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**Feeling hindered by health problems and functional capacity at 60 years and above.**

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**Abstract**

It is common to use activities of daily living (ADL) rating scales to identify the impact of health problems such as diseases, impaired eyesight or hearing on daily life. However, for various reasons people with health problems might feel hindered in daily life before limitations in ability to perform ADL have occurred. In addition, there is sparse knowledge of what makes people feel hindered by health problems in relation to their ADL capacity. The aim was to investigate feeling hindered by health problems among 1297 people aged 60–89 living at home in relation to ADL capacity, health problems, life satisfaction, self-esteem, and social and financial resources, using a self-reported questionnaire, including questions from OARS (Older Americans' Resources and Services schedule), Rosenberg's self-esteem and Life Satisfaction Index Z. People feeling greatly hindered by health problems rarely had anyone who could help when they needed support, had lower life satisfaction and self-esteem than those not feeling hindered. Feeling hindered by health problems appeared to take on a different meaning depending on ADL capacity, knowledge that seems essential to include when accomplishing health promotion and rehabilitation interventions, especially at the early stages of reduced ADL capacity.

*Keywords:* ADL capacity; Availability of help; Health problems; Life satisfaction; Older adults; Self-esteem

## 1. Introduction

For various reasons people (60 years and above) with health problems might feel hindered from doing things in daily life before limitations in capacity to perform ADL have occurred. Thus, instruments like the Katz et al. (1963) ADL rating scale to identify the impact of health problems such as diseases, impaired eyesight or hearing on daily life may be less sensitive at capturing more subtle limitations useful to assist in the planning of preventive interventions. In addition, there is sparse knowledge of what makes people feel hindered by health problems in relation to their ability to perform ADL, whether seemingly preserved or not. Thus, there is a need for more sensitive ways to capture the impact of health problems on daily life. Investigating the impact of health problems on daily life using a broader question about feeling hindered by health problems may be useful to test this idea. In addition, investigating its relation to social and financial resources, self-esteem and life satisfaction as well as combining such a question with ADL capacity may contribute to a deeper understanding of the impact of health problems than what can be obtained by assessing ADL capacity only. Such knowledge can be useful when planning for interventions at early stages, when people have little or no impairments in their ability to perform ADL, as measured by ADL rating scales, and for rehabilitation purposes.

It is well known that various health problems increase with age (Persson et al., 2001) and as a consequence of the increased health problems people might be in need of help from others to manage activities in daily life. In a cross-sectional study completed among 747 people aged 75 and above (66% women), living at home, 27% reported hearing problems and 39% eyesight problems (Visentin et al., 1998). Contracting diseases may also entail limitations in daily living (Kendig et al., 2000), which may in turn threaten people's

independence since they may have to rely on others to manage things they want to do. Among 448 Swedish people aged 75 and over with reduced ability to perform activities of daily living, Hellström and Hallberg (2001) found that 84.1% had help from their next of kin. Thus the health problems, i.e. consequences of diseases, impaired hearing or eyesight as well as the availability of help, may intrude on the feeling of independence and on maintaining important activities of daily living. Life satisfaction, which is supposed to be a dimension of psychological well-being, is believed to be an evaluation of life in general (Lawton, 1982). Since increased health problems such as diseases, eyesight or hearing problems seemingly alter people's daily life, life satisfaction may be an appropriate measure to capture the consequences.

In gerontology research it is common to capture the impact of health problems by the ability to perform ADL as well as factors related to life satisfaction. It is also well known that limited ability to perform activities of daily living also means decreased life satisfaction. For instance, Hellström et al. (2004) found among 448 Swedish people aged 75 and over with reduced ADL capacity that reporting several diseases and functional impairment determined low life satisfaction. Among people aged 65 and above (n = 1000) in Australia reporting themselves as being limited in the ability to perform instrumental activities of daily living, functional impairment was shown to mediate the relationship between diseases and well-being (Kendig et al., 2000). Health problems of various kinds also led people to give up meaningful activities in everyday life due to reduced ADL capacity, tiredness or the like (Kendig et al., 2000). Further, in a study including 482 independent Japanese people (60+ years), life satisfaction was higher among those with preserved ability to perform ADL compared to those with impaired ADL capacity (Sato et

al., 2002). However, measuring functional impairment in terms of the ability to manage activities of daily living only gives information about what the person can do or get help with (Kendig et al., 2000). It may well be that they are able to perform a certain activity but it may require more effort, time and perhaps having to endure pain or tiredness or the like. The person may thereby avoid doing things although it may be regarded as an important part of their daily living, and have to give up doing them may then interfere with their life satisfaction. Using ADL as an indicator of functional ability or assessment of care needs gives limited information about the person's view of feeling hindered (Thomas et al., 1998). Thus, identifying factors associated with feeling hindered by health problems might give information about the impact of health problems on daily life additional to the knowledge captured by ADL scales.

Factors in addition to health problems that may have an impact on life satisfaction include self-esteem and financial and social resources. Self-esteem is believed to be a dimension of psychological well-being and a component of a person's self-evaluation (Lawton, 1982); it describes a person's capacity to adapt to demands and challenges in life (Rosenberg, 1965; Blascovich and Tomaka, 1991). Thus it is likely to have a positive effect on life satisfaction and is helpful in managing demanding situations. Essex and Klein (1989) found a significant relationship between self-esteem and health problems among women (n = 480) aged 56–95 years. However, they found that self-esteem influenced health problems indirectly, i.e. people with high self-esteem were more likely to interpret their health problems positively and feel confident in their ability to handle the situation. Self-esteem and life satisfaction have previously been used to examine how people perceive themselves and their situation (Dobson et al., 1979). Both might be

important in determining how people adjust to health problems as well as consequences connected to impaired ability to perform ADL, although these two aspects may differ, self-esteem being a mediator and life satisfaction an outcome of a particular situation.

Social relations may change with age in the sense that the network shrinks in number as well as density with age. Avlund et al. (2002) found that people (75–80 years, n = 743) with impaired ability to perform ADL and needing help with their ADL had fewer contacts with others than those having preserved ability to perform ADL. This makes sense in that the limitation may hinder social activities. Further, women who reported tiredness related to performing ADL and impaired health had less contact with others. Social resources are often considered to be a buffer against the negative impact of health problems (Bisschop et al., 2004). Thus, people with health problems who really need the benefits of their social network may not have the ability to engage and participate in relationships with others. Since social relations seem to be a factor in relieving health problems but are not available for everyone, this is an essential factor to include when exploring the impact of feeling hindered by health problems.

