

difference in adherence between the younger and the oldest old¹⁰. Trials of interventions to improve adherence so far have been disappointing^{9,15}. Knowing more about the associates of non-adherence in older adults may help develop and target measures to increase the proportion of medication actually taken, and therefore potentially to improve their effectiveness.

Nearly four thousand older adults living in eleven countries took part in the AdHOC (Aged in Home Care) study. We used this data to carry out the first cross-national study of adherence to medication, and to investigate the relationship of putative risk factors to adherence.

METHODS

Ethics permission was granted in all countries according to local regulation.

Setting

3881 adults ≥ 65 years of age who were receiving health or social community services in any setting participated in the AdHOC study. Table 1 gives eligibility criteria for health and social services in the countries studied¹⁶. The mean level of dependency of participants was lowest in the Nordic countries, the Netherlands and the Czech Republic, followed by England and Germany, and highest in Italy and France¹⁶. Italy and the Czech Republic had the lowest levels of formal care provision, and the UK had the most.

Table 2 describes the population, numbers interviewed and refusal rates for each country. Each national study organiser selected an area judged to be

representative of the country. Trained interviewers approached all potential participants in these areas for interview. Methodology is described by the AdHOC group¹⁶. We included AdHOC study participants who were taking prescribed medication. Medication data was available for 3803(98.0%) of people interviewed for the AdHOC study, of whom 3643 (94.0%) were taking prescribed medication.

Data Collection

We recorded patient information using the interRAI (www.interrai.org) version 2.0 Minimum Data Set for Home Care (MDS-HC), which is a structured, standardised, assessment instrument with adequate psychometric properties¹⁷. The MDS-HC has been used for epidemiological research in several participating countries¹⁶. Prior to data collection, the instrument was translated, back-translated and examined for face validity in the language of each participating country.

We used adherence as our main outcome measure, and divided it into three bands: 100%, above 80% and below 80% adherence. We employed this high cut point for adherence, because we expected high rates of non-adherence in this frail, elderly study population and because these thresholds have been used previously¹⁸. Interviewers asked the participant (or their carer if the person was cognitively impaired or the carer administered the medication) open questions about their adherence such as “What medications have you taken today/ yesterday?” to ascertain reported adherence over the last seven days. They checked responses with medication available and prescriptions. We also analysed sociodemographic

data, and the following cognition, psychiatric and physical health and medication details which were collected at interview.

Cognitive measure - the MDS Cognitive Performance scale (CPS) score is a seven point scale measuring cognitive impairment (0 intact, 6 very severely impaired). A CPS score of two indicates dementia¹⁹. The mean MMSE score for those who score two is 19; those who score 3 is 15; those who score 4 is 7; those who score 5 is 5 and those who score 6 is 0¹⁹.

Behavioral symptoms - Carers were asked about presence of wandering (moving with no rational purpose, seemingly oblivious to needs or safety), verbally abusive behaviour (threatening, screaming at, or cursing others), physically abusive behaviour (hitting, shoving, scratching, sexually abusing others), socially inappropriate behaviour (making disruptive sounds, noisiness, screaming, self-abusing acts, sexual behavior or disrobing in public, smearing or throwing food or faeces, hoarding, rummaging through other's belongings) and resisting of care (resisting treatment, ADL assistance, eating or changes in position) in the last 3 days, and each item was scored as 0 (behaviour absent), 1 (behaviour present but easily altered with current interventions) and 2 (present and not easily altered). This behavioural scale has been validated against the Alzheimer's disease Patient Registry Physician Behavior checklist scores, with a correlation coefficient of 0.5²⁰. Over 2 years the MDS behaviour domain (Effect Size (ES) = 0.058) was comparable to the Research Behaviour Checklist (ES = 0.065). These data demonstrate reasonable criterion validity of the MDS behavior rating scales²⁰.

Psychiatric morbidity – Participant were asked whether they had a psychiatric or dementia diagnosis, or had delirium in the last seven days.

The MDS-Depression Rating Scale Score (DRS) was used with a cut off point of 2/3 for caseness. It has been validated against the Hamilton Depression Rating Scale and the Cornell Scale, a measure of depression in dementia, and has high sensitivity (94% and 78% respectively) and specificity (72% and 77% respectively)²¹. It compared favourably with the Geriatric Depression Scale when tested against psychiatric DSM-IV diagnosis²¹.

