

Morale in the oldest old: the Umeå 85+ study

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Abstract

Objective: to describe morale among the oldest old, and to investigate which social, functional and medical factors are associated with morale in this population.

Design: a cross-sectional study.

Setting: a population-based study in the municipality of Umeå, a city in Northern Sweden.

Subjects: half of the 85-year-old population, and the total population of 90-year-olds and ≥95-year-olds (95–103) were asked to participate ($n=319$) and 238 were interviewed.

Methods: structured interviews and assessments during home visits, interviews with relatives and caregivers and review of medical charts. The 17-item Philadelphia Geriatric Center Morale Scale (PGCMS) was used to measure morale. Participants were assessed with the Barthel Activities of Daily Living (ADL) Index, Geriatric Depression Scale (GDS-15), Mini-Mental State Examination (MMSE), Mini Nutritional Assessment (MNA), and a symptom questionnaire. Multiple regression analyses were conducted to find independent factors to explain the variation in the PGCMS score.

Results: eighty-four per cent ($n=199$) of those interviewed answered the PGCMS. Three-quarters had middle range or high morale. GDS score, type of housing, previous stroke, loneliness and number of symptoms, adjusted for age group and sex, explained 49.3% of the variance of total PGCMS score.

Conclusions: a large proportion of the oldest old had high morale. The most important factors for high morale were the absence of depressive symptoms, living in ordinary housing, having previously had a stroke and yet still living in ordinary housing, not feeling lonely and low number of symptoms. The PGCMS seems applicable in the evaluation of morale among the oldest old.

Keywords: aged, 80 and over, morale, psychological well-being, depression, epidemiologic studies, elderly

Introduction

Morale is often used synonymously with subjective or psychological well-being, quality of life and life satisfaction. Authors define these concepts in different ways, and there are large overlaps in both the descriptions and their usage [1, 2]. Lawton [3], who developed the Philadelphia Geriatric Center Morale Scale (PGCMS) to measure morale in older persons, defined morale as a basic sense of satisfaction with oneself, a feeling that there is a place in the environment for oneself, and a certain acceptance of what cannot be changed. People with high morale are often active, sociable and optimistic in outlook. However, these

factors are not essential components of high morale. There are people whose philosophy of life is pessimistic, who are inactive and solitary, and yet still have high morale [3].

Morale is a multidimensional concept that, amongst the younger old populations, is associated with social, functional and medical factors. Of the social factors, family support [4], social activities [5] and absence of loneliness [5, 6] are important for high morale, but seemingly not marital status [3, 5], gender [3, 7, 8] and having children [9]. Functional factors, such as in- and outdoor mobility [3], physical exercise [10] as well as independence in the activities of daily living (ADL) [4, 11] have been reported as important for

high morale. Likewise, both self-rated good health [5] and good physical health [3, 7] are important. Cognitive impairment is not associated with morale [7, 12], but depression and depressive symptoms correlate closely with low morale [3, 5, 8, 11–14], in particular in people suffering severe post-stroke consequences [8].

Younger and older people have been shown to have lower morale than the middle-aged (mean ages 20, 75 and 50 respectively) [2]. Within samples including only older people, with mean ages from 76 to 82, no significant correlation between age and morale has been shown [3, 4, 6, 8, 12]. However, the oldest old have not been analysed separately. Whether there are different factors associated with morale in the oldest old compared to the younger old is also unknown. The purpose of this study was to describe morale and to investigate which social, functional and medical factors are associated with morale in the oldest old.

Material and methods

This study is part of the Umeå 85+ Study, which is described in detail elsewhere (von Heideken Wågert *et al.*, submitted). In brief, the study population consisted of a random sample of 348 people, comprising half of the population born in 1915 (85-year-olds), and the total population born in 1910 (90-year-olds), 1905 and earlier (≥ 95 -year-olds, range 95–103), living in the municipality of Umeå, Sweden, on 1 January 2000 ($n=348$). Twenty-nine died before they could be asked to participate. During recruitment, 66 of the remaining 319 declined home visits either themselves or from their next of kin, 15 were not personally interviewed, and 39 either did not want to, or could not, answer the PGCMS, mostly due to poor cognitive status. The studied sample finally comprised 199 participants; please see Appendix 2 in the supplementary data on the journal's website (www.ageing.oupjournals.org). Data were collected during two or three home visits and from medical charts, relatives and caregivers. The dropouts ($n=120$) were older ($P=0.020$) and more likely to live in institutional care ($P=0.038$) than the responders to the PGCMS ($n=199$), but no gender differences were revealed. The Ethics Committee of the Medical Faculty of Umeå University approved the study (Dnr 99-326). The characteristics of the participants are shown in Table 1.