Financial resources have likewise been found to be related to impaired health and ADL capacity. For instance, found in a European cross-national study including 18 countries Carlson (2004) that financial resources were related to people's perceived health, and higher satisfaction with the economic situation seemed to reduce the odds of poor health among people 18 years and above (mean age 43 years) in the included national samples. Increased health problems may also be related to increased expenses for medical treatment and drugs as well as transports to compensate for impaired mobility. In a Finnish study (n = 679) including two age clusters, 75 and 80 years, it was found that having better

financial resources was associated with a better functional capacity (Rautio et al., 2001). The results indicate that the cumulative influence of financial resources throughout people's life course seemingly cannot be avoided in higher age, nor among those with health problems and impaired ADL capacity.

On the basis of previous studies it is hypothesised in this study that there are both relieving and reinforcing factors contributing to feeling hindered by health problems and that the impact of the factors differs in relation to the level of ADL capacity. These assumptions are based on Lawton's (1983) theory of the relationship between people's internal and external resources and that they influence each other reciprocally. Lawton's theory indicates that resources are transformed continuously in relation to each other. Previous studies including ADL capacity and health problems might have failed to reflect the impact of health problems on daily life (Thomas et al., 1998; Visentin et al., 1998), since they do not consider the impact of differing ADL capacity. Such an approach gives only sparse knowledge of the impact of health problems on people's daily life (Akner, 2002), especially in earlier stages. However, such information cannot only be captured through blunt ADL scales but possibly also with a more overarching question about feeling hindered in daily living by health problems. There is a lack of knowledge about those who feel hindered despite preserved ADL capacity, and vice versa, those who do not feel hindered by their health problems despite reduced ADL capacity. By relating this question to their ADL capacity, health problems, social and financial resources, self-esteem and life satisfaction, some light may be shed on the impact of health problems, especially in the early stages when ADL restrictions have not yet occurred.

## 2. Aim

The aim of the study was to investigate feeling hindered by health problems among people aged 60–89 years living at home in relation to their ability to perform ADL, health problems, life satisfaction, self-esteem, and social and financial resources.

## 3. Methods

### *3.1. Sample*

The sample of this study included 1297 people (aged 60–89) stating at least one health problem, i.e. at least one disease, poor hearing or eyesight, and living at home. It was a sub-sample drawn from the Swedish part of the European cross-sectional study European Study of Adult Well-being (ESAW) including six European countries (Ferring et al., 2004). The sample was randomly selected from the population, stratified for age and gender. It was drawn from two counties in the southern part of Sweden, representing 14.5% of the Swedish population (SCB, 2001). The area includes both rural and urban areas. The target population (n = 4271), randomly selected from the National Population Register, was approached during 2001–2002. The response rate was 43.1%. Respondents who did not report any health problems (n = 227) were excluded. Questionnaires which did not fulfil the criteria for the international data set in the ESAW project and in which the question about whether health problems hindered their daily life was not completed (n = 306) were also excluded from further analysis. Another 10 questionnaires were excluded due to a high internal dropout (i.e., responding to less than 24 questions). Among the 2431 people who did not choose to participate, reasons were reported in 849 cases (34.9% of those who did not participate): not wanting to take part (n = 595) and being too sick (n = 254). The

participants aged 60–69 did not differ from the dropouts as regards age ($p = 0.4$) and gender ($p = 0.7$), but in the age groups 70–79 and 80–89 the participants were younger ($p < 0.019$) and more often men ($p < 0.001$) than the dropouts.

*3.2. Instrument*

The data were obtained using a self-reported questionnaire which included questions collected from Older Americans' Resources and Services schedule (OARS) (Fillenbaum, 1988), Multidimensional Functional Assessment Questionnaire (OMFAQ) (Fillenbaum, 1988). The OARS, often used as synonymous with OMFAQ, was designed to assess the overall personal functional status and provides information in five areas: social, economic, mental and physical health and activities of daily living. Data from OMFAQ comprising age, gender, education, living conditions, feeling hindered by health problems, help when needed, hearing, eyesight, numbers of diseases, ability to perform ADL, social and financial resources were used in this study. The OMFAQ has been used in several studies before and has been tested for validity and reliability (test-retest, inter-rater and intra-rater reliability) on samples with people aged 62 and over, living at home in the US (Fillenbaum, 1988). Permission from the original authors has been obtained to use the instruments. However, the questions taken from OMFAQ had not, as far as we know, been tested in Sweden previously.

Feeling hindered by health problems was assessed by the question "How much does physical health stand in way of doing things you want to do?" with the response alternatives a great deal, a little and not at all. The question reflects the perception and evaluation people have of their own health (Whitelaw and Liang, 1991) and together with

questions about physical health, the question proved to have an acceptable test-retest validity (Spearman's $r_s = 0.82$) in the OARS study (Fillenbaum, 1988). A list of 27 diseases, with or without symptoms (with the alternatives yes or no), together with the items about hearing (with a five-point scale from excellent to totally deaf) and eyesight (with a five-point scale from excellent to totally blind), included in OMFAQ, was used in this study to assess the respondents' amount of health problems. The five response alternatives in the questions about hearing and eyesight was transformed in this study into two: good (excellent or good) and poor (fair, poor or totally deaf/blind) since the sample size was small in some groups.

The ability to perform ADL was measured with the OARS ADL rating scale including fourteen items, which was modified from the original scale of Lawton and Brody (1969). The scale included one instrumental dimension of activity of daily living (IADL) "Can you use the phone, get to places, go shopping, prepare meals, do homework, take medications and handle money?" and one physical dimension of activity of daily living (PADL) "Can you eat, dress, take care of personal appearance, walk, get in and out of bed, take a bath yourself without trouble and get to toilet in time?" Each item has three response alternatives: without help, with help and unable to do except the last one, "getting to toilet in time", which had the alternatives no, with aids or yes. The original OARS ADL has been tested (n = 2036) and showed a reliability coefficient of r = 0.87 in the IADL and r = 0.84 in the PADL scale (Fillenbaum, 1988). In this study Cronbach's alpha (Cronbach, 1951) for OARS ADL rating scale was calculated to be 0.88 (IADL 0.83 and PADL 0.82). In accordance with Fillenbaum's algorithm an ordinal variable was constructed, with five categories: no, mild, moderate, severe and total impairment in ability to perform ADL.