Alcohol misuse - Interviewees screened positive for alcohol misuse if in the last 90 days, they had felt the need or were told to cut down on drinking, others were concerned about their drinking; they had a drink on waking to steady their nerves, or they had been in trouble due to drinking.

Physical functioning – Physical functioning was measured by using the MDS Activities of Daily Living Hierarchy (MDS-ADL)²² and Instrumental Activities of Daily Living index (MDS-IADL) scores²³. In addition, we recorded scale scores for hearing (0-3) and vision (0-4), with 0 representing no impairment.

Medication – Participants were asked about number of medications taken. Four classes of psychotropic drugs (antidepressants, anxiolytics, hypnotics and antipsychotics) were coded as prescribed or not prescribed in the last seven days.

Participants were asked if their medication had been reviewed by a doctor in the last six months.

Statistical methods

Because of the high number of statistical tests employed, we used a significance level of $p < 0.01$ for univariate analyses. We calculated the proportion of people in the three categories of adherence and made cross-national comparisons using ANOVA and Tukey HSD *post hoc* tests to indicate which differences were significant. We determined which countries were significantly different to at least 7 and at least 8 others and reported this. We employed χ^2 -tests, and univariate analyses of variance as appropriate to compare proportions and means of each variable studied. We used a logistic regression to determine which factors were independent predictors of non-adherence, and calculated odds ratios (OR) and confidence intervals (CI). The independent variables we included were: age; gender; country of residence; living alone; living with a carer; living in residential/nursing home; marital status; amount of formal and informal care received; scales scores for hearing, vision, wandering, resisting care, verbally or physically abusive or socially inappropriate behaviour; score and caseness on CPS and DRS; screening positive for alcohol abuse; dementia diagnosis; any psychiatric diagnosis; ADL and IADL scale scores; number of medications; receipt of antidepressants, anxiolytics, antipsychotics, hypnotics; occurrence of medication review in the last six months.

RESULTS

The overall response rate for people approached was 79.7% (n=3878).

Cross-national Variation (table 3)

12.5% (n= 456) of people reported they were not fully adherent to medication. The median number of medications prescribed was six, and 82.4% (n=3019) of people interviewed had received a medication review in the previous six months. Rates of non-adherence were highest in the Czech Republic and Germany.

Univariate analysis

Factors associated with reduced adherence on univariate analysis are reported in table 4. Those who were not currently married, lived alone, were cases or scored higher on the CPS or DRS scales, were diagnosed with dementia or delirium, were cases on the alcohol screen, exhibited behavioural problems of resisting care or wandering, and who had not had their medication reviewed by a doctor in the last six months were all less likely to be adherent. While people at all stages of dementia were less adherent than those without dementia, adherence rates demonstrated an inverse U-shaped relationship to CPS score, with lowest adherence in moderate dementia (figure 1). One way ANOVA demonstrated that adherence rates varied significantly with CPS score ($F=7.32$, $d.f.=6$; $p<0.001$), Tukey HSD *post hoc* tests indicated that the significant differences were between intact cognition and moderate (mean difference = 0.051, $p<0.001$) and moderately severe (mean difference = 0.076, $p<0.001$) impairment.

Logistic Regression (table 5)

As shown in table 5, non-adherence was predicted by screening positive for problem drinking, greater cognitive impairment, resisting care, being unmarried, lesser ADL impairment, no medication review in the last six months, and living in the Czech Republic or Germany. The overall model had a -2log likelihood of 766.250, cox and snell R^2 of 0.051, and Nagelkerke R^2 of 0.208.

DISCUSSION

Adherence rates reported are higher than in previous studies, and did not decline with age. This might be because earlier studies have examined discontinuation rates, but we measured adherence to established medication regimes. Most older adults interviewed adhered to medication, even when experiencing psychiatric illness, physical morbidity, or cognitive decline, and despite taking on average six different types of medication daily. Problem drinking, dementia, no medication review in the last six months, resisting care and poorer ADL functioning predicted non-adherence.

Decreased adherence was associated with dementia, and with resisting care, which often occurs in people who have limited insight into their dementia. The non-linear relationship between adherence to medication and cognitive function, with adherence lowest in those with moderate impairment, appears to explain previous

conflicting research findings. Perhaps participants with mild cognitive impairments are more aware of their impairment and use systems such as pill boxes to help remind them to take their medication. This suggests practitioners could improve treatment adherence by tailoring interventions to the degree of cognitive impairment. More people with severe dementia live with others who act as carers prompting or administering medication, due to their greater care needs. This could explain their increased adherence compared with people with moderate dementia, who are more likely to live alone. Results suggest that those who live alone with significant cognitive impairment are most likely to be non-adherent. Non-adherence could be a significant factor determining when institutionalisation is required.