Morale

In this study, we have chosen Lawton's definition of morale [3]. The 17-item British-English version of the PGCMS [3, 15], translated into Swedish was used to measure morale. It is applicable among people in the community, institutions [3, 15] and those suffering memory loss [7]. The questions are easy to understand and have yes/no answers. The scale was interviewer administered in this study. According to the administration and scoring instructions, each answer indicating high morale was scored with the numerical score of one, and answers indicating low morale and when the person could not answer were scored zero (no answer, 1.4% of the questions). The total score is 0–17, where scores 17–13 indicate high morale, 12–10 middle range and 9–0 low morale, according to the administration and scoring instructions.

Test–retest correlations have ranged from r coefficients of 0.80 after 1 week, to 0.91 after 5 weeks and 0.75 after 3 months [3]. Correlation with the most comparable alternative scale, the Life Satisfaction Index, has been 0.74 [16]. When the British Geriatrics Society and the Royal College of Physicians of London reviewed quality of life instruments for old people, they recommended the PGCMS for assessment of subjective well-being [17]. The Swedish version has been tested for inter-rater reliability in a geriatric clinic with satisfactory results ($r=0.86$) [8].

Social factors

A structured interview concerning each participant's current living condition was performed. Housing was classified as ordinary if the participants lived in a house or apartment with or without access to home care. Institutional care included residential care, skilled nursing homes and group dwellings for people with dementia. Education was classified as ≤ 5 years or ≥ 6 years. Questions concerning loneliness and safety had yes/no answers.

Functional factors

Balance was tested with the Swedish version of the Berg Balance Scale [18, 19]. The scale consists of 14 movements common in everyday life and the maximum score is 56, which indicates good balance for an old person. The ability to rise from a chair without armrests was tested with three self-paced chair stands [20]. The ability to walk 2.4 m (8 feet) at a self-paced speed with or without walking aids was tested [21]. The participants reported how frequently they walked outdoors independently [22]. Falls during the preceding year were asked for. Fear of falling was assessed with the modified Swedish version of the Falls Efficacy Scale (FES(S)) [23, 24], which assesses the perceived self-efficacy at avoiding falls during 13 non-hazardous ADL tasks. The maximum score of 130 indicates total confidence. Independence in ADL was assessed using the Barthel ADL Index [25], with a maximum score of 20 indicating independence in all activities. Reading and distance vision were rated as unimpaired when the participant, with or without glasses, could read a word printed in 3 mm capital letters and recognise a person across the street. Hearing was rated as unimpaired if the participant, with or without a hearing aid, could hear a normal speaking voice from a distance of 1 m.

Medical factors

Details of co-existing medical conditions were collected from the participant and staff, and from medical charts. Prescribed drugs were registered. A specialist in geriatric medicine evaluated the documentation of the diagnoses, drug treatments, assessments and measurements for completion of the final diagnoses. Participants with assessments indicating undiagnosed conditions were either further assessed by specialists in geriatric medicine or referred for further assessment and treatment. Nutritional status was screened with the Mini Nutritional Assessment (MNA) [26], an instrument developed for the oldest old with a maximum score of 30 which indicates very good nutritional status. Cognition was screened using the Mini-Mental State Examination (MMSE) [27].

