



Universiteit Twente
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Depression, activity limitations and participation restrictions in rheumatic diseases

Bachelor's Thesis

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Enschede, August, 2009

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Depression, activity limitations and participation restrictions in rheumatic diseases

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Abstract

Objective. To find out the prevalence of depression in rheumatic diseases and to explore the relationship of depression with activities and participation (physical and social functioning). **Methods.** This study was accomplished in the rheumatology clinic of a medical hospital in Enschede, The Netherlands. Eighty patients participated. They were asked to answer the Geriatric Depression Scale- Short form (GDS-15), the Health Assessment Questionnaire (HAQ) for the measurement of limitations of activities; selected items of the Impact on Participation and Autonomy (IPA), to measure participation; selected items of the Sociale Steun lijst-interacties [Social Support List- interactions] (SSL-I), an antidepressant item and questions about background information. **Results:** 1. About 18.4% of the patients showed indications of depression. 2. No significant gender difference in the prevalence of depression was found. 3a. Patients with a rheumatic disease and a depression had significantly more activity limitations and participation restrictions, than patients with a rheumatic disease and without depression. 3b. The GDS-15 score correlated at .53 with the HAQ-DI and at .51 with the IPA score. 4a. Patients with high instrumental support appeared to be significantly more depressive than patients with low instrumental support. 4b. Instrumental support does not moderate the relations of depression with activity limitations and with participation restrictions. **Discussion.** No earlier research on depression in rheumatic diseases in general was published in which was also asked for the use of antidepressants. By reason of this study it is assumed that the prevalence of depression in rheumatic diseases was underestimated by earlier studies. No clear cut-off scores exist for the GDS-15 what makes it difficult to quote the prevalence of depression in rheumatic diseases precisely. The results 3a and 3b can be interpreted in the way that impairments possibly cause depression, that depression could alter the effects of the treatment of the rheumatic disease, and that both physical and social impairments could be important factors to explain negative associations of depression in rheumatic diseases. Since more patients taking antidepressants were found than patients with a GDS-15 score ≥ 8 , it would be interesting for further research to analyze whether there are relations of antidepressants with activity and participation.

Rheumatism is a collective term for more than 100 diseases (Deutsche Gesellschaft für Rheumatologie e.V. [DGRh], n.d.a), which are classified in sub-categories. In the Netherlands the categorization of Ontstekingsreuma, Weke delen reuma and Artrose (Klinische Immunologie en Reumatologie [KIR], 2009) is most common. A definite classification is impeded by the absence of a firm etiology for most of these diseases (Sangha, 2000). Rheumatic conditions are characterized by pain and functional limitations of the musculoskeletal system (DGRh, n.d.b). Dependent on the type, also inner organs, the skin or the nervous system can be affected (DGRh, n.d.b). Rheumatic symptoms interfere with self-care, social functioning and emotional well-being of the patients (Loza, Abasolo, Jover, Carmona, & Episer Study Group, 2007), and are the leading cause of disability among persons of 15 years and older (Adrianakos et al., 2007). Rheumatic diseases are in general not curable (DGRh, n.d.b). The objective of care of rheumatism is mitigation, relief of the symptoms, prevention of damages of the locomotor system and tissue (DGRh, n.d.b). The prevalence of rheumatic complaints was found to be 19.1% of the population of people aged 20 years or older in the Netherlands in 2006 (Chorus, Overbeek, & Rock, 2007).

Concomitant depression can occur (McEvoy De Vellis, 1995). Symptoms of depressive episodes are depressed mood and anhedonia, cognitive symptoms as diminished concentration and problems making decisions, physical symptoms as fatigue, loss of energy, motor inhibition, and possibly stupor (Vandereyken, Hoogdui, & Emmelkamp, 2008). In rheumatoid arthritis (belonging to Ontstekingsreuma) the published findings of the prevalence of depression range from 14% to 46% (Abdel-Nasser et al., 1998). In their own study Abdel-Nasser et al. (1998) found a prevalence of depressive disorders in 23% of patients with rheumatoid arthritis and in 10% of patients with osteoarthritis (Abdel-Nasser et al., 1998).

The prevalence in the community ranges between 2% and 4% and in primary care patients between 5% and 10% (Sheehy, Murphy, & Barry, 2006). According to Greenberg (2007), 24% of older medical outpatients are depressive. In rheumatoid arthritis depression is associated with less employments, more medical visits, more time in bed, more surgeries, (Pencus, Griffith, Pearce and Isenberg, 1996), less compliance with medication, more reports of physical symptoms, and more direct and indirect costs (Dickens & Creed, 2001). No literature about these associations for rheumatic diseases in general could be found. It is assumed that they are similar.