Country of Residence

Living in Germany or the Czech Republic predicted non-adherence. In the Czech Republic this might relate to the lower levels of formal service provision, either because medication was monitored less often or because good relationships between the care recipient and provider could foster good adherence. This cannot be the only factor influencing results, however, because Germany had similar levels of service provision to other countries, but lower adherence.

Measurement biases between raters from different countries could have accounted for part of the association of adherence with country of residence, but there could also be true national differences, over and above confounding factors, in the likelihood of people adhering to medication. In the Czech Republic, the older people might have felt less able to approach doctors to discuss medication

problems, because of their experiences during the communist era of doctors as strong hierarchical figures. Medical staff in the Czech Republic have particularly high caseloads, and are perhaps less accustomed to asking patients about adherence. Many Czech older people are economically disadvantaged, but they are subject to the same prescription charges as younger adults. For economic reasons, older drugs, which are less effective and have more side effects, are more likely to be used than in Western Europe²⁴.

We did not study the association of non-adherence with the cost of medication, but people pay more for their medication in Germany, on average, than in the other countries studied²⁵, and it is possible that this could account for the higher rates of non-adherence in that country. This is consistent with research in the USA finding that many elders, most of whom pay for their own medication, are unable to afford to cash their prescriptions²⁶.

Possible Interventions

Review of medication by a doctor in the last six months was associated with improved adherence. Attending for regular medication review might reflect an obedient medicalised individual who is also more compliant with medication. It is also possible that a medication review enhances adherence, by improving the patient-doctor relationship, or by emphasising the relevance of medications. Polypharmacy is common in older people²⁷, and it has been suggested that reviewing and possibly reducing the number of medications might help adherence²⁸. Number of

medications was not a significant predictor of non-adherence in our study. This may be explained by the “intent to treat” effect of doctors prescribing more medications to patients they judge more likely to take them. Our results suggest that treatment of problem drinking and dementia might also improve adherence. This presents a difficulty, because effective treatment programmes often include medication.

Currently the evidence for interventions specifically developed to improve adherence is not convincing^{9,15}. We suggest that the failure of studies in this area to differentiate between people with and without cognitive impairment may have limited the effectiveness of the interventions. Perhaps simpler interventions are useful where cognitive deficits are present, but in unimpaired older people, as has been suggested¹⁵ and our group has piloted²⁹ ambivalence and attitudes to medication need addressing.

Strengths and Weaknesses of the Study

This is the largest ever study of adherence. We compared rates of adherence cross-nationally, investigated most postulated associations for non-adherence and considered whether they are independent predictors. To collect adherence data, we combined subjective and objective measurements of adherence. This method had good face validity and does not change behaviour, unlike, for example, electronic pill boxes, although self-report measures have been found to significantly overestimate adherence rates³⁰. We did not have data about use of reminder systems such as pill boxes.

The sample consisted of those who had home care services and was therefore not random. It is likely that people who refuse services are the least adherent group, and they were not sampled. There were higher refusal rates in Finland, Sweden, the Netherlands and UK. Those who refused to be interviewed may have been less adherent, so adherence could have been over-estimated. Carers were asked about non-adherence where they were responsible for administering the medication, but they may have been reluctant to report non-adherence if they perceived tablet intake as their responsibility. Therefore although the adherence in the dementia group was poor, it might still have been an underestimate.

Conclusion

Doctors may increase adherence in older people by reviewing medication every six months, and by considering dementia when prescribing. Improved detection of dementia and alcohol use disorders might have a positive impact on adherence. Interventions developed to improve adherence might be more effective if adapted for and targeted at specific populations, for example people with moderate cognitive impairment.