Table 1. Characteristics of the participants, presented in age group, sex and total sample

	85-year-olds (<i>n</i> = 86)	90-year-olds (<i>n</i> = 73)	≥95-year-olds (<i>n</i> = 40)	Men (<i>n</i> = 55) ^a	Women (<i>n</i> = 144) ^a	Total (<i>n</i> = 199) ^a
Social factors (%)						
Female	73	71	73			73
Married	20	7	10	45	4	15
Having living children	87	86	78	91	84	86
Ordinary housing	87	60	30	72	72	72
Living with someone	21	8	10	33	10	16
Feeling lonely, often–sometimes (<i>n</i> = 198) ^b	48	56	45	40	54	50
Feeling safe at home (<i>n</i> = 196) ^b	97	90	95	99	95	96
Functional factors (%)						
Reading vision (<i>n</i> = 198) ^b	91	81	68	91	82	85
Able to hear	91	79	58	81	84	83
Able to walk	97	92	88	99	92	94
Walking outdoors independently	79	56	38	76	64	67
Barthel Index of ADL	20	19	17	20	19	20
Score, Md (IQR) ^c	(19–20)	(17–20)	(11–20)	(19–20)	(17–20)	(18–20)
Medical factors (%)						
Self-rated health, excellent to good (<i>n</i> = 176) ^b	54	39	55	61	47	51
Better health in comparison to age peers (<i>n</i> = 197) ^b	53	42	54	59	47	50
Dementia	16	18	30	17	19	19
Previous stroke	21	25	15	27	19	21
Depression	16	29	25	15	23	21
Diabetes	10	12	13	18	9	11
Number of drugs, Md (IQR) ^c	5 (3–7)	6 (4–9)	7 (4–9)	5 (2–8)	6 (4–9)	5 (3–9)
Number of symptoms, Md (IQR) ^c	6 (4–9)	7 (4–9)	6 (3–9)	6 (4–8)	7 (4–9)	6 (4–9)
MMSE score, Md (IQR) ^c	26 (22–28)	25 (20–28)	23 (17–27)	25 (22–28)	25 (21–28)	25 (21–28)
MNA score, Md (IQR) ^c	25.5 (23.0–27.5)	24.5 (21.5–26.0)	23.5 (19.5–26.5)	26 (23.0–27.5)	24.5 (21.5–26.5)	25.0 (21.0–28.0)
GDS Score, Md (IQR) ^c	3 (2–4)	4 (2–6)	4 (2–5)	3 (2–5)	3 (2–5)	3 (2–5)

Md, median; IQR, interquartile range; MMSE, Mini-Mental State Examination; MNA, Mini Nutritional Assessment; GDS, Geriatric Depression Scale.

^aResults and proportions for sexes and the total sample are weighted, every 85-year-old is counted twice due to the sampling procedure.

^bThe figures in brackets are the valid cases, and valid percentages are presented.

^cThe figures in brackets give the first and third quartile (Q₁–Q₃).

Depression was diagnosed after an evaluation of earlier diagnosed depression, current treatment with antidepressants, and assessment of depressive and other psychiatric symptoms. Depressive symptoms were screened using the Geriatric Depression Scale (GDS-15) [28], where scores between 5 and 9 indicate mild depression, and 10–15 moderate to severe depression. For those who scored five or more on the GDS, depression was further assessed by a specialist in geriatric medicine using the Montgomery-Åsberg Depression Rating Scale (MADRS) [29]. For further description, depressive and other psychiatric symptoms were rated using the Organic Brain Syndrome-Scale (OBS-scale) [30]. If the person had previously been diagnosed with depression and was receiving ongoing treatment with antidepressants, they were diagnosed as having depression regardless of GDS score.

To cover physical and psychological symptoms over the preceding 3 months, the participants answered the 19 most common symptoms from the Gothenburg Quality of Life

Instrument [31] reported in the Lund 80+ study [32]. Health in general was rated with the first question in the 36-item Short Form of the Medical Outcomes Study questionnaire (SF-36) [33]. Health in comparison to their age peers was rated using the self-rated health question from the MNA [26].

Data analysis

SPSS package 11.5 was used for calculations. Student's *t*-test was used to analyse differences between groups, and Pearson's correlation analyses were used for associations between continuous variables. Variables with an association ($P \leq 0.15$) with PGCMS scores were included in multiple linear regression modelling to find the independent factors which would explain the variation in the PGCMS scores. Adjustments were made for age group and sex. For factors correlating with each other, the factor which best explained the variance was chosen. The final regression model was tested for interaction. A *P* value of <0.05 was regarded as statistically significant. When presenting data for sexes and

for the total sample, data were weighted by counting every 85-year-old twice. This was done because of the sampling procedure, where half of the 85-year-old population was included in the study, but the total population aged 90 and ≥95 years, to get a more correct interpretation of the results.