In OARS the extent of contacts is measured by questions about having somebody to confide in, seeing relatives and friends as often as desired (response alternatives yes or no), number of people you know well enough to visit (four-point scale from five or more to none at all), number of times talking to and spent with someone in the last week (four-point scale from once a day or more to not at all) and feeling lonely (quite often, sometimes or almost never) and were all used in this study. According to Fillenbaum's original algorithm the six single items (Table 5) were aggregated into a social resources index (contact and family satisfaction). The algorithm contact and family satisfaction, here called social resources index, describes the extent of and satisfaction with contacts, with the values low, medium and high. Financial resources were measured by questions about financial situation compared to others (three-point scale from better to worse), whether resources meet needs (from very well to poorly), enough money to buy luxuries and enough money to meet needs in the future (yes or no). A financial resources index including the four single items was constructed in the same way as the social resources index, resulting in a new ordinal variable with three levels, poor, fair and good (Table 6).

Self-esteem was measured by Rosenberg's (1965) scale and includes five positively and five negatively loaded items such as: "On the whole I am satisfied with myself" and "At times I think I am not good at all". Each item includes five alternatives (strongly agree, agree, neither agree nor disagree, disagree and strongly disagree), modified from Rosenberg's original four-point scale (strongly agree, agree, disagree and strongly disagree). A high score indicates good self-esteem (total score 10–50). In this study the instrument had a Cronbach's alpha value of 0.79. Essex and Klein (1989) used the instrument in old people and maintained that it was suited for several age groups.

Sarvimäki and Stenbock-Hult (2000), who used the instrument with four response alternatives (total score 10–40) to measure self-worth as a component of psychological well-being, received the alpha value 0.75 among 300 Finnish people aged 75–97. The participants, with a majority of women (71%), living alone (62%), had mean value of 31 $\pm$ 4.9 on the four-point scale.

Life satisfaction was measured with the LSIZ instrument by Wood et al. (1969), with 13 items. Life satisfaction index Z (LSIZ) is a short version of Neugarten's original Life Satisfaction Index A (LSIA) including 20 items (Neugarten et al., 1961), designed specifically for use with old people to measure satisfaction with life in general. High scores indicate good life satisfaction (total score 0–26). Like Rosenberg's instrument, LSIZ includes both positive and negative items. The instrument has statements like: "These are the best years of my life" and "When I think back over my life, I didn't get most of the important things I wanted", with the answer alternatives agree, disagree and not sure. Cronbach's alpha in this study was calculated to be 0.81. The instrument has been demonstrated to have adequate internal consistency (alpha value 0.74) among people (50 years and above, n = 279) living at home (Himmelfarb et al., 1983). Among 1042 people living at home in the UK Morgan et al. (1987) found a mean score of 17.1 $\pm$ 5.6, at 65–74 years and 16.4 $\pm$ 5.5, at 75+.

The questionnaire was translated into a Swedish version by a native Swedish speaker and back-translated by a bilingual person. The questionnaire was sent by mail together with an invitation to participate in the study together with information about the aim of the study, instructions, voluntary participation and confidentiality. The respondents were offered help to complete the questionnaire if needed and thus some respondents were

interviewed in person. Two reminders were sent. Those with internal dropout were contacted by telephone, and an interview was carried out to complete the questionnaire. The Ethics Committee of Lund University approved the study (LU 545-99).

*3.3. Data analysis*

Descriptive statistics were used for descriptions, such as health problems, ability to perform ADL, social and financial resources, life satisfaction, self-esteem and number of diseases. Data on interval level are presented by mean value $\pm$ standard deviation. Chi-squared test was used to test differences between levels of feeling hindered by health problems for nominal data, the Kruskal-Wallis one-way analysis of variance test for ordinal data and one-way analysis of variance (ANOVA) for interval data (Tables 1–3 and 5–6) (Altman, 1991). To test differences between people with preserved ADL capacity, who felt unhindered and little or greatly hindered by health problems, we used Chi-square for nominal data, Mann-Whitney U-test for ordinal data and student's t-test for interval data (Table 4). Statistical significance was set at $p < 0.05$. In comparisons between the groups feeling hindered by health problems (not, little and greatly) a reduced $p < 0.017$ was applied (Bjorndal and Hofoss, 1998) to minimise the risk of type I error (Bland and Altman, 1995). In the multiple comparisons procedure (post-hoc), Chi-squared test was used for nominal data, Mann-Whitney U-test for ordinal data and the Bonferroni method for interval data. Internal consistency has been calculated by using Cronbach's alpha coefficient (Cronbach, 1951) in the instrument ADL rating scale, self-esteem and LSIZ. All the data were computerised and analysed in the program Statistical Package for the Social Sciences (SPSS) for Windows 12.0 (Puri, 2002).

Logistic regression analysis (enter) was used to identify factors associated with feeling greatly hindered by health problems. To explore differences in the ability to perform ADL the analysis was performed separately for excellent ability, mild/moderate impairment and severe/total impairment in ability (Table 6). Life satisfaction, self-esteem and amount of health problems were entered as they were. Before being entered in the regression model the variable measuring ability to perform ADL with five alternatives was transformed into three: excellent, mild/moderate impairment and severe/total impairment and financial resources from three to two; good and fair/poor due to small samples in some cells. Spearman's rho was used in the correlation between variables in the regression model, resulting in $r_s = 0.07–0.41$ between the independent variables and dependent variable. For all the independent variables the response alternative expected to have the smallest association with feeling greatly hindered as well as being a woman were chosen as reference. Hosmer and Lemeshow goodness-of-fit test (Hosmer and Lemeshow, 2000), which was used to estimate whether the models fitted the samples, was shown to be acceptable (Table 7).