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TABLES

Figure 1: Relationship between rates of non-adherence to medication and CPS score (measure of cognitive impairment where 0= no impairment and 6 = very severe impairment)

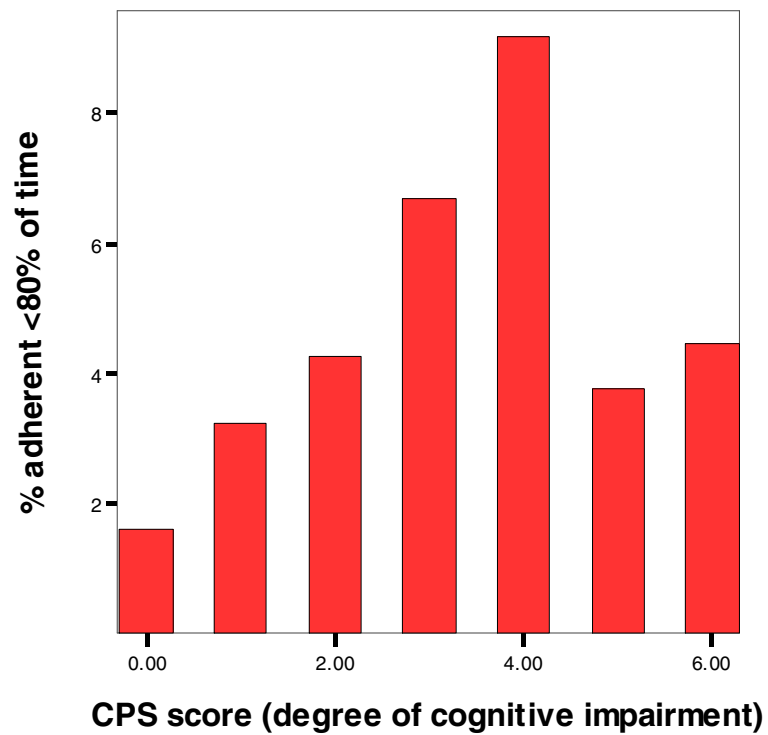


Table 1: Characteristics of services of home care agencies by country¹⁶ (CZ=Czech Republic)

	CZ	Denmark	Finland	France Health care	Social care	Germany	Iceland	Italy	NL	Norway	Sweden	UK
Administrative characteristics:												
Eligibility criteria:												
Physical function level	√	√	√		√	√	√	√	√	√	√	√
Cognitive level	√	√	√		√	√	√		√	√	√	√
Presence of psychiatric diseases	√		√			√	√		√	√		√
Family support level	√		√			√	√	√	√		√	√
Means tested	√				√	√	√					√
Medical prescriptions	√		√		√	√	√		√		√	
Comprehensive geriatric assessment			√	√				√	√		√	√
Team meetings				√								
Never					√							
Sometimes										√	√	
Always	√	√	√			√	√	√	√			√
GP participating in team meetings							√	√			√	
Participation of informal carer		√	√			√			√	√	√	√
Multidisciplinary team approach					√	√	√	√		√	√	√
Case manager			√				√	√			√	√
Administrative status				√								
Profit				√			√					√
Public	√								√			
Non profit	√	√	√			√	√	√		√	√	√
Financial characteristics:												
Public payment/compulsory insurance	√	√	√	√	√	√	√	√	√	√	√	√
Personal contribution (copayment)	√*		√	√	√	√	√*		√		√	√*
Contribution by others (municipalities, charities, others)			√		√	√						

Table 2: Characteristics of each site including national population. % aged over 65, sampling and refusal rate¹⁶

Country of Residence	National Population (millions)	%65+ in country	No. people in study area (thousands)	%65+ in study area	Study sample (all 65+) No.	Refusal rate (%)
Germany	82.26	16.6	655	21.2	607	4
CZ	10.27	13.8	93.9	19.9	430	18
Denmark	5.37	14.8	71.8	16.5	401	10
England	49.14	15.9	241.6	15.8	290	39
Finland	5.19	15.2	73	14.6	187	57
Netherlands	16.20	13.9	735	12.0	197	49
France	59.20	15.9	260	15.5	311	0
Sweden	8.59	17	60.0	22.4	250	38
Norway	4.52	15	128	16	388	7
Italy	57.61	18.6	215	16.7	412	1
Iceland	286	13.7	35.9	14.2	405	3

Table 3: Adherence, number of medications prescribed and proportion of people receiving six-monthly medication reviews in the participating countries