Results

Of the 238 people interviewed, 84% answered the PGCMS. Three-quarters had middle range or high morale. The median total PGCMS score was 12 (Table 2). The 85-year-olds had a median score of 13 and the two older age groups had a median of 11.

Participants either living in ordinary housing, not feeling lonely, not having depression, and with self-rated good to excellent health had significantly higher PGCMS scores, all $P < 0.001$ (Table 3). Higher scores were also seen in participants who, for example, felt safe at home, were able to perform three chair stands, walked outdoors independently or had had a previous stroke. The strongest correlations with high PGCMS scores were low GDS scores, high MNA, MMSE and FES(S) scores, as well as low number of symptoms and drugs, all $P = < 0.001$ (see Appendix 1 in the supplementary data).

The final regression model is presented in Table 4. The GDS score, type of housing, previous stroke, feeling lonely

Table 2. Scores of the total PGCMS

	85-year-olds (<i>n</i> = 86)	90-year-olds (<i>n</i> = 73)	≥95-year-olds (<i>n</i> = 40)	Men (<i>n</i> = 55) ^a	Women (<i>n</i> = 144) ^a	Total (<i>n</i> = 199) ^a
Total PGCMS score, Md (IQR) ^b	13 (10–14)	11 (9–13)	11 (9–14)	13 (10–14)	12 (10–14)	12 (10–14)
High morale, scores 17–13 (%)	51	36	33	50	43	45
Middle-range morale, scores 12–10 (%)	30	33	43	31	33	33
Low morale, scores 9–0 (%)	19	32	25	19	24	23

Md, median; IQR, interquartile range.

^aResults and proportions for sexes and the total sample are weighted, every 85-year-old is counted twice due to the sampling procedure.

^bThe figures in brackets give the first and third quartile (Q₁–Q₃).

Table 3. The total scores of the PGCMS for participants with and without specific characteristics

Variable	Yes (<i>n</i>)	PGCMS (mean ± SD)	No (<i>n</i>)	PGCMS (mean ± SD)	<i>P</i>
Social factors					
Female sex	144	11.3 ± 3.1	55	11.7 ± 3.3	0.507
Ordinary housing	131	12.0 ± 3.0	68	10.3 ± 3.1	<0.001
Living alone	171	11.4 ± 3.2	28	12.0 ± 2.9	0.337
Marital status—single	173	11.3 ± 3.2	26	12.3 ± 2.7	0.129
Education, 0–5 years	14	10.8 ± 2.9	184	11.5 ± 3.2	0.434
Having living children	169	11.3 ± 3.1	30	12.1 ± 3.2	0.187
Feeling lonely (<i>n</i> = 198) ^a	100	10.3 ± 3.4	98	12.5 ± 2.5	<0.001
Feeling safe at home (<i>n</i> = 196) ^a	187	11.6 ± 3.1	9	8.3 ± 3.1	0.002
Functional factors					
Able to perform 3 chair stands	135	11.9 ± 3.0	64	10.5 ± 3.2	0.004
Able to walk 2.4 m	183	11.6 ± 3.1	16	10.0 ± 3.3	0.058
Walking independently outdoors	124	11.9 ± 3.1	75	10.7 ± 3.2	0.013
Fall the preceding year	90	11.0 ± 3.0	109	11.8 ± 3.2	0.087
Reading vision impairment (<i>n</i> = 198) ^a	35	10.5 ± 3.0	163	11.6 ± 3.2	0.061
Distance vision impairment (<i>n</i> = 198) ^a	52	10.6 ± 3.0	146	11.7 ± 3.2	0.036
Hearing impairment	40	11.1 ± 2.9	159	11.5 ± 3.2	0.424
Medical factors					
Diseases					
Previous stroke	42	12.3 ± 2.7	157	11.2 ± 3.2	0.037
Depression	45	9.2 ± 3.1	154	12.1 ± 2.9	<0.001
Dementia	39	10.7 ± 3.4	160	11.6 ± 3.1	0.129
Diabetes	23	9.9 ± 3.6	176	11.6 ± 3.0	0.014
Heart failure	44	10.5 ± 2.8	155	11.7 ± 3.2	0.022
Health					
Self-rated excellent to good health (<i>n</i> = 176) ^a	86	12.5 ± 3.1	90	10.6 ± 3.0	<0.001
Better health than age peers (<i>n</i> = 197) ^a	97	12.1 ± 2.9	100	10.8 ± 3.3	0.004