## 4. Results

The mean age of the sample was 73.2 $\pm$ 8.0 years and the share of men was 54.1% (Table 1). The amount of health problems ranged between 1 and 11 problems (mean value 2.6 $\pm$ 1.6) and of the total sample 17.6% felt greatly hindered by health problems. The more a person felt hindered by health problems, the lower were life satisfaction and self-esteem ($p < 0.001$). People who did not feel hindered by health problems differed in age from those who felt little or greatly hindered by health problems ($p < 0.001$). People who felt

unhindered or little hindered differed in having help from others when needed from those who felt greatly hindered ($p = 0.004$). Those who did not feel hindered by health problems differed in gender and living condition from those who felt greatly hindered by health problems ($p = 0.024$ and 0.047, respectively) and whose who did not feel hindered differed in education from those who felt little hindered by health problems ($p = 0.034$) (Table 1).

*4.1. Health problems*

Three health problems or less were reported by 77.4%, with 29.4% reporting one and 29.7% reporting two health problems. The number of diseases differed between the three groups of feeling hindered by health problems ($p < 0.001$), and those who did not feel hindered differed in eyesight from the two groups who felt hindered by health problems ($p = 0.003$) (Table 2). The five most commonly reported diseases varied in the three groups feeling hindered by health problems (Table 2).

*4.2. Feeling hindered by health problems in relation to ADL capacity*

The more a person felt hindered by health problems, the poorer was the ability to perform ADL ($p < 0.001$). Of those with excellent ability to perform ADL 45% felt little hindered and 7.1% felt greatly hindered by health problems. There were people who did not feel hindered by health problems even though they reported severe/total (14.6%) or mild/moderate (20.7%) impairment in ADL capacity (Table 3).

Those who felt unhindered with preserved ADL capacity ($n = 384$) were significantly younger, had higher life satisfaction, higher self-esteem, better eyesight, a lower number of diseases, felt less lonely quite often, more often saw relatives and friends

as often as wanted, more often had better social resources, better financial situation than others, reported less often that needs did not meet financial resources and that they did not have enough money for needs in the future, more often had money to buy small luxuries and better financial resources than those who felt little or greatly hindered with preserved ADL capacity (n = 418) (Table 4). Further, those who did not feel hindered by health problems compared to those who felt little or greatly hindered, both with excellent ADL capacity, significantly less frequently had heart problems (7.0% vs. 17.9%) and circulation problems in the arms and legs (5.1% vs. 13.6%) ($p < 0.001$).

Those who felt unhindered or little hindered by health problems with severe/total ADL impairment had a mean age of 80.9 $\pm$ 7.5 years and had 1.7 $\pm$ 1.7 diseases, while those who felt greatly hindered by health problems with severe/total ADL impairment had a mean age of 80.3 $\pm$ 5.7, and had 2.7 $\pm$ 2.0 diseases (NS). Those who did feel unhindered or little hindered by health problems with severe/total ADL impairment had fewer people (three or more) to visit (28.5% vs. 70.6%) than those who felt greatly hindered ($p = 0.041$). Those who felt unhindered or little hindered by health problems with severe/total ADL impairment less often reported that they had enough money to meet needs in the future (42.9% vs. 84.8%, $p = 0.003$) and more often reported fair and poor financial resources (71.4% vs. 31.3%, $p = 0.041$) than those who felt greatly hindered by health problems with severe/total ADL impairment.

*4.3. Social resources*

Irrespective of levels of feeling hindered by health problems, people talked (82.6–84.2%) and spent time with someone (52.7–60.1%) frequently (daily or twice a week). Feeling

lonely differed significantly between the three groups of feeling hindered ($p < 0.001$), and the two groups who felt unhindered or little hindered differed in the number of people they knew enough to visit, in seeing relatives as often as they wanted to and in social resources from those who felt greatly hindered by health problems ($p \leq 0.016$) (Table 5).

*4.4. Financial resources*

Financial resources differed significantly between the three groups feeling hindered ($p = 0.011$). People who did not feel hindered differed in having enough money to buy small luxuries and in having enough money for needs in the future ($p < 0.001$) compared to the two groups who felt little or greatly hindered by health problems. People who felt unhindered or little hindered by health problems differed in expectations about their financial situation from others who felt greatly hindered ($p = 0.012$) (Table 6).

*4.5. Factors associated with feeling hindered by health problems*

In the total sample ($n = 1123$), adjusted for age, gender and ability to perform ADL, mild/moderate (odds ratios (OR) 3.9) and severe/total (OR 14.9) impairment in ability to perform ADL, no help when needed (OR 1.7), number of health problems (OR 1.3), life satisfaction (OR 0.92) and self-esteem (OR 0.96) were significantly associated with feeling greatly hindered by health problems. In the analysis of each level of ability to perform ADL (excellent, mild/moderate and severe/total impairment) separately, adjusted for age and gender, different factors were associated with feeling greatly hindered by health problems. Among people with excellent ability to perform ADL, having no help when needed (OR 2.4), number of health problems (OR 1.4) and life satisfaction (OR 0.92) were associated

with feeling greatly hindered. Among those with mild or moderate ADL impairment, the number of health problems (OR 1.3), life satisfaction (OR 0.92) and self-esteem (OR 0.95) were associated with feeling greatly hindered. Finally, among those with severe or total ADL impairment, having poor financial resources (OR 0.03) was associated with feeling greatly hindered by health problems (Table 7).

## 5. Discussion

The study supported the idea that a proportion of those with excellent ADL capacity felt little or greatly hindered by health problems, and thus only using ADL scales measuring the impact of health problems is not optimal in that it does not capture more subtle limitations decreasing older people's life satisfaction. Interestingly, there were also about 29% of those with severe or total ADL impairment who felt unhindered or only a little hindered by health problems. Further, the result indicated that it was above all factors connected to insecurity, i.e. no one available to help when needed, as well as low life satisfaction and low self-esteem that were associated with feeling greatly hindered. Factors differed, however, depending on the ADL capacity. For instance, getting help when needed was seemingly more important in the early stage of health decline, when feeling hindered despite excellent ADL capacity, than among those who were severely or totally impaired in ADL capacity. Feeling hindered by health problems took on a different meaning depending on ADL capacity as well as factors seemingly supporting adaptation, for instance help available when needed and self-esteem. Such knowledge seems essential to include when planning and accomplishing health promotion and rehabilitation interventions, especially in the early stages of reduced ADL capacity.