Country of Residence	No. (%) fully adherent to medication	No. (%) at least 80% adherent to medication	No. (%) < 80% adherent to medication	Median no. of prescribed drugs	No. (%) of people who had medication review in last 6 months
Germany	417 (83.1%)**	43 (8.6%)**	42(8.4%)**	5*	456 (82.5%)
CZ	280 (66.5%)**	116 (27.6%)**	25 (5.9%)**	7*	378 (88.3%)
Denmark	324 (87.1%)	36 (9.7%)	12(3.2%)	6*	283 (70.8%)*
UK	230 (82.7%)	41 (14.7%)	7(2.5%)	5	126 (43.6%)**
Finland	161 (90.4%)	14 (7.9%)	3(1.7%)	8*	146 (78.1%)
Netherlands	168 (88.0%)	20 (10.5%)	3(1.6%)	5	157 (79.3%)
France	290 (96.0%)	8 (2.6%)	4(1.3%)	6	163 (94.8%)
Sweden	215 (90.0%)	21 (8.8%)	3(1.3%)	6	188 (78.0%)
Norway	338 (92.6%)	23 (6.3%)	4(1.1%)	4*	366 (94.8%)
Italy	388 (97.2%)	8 (2.0%)	3(0.8%)	4*	392 (96.1%)
Iceland	376 (94.9%)	17 (4.3%)	3(0.8%)	7	364 (90.3%)
TOTAL	3187 (87.5%)	347 (9.5%)	109(3.0%)	6	3016 (82.4%)

** denotes statistically significant differences between country indicated and at least 8/10 other countries, and *denotes statistically significant differences with at least 7/10 other countries using Tukey's HSD test.

Table 4: Association of Variables Studied with Adherence

	No. (%) / mean(sd) of people adherent:			F / χ^2	Significance (p)
	100% of time (n=3187)	> 80% of time (n=347)	<80% of time (n=109)		
Age	82.15 (7.3)	81.93 (7.5)	82.26 (7.6)	F=0.159	0.853
Male	855 (26.8%)	75 (21.6%)	24 (22.0%)	$\chi^2=5.411$	0.067
Married	795 (24.9%)	56 (16.1%)	14 (12.8%)	$\chi^2=20.78$	<0.001**
Living in care home	85 (2.7%)	15 (4.4%)	5 (4.6%)	$\chi^2=3.958$	0.138
Living alone	1871 (58.7%)	259 (74.6%)	72 (66.1%)	$\chi^2=34.70$	<0.001**
Formal care (hrs/week)	5.54 (12.0%)	5.21 (8.9%)	7.15 (10.8%)	F=1.166	0.312
Case (2+) on CPS	857(26.9%)	128(36.9%)	56(51.4%)	$\chi^2=43.94$	<0.001**
CPS score	1.1(1.6)	1.2(1.3)	1.9(1.7)	F=14.94	<0.001**
Psychiatric diagnosis	276(8.7%)	41(11.8%)	14(12.8%)	$\chi^2=5.651$	0.059
DRS score	1.01 (2.0)	1.7 (2.2)	1.6(2.6)	F=19.236	<0.001**
Case on DRS	500(15.7%)	103(29.7%)	24(22.0%)	$\chi^2=44.83$	<0.001**
Dementia diagnosis	401(12.6%)	44(12.7%)	26(23.9%)	$\chi^2=11.91$	0.003*
Alcohol screen	54(1.7%)	9(2.6%)	8(7.3%)	$\chi^2=18.41$	<0.001**
Delirium in last week	189(5.9%)	25(7.2%)	16(14.7%)	$\chi^2=14.14$	0.001*
No. Impaired ADLs	2.7 (3.0)	2.3(2.6)	2.7 (2.7)	F=2.610	0.074
No. Impaired IADLs	4.4 (2.2)	4.1 (2.0)	4.5(2.1)	F=1.241	0.289
Vision	0.6(1.0)	0.6 (1.0)	0.6 (0.8)	F=0.211	0.810
Hearing	0.5 (0.7)	0.5 (0.8)	0.5 (0.8)	F=0.208	0.812
Verbally abusive	0.0 (0.2)	0.0 (0.2)	0.1 (0.3)	F=1.920	0.147

Physically abusive	0.0 (0.1)	0.0(0.0)	0.0 (0.2)	F=1.634	0.195
Socially disruptive	0.0 (0.2)	0.0 (0.2)	0.1 (0.3)	F=3.427	0.033
Resisting care	0.0 (0.2)	0.1 (0.3)	0.2 (0.5)	F=28.80	<0.001**
Wandering	0.0 (0.2)	0.0 (0.2)	0.1 (0.4)	F=10.48	<0.001**
No. meds	5.7 (2.7)	6.0 (2.5)	5.3 (2.6)	F=3.714	0.024
Doctor review in last 6 months	2573(84.2%)	262(76.2%)	66(61.7%)	$\chi^2=48.13$	<0.001**
Antipsychotic	215(6.8%)	27(7.8%)	11(10.1%)	$\chi^2=2.226$	0.329
Anxiolytic	399(12.5%)	59(17.0%)	9(8.3%)	$\chi^2=7.712$	0.021
Hypnotic	675(21.2%)	77(22.2%)	14(12.8%)	$\chi^2=4.726$	0.094
Antidepressant	503(15.8%)	38(11.0%)	18(16.5%)	$\chi^2=5.752$	0.056