^aThe figures in brackets are the valid cases, otherwise 199.

Table 4. Multiple regression model of factors associated with the total scores of the PGCMS

Variable	B	95% CI for B	P
(constant)	14.541		
GDS score	-0.660	-0.810 to -0.511	<0.001
Ordinary housing ^a	1.067	0.298–1.835	0.007
Previous stroke ^a	1.055	0.261–1.848	0.009
Feeling lonely	-0.855	-1.551 to -0.160	0.016
Number of symptoms	-0.124	-0.229 to -0.019	0.020
Sex	-0.386	-1.109 to -0.337	0.294
Age group	-0.072	-0.547 to -0.404	0.767

GDS, Geriatric Depression Scale.

Model adjusted R^2 0.493.

^aInteraction. Participants with previous stroke living in ordinary housing had higher PGCMS scores.

and number of symptoms, adjusted for age group and sex, explained the variation of PGCMS scores with an adjusted R^2 of 0.493. The interaction tests showed that participants who had suffered a stroke had higher PGCMS scores if they still lived in ordinary housing, as opposed to institutional care (PGCMS mean scores \pm SD 13.42 ± 2.50 versus 10.56 ± 2.13 , $P = <0.001$).

Because the GDS score was the strongest explanatory factor in the regression model, additional analyses were made regarding the relationship between depression and treatment with antidepressants. Participants prescribed antidepressants for depression ($n=29$) had lower GDS scores (mean \pm SD 5.03 ± 2.53 versus 7.56 ± 2.63 , $P=0.003$) and higher PGCMS scores (9.90 ± 3.00 versus 8.00 ± 3.03 , $P=0.050$) than the non-treated depressed participants ($n=16$). Those who were regarded as responders to the treatment (GDS scores ≤ 4 , $n=17$) had higher PGCMS scores (11.06 ± 2.82 versus 8.25 ± 2.53 , $P=0.010$) than those whose treatment was not successful (GDS scores ≥ 5 , $n=12$). Additional analyses were also made comparing participants with a previous stroke and those without. There were no differences between the groups either for diagnosed depression (21% and 23% respectively, $P=0.836$), or GDS scores (3.9 ± 2.2 versus 3.9 ± 2.6 , $P=0.906$).

Discussion

The morale of the oldest old was found to be rather high in this study, with similar scores among the age groups and between the sexes. The GDS score together with a previous stroke, type of housing, feeling lonely and number of symptoms, adjusted for age group and sex, explained 49.3% of the variance in PGCMS scores. The high response rate of the PGCMS and the strong associations with self-rated health and depression supports the recommendation by the British Geriatrics Society for the use of the scale in assessment of subjective well-being in older people [17].

Morale is often described as one aspect of well-being together with life satisfaction [1]. The PGCMS is, in various studies, described as measuring subjective or psychological well-being or quality of life [1, 2, 4, 8, 9, 11, 12, 14, 17, 34], and has been found to include both positive and negative affect

[1]. In the present study, we have chosen Lawton's definition of morale, and to describe the PGCMS as measuring morale.