Because of these differences between rheumatic patients with depression and without, the description of the prevalence of depression in rheumatic diseases is the first purpose of this research. Because between 5% and 10% of primary care patients are found to have a depression (Sheehy, Murphy, & Barry, 2006), 10% of the patients with osteoarthritis and between 14% and 46% of the patients with rheumatoid arthritis (Abdel-Nasser et al., 1998), it is expected to find more than 10% of rheumatic patients with a depression.

As the mentioned findings above show, it appears that patients who suffer from a rheumatic disease and depression have more severe health problems than those without a depression. Rheumatic diseases and depression both have symptoms of impairments in physical and social functioning. For this reason the next purpose of this research is to analyze, whether patients with a rheumatic disease and a depression show more physical and social impairments than patients without a depression and whether depression is stronger related with physical impairments than with social impairments.

The International Classification of Functioning, Disability and Health (ICF) of the WHO (2005) contains a model, which provides a framework for the explanation of this supposed relation. The ICF model assumes an interplay of 1. *Body functions and structures* 2. *Activity* and 3. *Participation*. Together these constructs form the first part of this model. This part reflects the *functioning* of people, which depends on the disease. Body functions contain *physical and psychological functioning* and *body structures* imply the anatomical parts of the body. Depression is an impairment in psychological functioning. According to the model, depression has a bidirectional relation with activity, which is defined as the execution of a task or action. It describes the highest level of functional capability of a person. Body structures and -functions and activity both have bidirectional relations with the construct participation. Participation denotes being involved in life situations, which refers to what a person actually does in his or her environment. Thus the assumption that depressive patients are more impaired than not-depressive patients is supported by the ICF model. In terms of this model it is one purpose of this research to assess the relationship of depression with activity limitations and participation restrictions. It is supposed to find a stronger relation between depression and participation restrictions, than between depression and activity limitations. One reason is that psychomotor symptoms are infrequently reported in depression other than major depressive episode (Sobin, & Sackheim, 1997). Therefore depression should lead to additional impairments in motor functioning only in a few cases. Symptoms like anhedonia or fatigue are more common then, which are supposed to affect participation more than activity. Another reason is that it is supposed that participation restrictions have a stronger impact on depressive feelings than activity limitations.

The second part of the ICF model reflects the *context* of a disease and consists of *environmental factors* and *personal factors*. They have bidirectional relations with the constructs of functioning and with each other. Environmental factors refer to facilitating or restricting influences such as material and social factors as well as stereotypes. It is assumed that people with impaired body functions, who get support, are more able to maintain activity and participation. In this research *instrumental support* is studied as environmental factor. Instrumental support means practical help (Cohen, Underwood Gorden, Underwood, & Gottlieb, 2000). This can be assistance with transportation, helping with household chores, or

providing tangible aid such as bringing tools or giving financial support (Cohen, Underwood Gorden, Underwood, & Gottlieb, 2000). This type of social support is studied here, because it is supposed to affect both activity and participation. The assumption is that high instrumental support has a beneficial influence on depression, because it helps getting along with the life situation. According to that, patients with high instrumental support should have a weaker relation of depression with activity limitations and participation restrictions than patients with low instrumental support.

The other context variable personal factors is not classified in this model. Kessler (2003) states that depression is roughly twice as common in women than in men. As gender seems to have an influence on the occurrence of depression, gender is chosen as personal factor here. If this holds for rheumatic patients, too, then women should be found more frequently than men with depression in the studied sample. See figure 1 for an illustration of how the whole model is used for this research. Only the relations to study are depicted.

The results of this research are supposed to give information about the relations of depression with physical impairments and with social impairments in rheumatic patients. They could be used to estimate how important it is to take the diagnosis and treatment of depression into account in the treatment of rheumatic diseases. Since pilots to collect patient data via computers in clinics are accomplished for example at the Whipps Cross University Hospital NHS Trust, London in England and at the Medisch Spectrum Twente, Enschede in the Netherlands, these results could give indications how useful the measurement of depression might be in these settings.