**=p<0.001; *=p<0.01

@ F statistic indicates test values for univariate analysis of variance; χ^2

indicates test statistic for chi-squared test. Degrees of freedom = 2 for all tests shown

CPS= cognitive performance scale; ADL= activities of daily living ; IADL= instrumental

activities of daily living; DRS = Depression rating scale

Table 5: Results of Logistic Regression (p<0.05 in bold)

		B	S.E.	Wald	df	Sig.	Exp(B)	95.0% C.I. for EXP(B)	
								Lower	Upper
Sociodemographic factors	gender	-.052	.274	.036	1	.849	.949	.555	1.624
	age	.007	.016	.171	1	.679	1.007	.976	1.038
	Living alone	.444	.318	1.955	1	.162	1.559	.837	2.906
	nursing/ residential home resident	.090	.534	.028	1	.867	1.094	.384	3.112
	Resident carer?	.121	.369	.107	1	.743	1.129	.547	2.328
	Being unmarried	.843	.387	4.750	1	.029	2.323	1.089	4.956
	formal care (hours)	-.004	.008	.292	1	.589	.996	.981	1.011
	informal care (hours)	.006	.004	2.494	1	.114	1.006	.999	1.013
	Lesser ADL impairment	.166	.065	6.567	1	.010	1.181	1.040	1.341
ladl score	-.045	.081	.308	1	.579	.956	.815	1.121	
Vision	.088	.126	.492	1	.483	1.092	.854	1.398	
hearing	.294	.160	3.386	1	.066	1.342	.981	1.837	
cognitive impairment (for each point increase in CPS score)	-.325	.136	5.755	1	.016	1.4	1.1	1.8	
CPS caseness	-.319	.410	.605	1	.437	.727	.325	1.624	
Screening positive for problem drinking	-1.279	.482	7.046	1	.008	.278	.108	.716	

	Psychiatric diagnosis	-.095	.352	.073	1	.787	.909	.456	1.814
	DRS caseness	.496	.487	1.035	1	.309	1.642	.632	4.268
	DRS score	-.084	.085	.982	1	.322	.920	.779	1.085
	Dementia diagnosis	.222	.305	.527	1	.468	1.248	.686	2.270
Behavioral problems:	Wandering	-.316	.306	1.064	1	.302	.729	.400	1.329
	Verbal abuse	.156	.395	.156	1	.693	1.169	.539	2.538
	Physical abuse	-.007	.811	.000	1	.993	.993	.203	4.865
	Socially inappropriate	-.121	.497	.059	1	.808	.886	.334	2.350
	Resisting care	-.731	.280	6.802	1	.009	.481	.278	.834
Medication:	No. medications	.051	.044	1.328	1	.249	1.052	.965	1.147
	antipsychotics	-.251	.369	.462	1	.497	.778	.378	1.604
	Anxiolytics	.477	.402	1.409	1	.235	1.612	.733	3.544
	Antidepressants	-.243	.312	.605	1	.437	.785	.426	1.446
	Hypnotics	.208	.322	.416	1	.519	1.231	.655	2.315
	No medication review in last 6 months	-1.193	.239	24.881	1	.000	3.3	2.1	5.3
Living in:	Czech Republic	-1.540	.664	5.373	1	.020	4.7	1.3	17.2
	Denmark	-.147	.342	.184	1	.668	.863	.441	1.689
	Finland	.062	.287	.047	1	.828	1.064	.606	1.867
	France	.021	.251	.007	1	.933	1.021	.624	1.671
	Germany	-.333	.129	6.635	1	.010	1.4	1.1	1.8
	Iceland	.112	.142	.622	1	.430	1.119	.847	1.478
	Italy	.053	.127	.177	1	.674	1.055	.823	1.351

Norway	.038	.089	.186	1	.666	1.039	.873	1.237
Sweden	.038	.086	.197	1	.657	1.039	.878	1.229
UK	.008	.067	.014	1	.905	1.008	.884	1.149