This study had a cross-sectional comparative design and thus gives no information as to which of the variables preceded the others or any other causal relationship (Kazdin, 2003). Further, all of the questions used in the study were self-reported, and thus it was the subjects' perception of feeling hindered, which comprises a risk of bias since their responses might be affected by their mood. The accuracy and validity can also be influenced by personality dispositions in assessing, recollecting and reporting medical symptoms (Costa and McCrae, 1987). The result of the present study, however, indicated that it is rather the perception of feeling hindered than what people can do assessed by ADL scales that is useful in planning interventions to improve life satisfaction. Further, the results indicated that combining an overarching question about feeling hindered by health problems with measuring ADL capacity gave a more complete illustration of the impact of health problems on people's activities in daily life than examining, for example, functional capacity solely. Self-reported data, however, might be a threat to the validity, but at the same time it is important to investigate the situation based on the respondents' views since their perception determines their actions.

The sample was randomly selected to minimise the influence of systematic bias. However, the non-participants increase threats to the external validity, and generalising the findings has to be done with caution (Kazdin, 2003). The present study had a rather high share of non-participants (response rate 43.1%). In the age groups 70–79 and 80–89 years the dropouts differed from the participants concerning age and gender. High age is often connected with higher extent of symptoms of diseases and there is therefore reason to believe that those who felt most hindered by health problems were not included in the study. Of those participating in the study rather few had severe or total impairment in their

ADL capacity, which may imply that this group had a lower ability to participate due the reduced ADL capacity. Another explanation for the small share of people with severe or total ADL impairment might be that the majority of those living at home are rather healthy and have excellent ADL capacity or only mild or moderate impairment. The share of people needing help with ability to perform ADL found in this study was in accordance with results obtained by both Sundström and Hassling (2000) and Thomas et al. (1998), thus perhaps supporting the external validity. However, the two studies might have had the same problems in approaching those who had the greatest impairment in ADL capacity, and the non-respondents might limit the generalisability of the results to the ageing population as a whole.

Some people felt hindered by health problems despite preserved ADL capacity and thus ADL rating scales seem too crude to capture early processes of health problems as well as subtle limitations. These early processes might not always be visible to others. The results showed that half of the sample felt hindered by their health problems and 7.1% felt greatly hindered without having any impaired ability according to the ADL scale. Health problems such as heart conditions, which have been reported as the most frequent health problems in the general population and among 59 people (aged 61–93) in the US (Dungan et al., 1996), as well as circulation trouble in arms and legs were significantly more common among those who felt hindered despite excellent ADL capacity than among those who did not feel hindered ($p < 0.001$). In the early stage such health problems might not result in reduced ADL capacity but give subtle limitations. However, it has been found in people with heart problems and with circulation trouble that they required more energy, endurance, tiredness (Klevsgård et al., 1999; Franzén et al., 2006) or were troubled by pain

(Klevsgård et al., 1999) in carrying out activities in their daily life. Also among 75-year-old men and women it has been shown that tiredness and efforts needed due to diseases have to be taken seriously since they were significantly associated with functional decline (Avlund et al., 2003), being hospitalised and in need of help (Avlund et al., 2001). Interventions to support adaptation to health problems at the beginning of declining health seemingly reduced the negative effects of coming ADL impairments.

It seems fair to say, although no causal relationships can be stated, that the lower the life satisfaction and self-esteem were, the more people feel hindered by their health problems. Previously, Essex and Klein (1989) have suggested that self-esteem is related to health problems and that people with high self-esteem are more likely to interpret their health problems positively and feel confident. This study showed that people who felt greatly hindered by health problems had significantly lower life satisfaction (mean 13.1) and lower self-esteem (mean 35.8) than those who did not feel hindered (mean 18.7 and 41.6). Also those with preserved ADL capacity who felt little or greatly hindered by health problems had lower life satisfaction (mean 16.1) and lower self-esteem (mean 39.1) than those with preserved ADL capacity who did not feel hindered by health problems (mean 18.9 and 41.7, $p < 0.001$). Seemingly, irrespective of ADL capacity, those who feel greatly hindered by health problems have lower life satisfaction and lower self-esteem, and thus might have less confidence in their ability to handle the impact of health problems on daily life than those who do not feel hindered by their health problems.

Among those with excellent ADL capacity, no help available when needed was found to be associated with feeling hindered by health problems. Interestingly, it was not social resources per se, i.e. the extent of and satisfaction with social relations, that was

important to feeling hindered by health problems, but help when needed. The regression model showed that, in those with preserved ADL capacity, low confidence in having someone that would help when needed (OR 2.4) and life satisfaction (OR 0.9) were significantly associated with feeling hindered by health problems. Thus the odds of feeling hindered by health problems increased about twice when people had the feeling that help was not available. Rossen and Knafl (2003) found among 31 women aged 61–91 that the sense of security, competence and the capacity to handle demands in new situations was important for feeling well when health problems increased and ADL capacity deteriorated. Results from a study by Pietila and Tervo (1998) including Finnish people over 75 also confirm this assumption. They found that experience of well-being and security promoted coping among people living at home. Feeling secure may also explain why some people, although they were severely or totally impaired in ADL capacity, seemed not to be influenced by health problems. Those who felt unhindered or little hindered despite severe or total impairment in ADL capacity more often had help when needed, albeit not significantly (92.9%), than those who felt greatly hindered (82.4%). In any case, these findings have to be interpreted with caution since those who were unhindered or little hindered despite severe or total impairment in ADL capacity were very few (n = 14) and further studies of this phenomenon seem warranted. Thus, it seems worthwhile not only to take an objective perspective but also to assess and discuss the impact of having to live with persistent health problems.

## 6. Conclusion

Data from this study suggest that feeling hindered by health problems in daily living takes on a different meaning depending on ADL capacity, and also it may be a more sensitive measure to identify those in need of rehabilitation or other interventions, especially at early stages of the health decline. The result indicated that it was above all factors connected to insecurity about available help as well as low self-esteem and low life satisfaction that were associated with feeling greatly hindered in levels of ADL capacity, although it was different factors depending on ADL capacity. The study emphasises that interventions have to be appropriately designed, i.e. not only based on ADL capacity since health problems such as diseases, impaired hearing and eyesight might restrict people's lives and decrease their life satisfaction. Thus, nurses as well as other health professionals, when planning and carry out interventions for promotive and rehabilitation purposes, should perhaps be aware that different factors are associated with feeling hindered in daily life in people with preserved ADL capacity or mild/moderate to total impairment in ADL capacity.