In this population-based study, including the oldest old population, regardless of housing and medical status, the total PGCMS mean score was as high as in studies including younger participants with specific diseases and disabilities [4, 7, 8, 11, 13, 14]. The strongest explanatory factor for the variation of PGCMS scores was the GDS scores. In the regression model, the GDS scores had a stronger impact on morale than diagnosed depression. For the purpose of the present study, we find the GDS a better choice because it measures current depressive symptoms, while the diagnosed depression includes people both with and without medical treatment. Differences in GDS and PGCMS scores were seen between the non-treated and treated depressed group. We used GDS scores of ≥ 5 as the cut-off point for successfully treated depression, and a recent study in the oldest old has confirmed a high sensitivity and specificity for the GDS-15 for diagnosing depression [35]. There was a strong correlation between PGCMS and GDS scores ($r=0.656$) but the scales measure different aspects of the persons' well- or ill-being and, in accordance with other studies [1, 14], we think that it is valuable to use both morale and depression scales. Also, in accordance with Coleman *et al.* [14], we speculate that high scores on the GDS are a better predictor of low morale than low PGCMS scores are of depressed mood.

One surprising finding was that participants who had previously suffered a stroke and still lived in ordinary housing had higher morale than those without an earlier stroke. This was in contrast to the findings of Clarke *et al.* that people living in the community (mean age 76) who had previously had a stroke had lower psychological well-being than those who had not [36]. It has previously been shown that 55% of patients with severe consequences after stroke were depressed 3 years after discharge and depression had the strongest association with low PGCMS scores [8]. In the present study the participants with a previous stroke were not more depressed than the others. What one should consider in this study is that the participants have suffered from a stroke sometime in their lives and with no time limit. They might have changed their perspectives on life, or perhaps it is just those with high morale who successfully survive a stroke. On the other hand, successful rehabilitation after stroke, resulting in returning home, might contribute to high morale. Few other diagnosed diseases were related to morale scores in univariate analyses and none of them remained in the final regression model. In contrast, and in accordance with other studies, a large number of physical and psychological symptoms correlated with low morale [12].

Living in ordinary housing and not feeling lonely were the social factors that were most strongly associated with high PGCMS scores. The reasons might have been that the participants were not content with their institutional care, or maybe people with low morale give up at home and move to institutions. Another contributory circumstance may be the loss of friendship a person might experience when they move from the neighbourhood, and that the staff at the institutions cannot fill this gap. Our experience is that although many participants lived alone, they said that they

did not feel lonely. Feeling lonely was not surprisingly a factor strongly associated with low morale, when lonely dissatisfaction is a subscale of the PGCMS. Loneliness has been shown earlier to be related to low morale [5, 6].

The scores of Barthel ADL Index, Berg Balance Scale, FES(S), MNA and the ability to perform three chair stands and walking independently outdoors were all significantly associated with PGCMS scores in univariate analyses, although they did not qualify for the final regression model. Since various aspects of physical ability did not remain in the final regression model, our interpretation is that physical ability might be of minor importance for morale among the oldest old. Previous studies have shown the importance of physical ability, and Singh *et al.* [10] reported improvements in morale and long-term antidepressant effects after a 20-week exercise programme in people aged 60–84 years. Both fear of falling and poor nutrition have been found to reduce health-related quality of life [37, 38], but no previous studies have been done in relation to morale.

It is acknowledged that this study has certain limitations. In the oldest age group, more participants lived in institutional care, were cognitively impaired and could not answer the PGCMS. Therefore, the results for the oldest age group have to be interpreted with some caution. Although this is a cross-sectional study, it provides ideas for how to influence the factors associated with low morale in the present study. It seems reasonable to assume that successful treatment of depression is the most important strategy for improving morale among the oldest old, and this study shows that depression is poorly treated among the oldest old. Further more, feelings of loneliness may be influenced by arranging social activities that even those with physical and cognitive impairments can join in. Maybe it is also important for morale to give people the chance to live in ordinary housing for as long as possible.

In conclusion, a large proportion of the oldest old had high morale. The most important factors for high morale were the absence of depressive symptoms, living in ordinary housing, having had a previous stroke but still living in ordinary housing, not feeling lonely and few symptoms. Treatment of depression, successful rehabilitation after stroke, and arranging social activities might be strategies to improve morale in the oldest old.

Key points

- The morale of the oldest old able to respond the PGCMS is at least as high as that shown in previous studies for younger age groups.
 - Depressive symptoms have the strongest association with low morale.
 - The PGCMS seems to be applicable in assessing morale among the oldest old.
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Conflicts of interest declaration

There is no conflict of interest.

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