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Table 1. Sample descriptions, life satisfaction and self-esteem in relation to older people's perception of feeling hindered by health problems in performing daily activities.

| | Total sample (n = 1297) | Not feeling hindered by health problems (I) (n = 485) | Feeling little hindered by health problems (II) (n = 587) | Feeling greatly hindered by health problems (III) (n = 225) | p = | |
|---|---|---|---|---|---|---|
| **Gender %** | | | | | **0.024** | **B** |
| *Male* | 54.1 | 58.1 | 53.2 | 48.0 | | |
| *Female* | 45.9 | 41.9 | 46.8 | 52.0 | | |
| **Age %** | | | | | **<0.001** | **A, B** |
| *Mean age* | 73.2 ± 8.0 | 71.4 ± 7.5 | 74.0 ± 7.8 | 75.0 ± 8.5 | | |
| **Living conditions %** | | | | | **0.047** | **B** |
| *Living alone* | 32.4 | 28.2 | 35.1 | 34.2 | | |
| **Education %** | | | | | **0.034** | **A** |
| *Primary school, left at age 11–12* | 37.1 | 35.5 | 39.0 | 35.6 | | |
| *Secondary school, left at age 14–16* | 14.6 | 12.8 | 14.5 | 19.1 | | |
| *High or vocational school, left at age 18–19* | 25.5 | 26.0 | 23.7 | 29.3 | | |
| *College or above* | 22.5 | 25.6 | 22.5 | 16.0 | | |
| **Help from others when needed %** | | | | | **0.004** | **B, C** |
| *Yes* | 83.7 | 85.7 | 85.0 | 76.4 | | |
| **Life satisfaction index** (LSIZ) | | | | | **<0.001** | **A, B, C** |
| mean | 16.6 ± 4.6 | 18.7 ± 4.9 | 16.2 ± 5.5 | 13.1 ± 5.3 | | |
| **Self-esteem** | | | | | **<0.001** | **A, B, C** |
| mean | 39.5 ± 6.8 | 41.6 ± 6.2 | 39.1 ± 6.5 | 35.8 ± 7.2 | | |

Internal dropout n = 6–34. Chi-squared test was used for nominal data and the Kruskal-Wallis one-way analysis of variance test for ordinal data between levels of feeling hindered by health problems. Significant differences between A = I–II; B = I–III; C = II–III

Table 2. Health problems in relation to older people's perception of feeling hindered by health problems in performing daily activities.

| | Total sample (n = 1297) | Not feeling hindered by health problems (I) (n = 485) | Feeling little hindered by health problems (II) (n = 587) | Feeling greatly hindered by health problems (III) (n = 225) | p = | |
|---|---|---|---|---|---|---|
| **How is your eyesight? %** | | | | | **0.003** | **A, B** |
| *Excellent/good* | 38.9 | 44.7 | 36.3 | 33.3 | | |
| *Fair/poor/totally blind* | 60.9 | 55.3 | 63.4 | 66.7 | | |
| **How is your hearing? %** | | | | | 0.162 | |
| *Excellent/good* | 46.0 | 48.0 | 46.3 | 40.4 | | |
| *Fair/poor/totally deaf* | 54.0 | 52.0 | 53.7 | 59.6 | | |
| **Number of diseases** | | | | | **<0.001** | **A, B, C** |
| mean | 1.4 ± 1.5 | 0.8 ± 0.9 | 1.5 ± 1.5 | 2.2 ± 1.9 | | |
| Range | 0–9 | 0–5 | 0–9 | 0–9 | | |
| No disease % | 33.5 | 44.9 | 28.4 | 21.0 | | |
| One disease % | 30.8 | 35.1 | 31.0 | 21.3 | | |
| Two diseases % | 16.8 | 14.6 | 19.1 | 15.6 | | |
| Three diseases % | 9.5 | 4.1 | 10.7 | 17.8 | | |
| **The most commonly reported diseases %** | | | | | | |
| High blood pressure | 24.5 | 20.2 | 26.2 | 29.9 | | |
| Heart problems | 17.3 | 7.9 | 20.8 | 29.4 | | |
| Urinary tract problems (incl. prostate problems and excl. kidney diseases) | 16.3 | 13.9 | 16.2 | 21.7 | | |
| Glaucoma | 15.4 | 9.9 | 18.3 | 19.5 | | |
| Circulation trouble in arms or legs | 13.9 | 5.7 | 16.1 | 27.5 | | |

Internal dropout n = 2–9. Chi-squared test was used for nominal data, and one-way analysis of variance (ANOVA) for interval data between levels of feeling hindered by health problems. Significant differences between A = I–II; B = I–III; C = II–III

Table 3. Feeling hindered by health problems in relation to ability to perform ADL (n = 1297).

| | Excellent ability to perform ADL (n = 802) | Mild/moderate impairment in ability to perform ADL (n = 439) | Severe/total impairment in ability to perform ADL (n = 48) |
|---|---|---|---|
| Not feeling hindered by health problems | 384 (47.9%) | 91 (20.7%) | 7 (14.6%) |
| Feeling little hindered by health problems | 361 (45.0%) | 214 (48.7%) | 7 (14.6%) |
| Feeling greatly hindered by health problems | 57 (7.1%) | 134 (30.5%) | 34 (70.8%) |

Internal dropout n = 8, $p<0.001$.

Table 4. Factors in relation to feeling hindered by health problems when having excellent ADL capacity (n = 802).

| | Not hindered with excellent ADL capacity (n = 384) | Little or greatly hindered with excellent ADL capacity (n = 418) | p = |
|---|---|---|---|
| **Gender %** | | | 0.103 |
| *Male* | 53.1 | 47.4 | |
| *Female* | 46.9 | 52.6 | |
| **Age %** | | | **0.002** |
| *Mean age* | 70.6 ± 7.2 | 72.2 ±7.8 | |
| **Living conditions %** | | | 0.075 |
| *Living alone* | 32.0 | 38.0 | |
| **Education %** | | | 0.099 |
| *Primary school, left at age 11–12* | 34.5 | 40.0 | |
| *Secondary school, left at age 14–16* | 13.6 | 16.8 | |
| *High or vocational school, left at age 18–19* | 25.6 | 21.1 | |
| *College or above* | 26.4 | 22.1 | |
| **Help from others when needed %** | | | 0.367 |
| *Yes* | 84.6 | 81.6 | |
| **Life satisfaction index** (LSIZ) mean | 18.9 ± 4.9 | 16.1 ± 5.6 | **<0.001** |
| **Self-esteem** mean | 41.7 ± 6.1 | 39.1 ± 6.4 | **<0.001** |
| **How is your eyesight? %** | | | **0.017** |
| *Excellent/good* | 43.5 | 36.0 | |
| *Fair/poor/totally blind* | 56.5 | 64.0 | |
| **How is your hearing? %** | | | 0.583 |
| *Excellent/good* | 48.4 | 49.3 | |
| *Fair/poor/totally deaf* | 51.6 | 50.7 | |
| **Number of diseases** mean | 0.8 ± 0.9 | 1.3 ± 1.4 | **<0.001** |
| **The most commonly reported diseases %** | | | |
| High blood pressure | 19.9 | 24.1 | 0.164 |
| Urinary tract problems (incl. prostate problems and excl. kidney diseases) | 12.5 | 14.0 | 0.526 |
| Glaucoma | 9.7 | 12.7 | 0.184 |
| Heart trouble | 7.0 | 17.9 | **<0.001** |
| Circulation trouble in arms or legs | 5.1 | 13.6 | **<0.001** |
| **How many people do you know well enough to visit in their homes? %** | | | 0.422 |
| *Five or more* | 80.1 | 77.6 | |
| *Three or four* | 11.3 | 13.7 | |
| *One or two* | 5.8 | 5.3 | |
| *None at all* | 2.9 | 3.4 | |
| **About how many times did you talk to someone in the past week? %** | | | 0.751 |
| *Daily or more* | 36.2 | 35.6 | |
| *2–6 times* | 47.1 | 50.2 | |
| *Once* | 14.6 | 12.4 | |
| *Not at all* | 2.1 | 1.7 | |
| **How many times during the last week did you spend some time with someone who does not live with you? %** | | | 0.576 |
| *Daily or more* | 14.4 | 10.8 | |
| *2–6 times* | 46.2 | 49.6 | |
| *Once* | 29.0 | 29.5 | |
| *Not at all* | 10.4 | 10.1 | |

| | | | |
|---|---|---|---|
| **Do you have someone you can trust and confide in? %** | | | 0.801 |
| *Yes* | 89.2 | 88.6 | |
| **Do you find yourself feeling lonely? %** | | | **<0.001** |
| *Almost never* | 73.7 | 60.5 | |
| *Sometimes* | 20.1 | 26.8 | |
| *Quite often* | 6.3 | 12.7 | |
| **Do you see your relatives and friends as often as you want? %** | | | **0.019** |
| *Yes* | 87.6 | 81.6 | |
| **Social resources index %** | | | **0.035** |
| *High* | 43.0 | 35.7 | |
| *Medium* | 42.5 | 46.8 | |
| *Low* | 14.4 | 17.5 | |
| **As compared to other people your age how are you financially? %** | | | **0.016** |
| *Better* | 22.2 | 16.0 | |
| *About the same* | 69.1 | 72.4 | |
| *Worse* | 8.7 | 11.6 | |
| **How well do feel your needs are met by financial resources you have? %** | | | **<0.001** |
| *Very well* | 29.4 | 21.0 | |
| *Fairly well* | 63.0 | 64.3 | |
| *Poorly* | 7.6 | 14.7 | |
| **Do you usually have enough money to buy or obtain small luxuries? %** | | | **0.002** |
| *Yes* | 78.4 | 68.9 | |
| **At the present time do you feel that you have enough money for your needs in the future? %** | | | **<0.001** |
| *Yes* | 82.9 | 69.9 | |
| **Financial resources index %** | | | **<0.001** |
| *Good* | 73.1 | 60.8 | |
| *Fair* | 18.3 | 24.1 | |
| *Poor* | 8.6 | 15.1 | |

Chi-square was used for nominal data, Mann-Whitney U-test for ordinal data and student's t-test for interval data.

Table 5. Social resources in relation to older people's perception of feeling hindered by health problems in performing daily activities.

| | Total sample (n = 1297) | Not feeling hindered by health problems (I) (n = 485) | Feeling little hindered by health problems (II) (n = 587) | Feeling greatly hindered by health problems (III) (n = 225) | p = | |
|---|---|---|---|---|---|---|
| **How many people do you know well enough to visit in their homes? %** | | | | | **0.016** | **B, C** |
| *Five or more* | 75.5 | 79.6 | 75.0 | 68.0 | | |
| *Three or four* | 13.6 | 10.7 | 15.0 | 16.0 | | |
| *One or two* | 6.8 | 6.2 | 6.6 | 8.9 | | |
| *None at all* | 3.5 | 3.1 | 2.6 | 7.1 | | |
| **About how many times did you talk to someone in the past week? %** | | | | | 0.225 | |
| *Daily or more* | 35.2 | 34.8 | 33.4 | 41.1 | | |
| *2–6 times* | 48.0 | 47.8 | 50.8 | 41.5 | | |
| *Once* | 14.2 | 14.4 | 14.3 | 13.4 | | |
| *Not at all* | 2.5 | 2.9 | 1.5 | 4.0 | | |
| **How many times during the last week did you spend some time with someone who does not live with you? %** | | | | | 0.120 | |
| *Daily or more* | 11.8 | 12.8 | 10.4 | 13.5 | | |
| *2–6 times* | 46.3 | 45.8 | 49.7 | 39.2 | | |
| *Once* | 30.6 | 30.5 | 30.2 | 32.4 | | |
| *Not at all* | 10.7 | 10.7 | 9.2 | 14.9 | | |
| **Do you have someone you can trust and confide in? %** | | | | | 0.182 | |
| *Yes* | 88.0 | 88.5 | 88.9 | 84.4 | | |
| **Do you find yourself feeling lonely? %** | | | | | **<0.001** | **A, B, C** |
| *Almost never* | 64.0 | 74.2 | 61.5 | 48.4 | | |
| *Sometimes* | 25.2 | 19.6 | 27.9 | 30.2 | | |
| *Quite often* | 10.6 | 6.2 | 10.4 | 20.9 | | |
| **Do you see your relatives and friends as often as you want? %** | | | | | **<0.001** | **B, C** |

| | | | | | | |
|---|---|---|---|---|---|---|
| *Yes* | 81.3 | 86.0 | 81.8 | 70.1 | | |
| **Social resources index %** | | | | | **<0.001** | **B, C** |
| *High* | 34.9 | 41.0 | 33.7 | 25.7 | | |
| *Medium* | 44.9 | 42.5 | 47.2 | 45.4 | | |
| *Low* | 17.3 | 14.0 | 15.8 | 28.9 | | |

Internal dropout n = 1–38. Chi-squared test was used for nominal data and the Kruskal-Wallis one-way analysis of variance test for ordinal data between levels of feeling hindered by health problems. Significant differences between A = I–II; B = I–III; C = II–III

Table 6. Financial resources in relation to older people's perception of feeling hindered by health problems in performing daily activities.

| | Total sample (n = 1297) | Not feeling hindered by health problems (I) (n = 485) | Feeling little hindered by health problems (II) (n = 587) | Feeling greatly hindered by health problems (III) (n = 225) | p = | |
|---|---|---|---|---|---|---|
| **As compared to other people your age how are you financially? %** | | | | | **0.012** | **B, C** |
| *Better* | 19.5 | 23.7 | 18.7 | 14.7 | | |
| *About the same* | 68.5 | 68.0 | 70.0 | 65.8 | | |
| *Worse* | 10.6 | 8.2 | 10.1 | 16.9 | | |
| **How well do feel your needs are met by financial resources you have? %** | | | | | 0.05 | |
| *Very well* | 25.4 | 31.3 | 23.0 | 18.7 | | |
| *Fairly well* | 63.1 | 61.9 | 64.1 | 63.7 | | |
| *Poorly* | 11.2 | 6.8 | 12.4 | 17.5 | | |
| **Do you usually have enough money to buy or obtain small luxuries? %** | | | | | **<0.001** | **A, B** |
| *Yes* | 71.6 | 78.6 | 68.5 | 64.9 | | |
| **At the present time do you feel that you have enough money for your needs in the future? %** | | | | | **<0.001** | **A, B** |
| *Yes* | 72.2 | 80.0 | 69.2 | 66.8 | | |
| **Financial resources index %** | | | | | **0.011** | **A, B, C** |
| *Good* | 61.0 | 69.9 | 58.6 | 51.9 | | |
| *Fair* | 21.9 | 17.1 | 23.7 | 29.8 | | |
| *Poor* | 11.4 | 7.4 | 12.6 | 18.3 | | |

Internal dropout n = 5–74. Chi-squared test was used for nominal data and the Kruskal-Wallis one-way analysis of variance test for ordinal data between levels of feeling hindered by health problems. Significant differences between A = I–II; B = I–III; C = II–III

Table 7. Logistic regression analysis of factors associated with feeling greatly hindered by health problems in relation to ability to perform ADL.

| | Total sample[1] (n = 1123) | | | Excellent ability to perform ADL[2] (n = 705) | | | Mild/moderate impairment in ability to perform ADL[2] (n = 376) | | | Severe/total impairment in ability to perform ADL[2] (n = 42) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Odds ratio (OR) | 95 % CI for OR | p = | OR | 95 % CI for OR | p = | OR | 95 % CI for OR | p = | OR | 95 % CI for OR | p = |
| **Ability to perform ADL** | | | | | | | | | | | | |
| Mild/moderate impairment | **3.89** | **2.6–5.8** | **<0.001** | | | | | | | | | |
| Severe/total impairment | **14.89** | **6.5–34.0** | **<0.001** | | | | | | | | | |
| **Number of health problems** | **1.30** | **1.2–1.4** | **<0.001** | **1.39** | **1.2–1.7** | **<0.001** | **1.30** | **1.1–1.4** | **0.001** | 1.7 | 1.0–3.0 | 0.057 |
| **Life satisfaction** | **0.92** | **0.9–1.0** | **<0.001** | **0.92** | **0.9–1.0** | **0.008** | **0.92** | **0.9–1.0** | **0.004** | 0.78 | 0.5–1.1 | 0.183 |
| **Self-esteem** | **0.96** | **0.9–1.0** | **0.013** | 0.97 | 0.9–1.0 | 0.262 | **0.95** | **0.9–1.0** | **0.020** | 0.95 | 0.8–1.1 | 0.561 |
| **No help when needed** | **1.69** | **1.0–2.7** | **0.035** | **2.42** | **1.2–5.0** | **0.018** | 1.00 | 0.5–2.0 | 0.982 | 1.8 | 0.1–41.2 | 0.706 |
| **Financial resources** (fair/poor) | 0.94 | 0.6–1.4 | 0.755 | 1.80 | 0.9–3.5 | 0.088 | 0.85 | 0.5–1.5 | 0.562 | **0.03** | **0.0–0.4** | **0.008** |
| **Gender** (male) | 0.82 | 0.6–1.2 | 0.288 | 1.19 | 0.6–2.2 | 0.595 | 0.61 | 0.4–1.0 | 0.063 | 0.80 | 0.1–6.2 | 0.833 |
| **Age** | 1.00 | 1.0–1.0 | 0.855 | 1.02 | 1.0–1.1 | 0.415 | 0.99 | 1.0–1.0 | 0.920 | 1.05 | 0.9–1.2 | 0.497 |

1) Controlled for age, gender and ability to perform ADL. Hosmer and Lemeshow goodness-of-fit p = 0.13. 2) Controlled for age and gender. Hosmer and Lemeshow goodness-of-fit p = 0.80, 0.37 and 0.93. Significant factors in bold. Variables entered in the model: gender, age, ability to perform ADL (only in the total sample), help when needed, life satisfaction index, self-esteem, numbers of health problems, social resources index and financial resources index. Excellent ADL capacity, help when needed, good financial resources and woman were chosen as references.