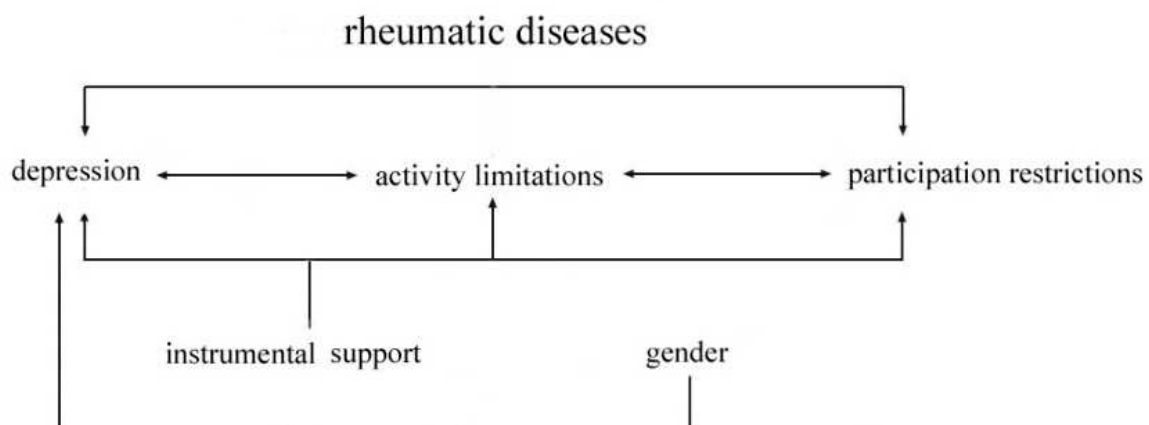


Figure 1: The ICF-model applied for the study of the relation between depression, activity limitations and participation restrictions in patients with rheumatic diseases.

For a good outline, the hypotheses of this research are summed up here:

1. More than 10% of the patients show indications of depression.
2. Depression is more prevalent in women than in men.
- 3a. Patients with a rheumatic disease and a depression have more activity limitations and participation restrictions than patients with a rheumatic disease and without a depression.
- 3b. Depression and participation restrictions are stronger related than depression and activity limitations.
- 4a. Patients with high instrumental support are less depressive than patients with low instrumental support.
- 4b. Patients with high instrumental support show a weaker relation of depression with activity limitations and participation restrictions than patients with low perceived instrumental support.

Methods

Procedure

The data were collected during May 2009 at the clinic for rheumatology of the hospital *Medisch Spectrum Twente* in Enschede in the Netherlands. In the waiting room the patients were asked, if they were willing to participate in this study.

Participants

One hundred-eighty-five patients were asked to participate in this study. One hundred and five patients (56.8%) refused; mainly for reasons of lacking time (36 patients), interest (12 patients), or because they were not patients with a rheumatic disease (32 people). Eighty patients (43.2%) gave general information about their disease and their demographics and answered at least the IPA. These respondents were aged 20 to 91, with a mean age of 56 years. Fifty-four (67.5%) patients were female and 26 (32.5%) were male. The 80 patients suffered from their diseases 10 years on average with a range from 46 years to less than a year. For this computation only 78 patients were included. One patient filled in a date of first rheumatic complaints previous to the patient's birth, one other patient did not answer this question. The frequencies of the rheumatic diseases in this sample are shown in table 1. Eleven patients (13.7%) said to have more than one rheumatic disease.

Table 1

Frequency of rheumatic diagnoses reported by 80 patients

Diagnosis	n	Percentage
Rheumatoid Arthritis	27	34,2
Ankylosing Apondylitis (Morbus Bechterew)	4	5,1
Reiter's Disease	0	0
Systemic lupus erythematosus (S.L.E.)	0	0
Gout	5	6,3
Arthritis Psoriatica	1	1,3
Tendinitis/Bursitis	2	2,5
Osteoporosis	1	1,3
Osteoarthritis	19	24,1
Fibromyalgia Syndrome (F.M.S.)	3	3,8
Lower back pain	5	6,3
Scleroderma (systemic sclerosis)	1	1,3
Other	13	16,5
Do not know	12	15,2
Total	93	100

Instruments

All measurements were accomplished with digital questionnaires in Dutch language on a computer (see appendix). Once the order of the questionnaires was altered. It was feared that many patients would not get to the point to answer the GDS-15, so the order was changed.

Depression. To measure depression, the Geriatric Depression Scale (GDS-15) was used. It consists of 15 items which can be answered with either yes, or no (Greenberg, 2007). The 13th item for example is: Voelt u zich energiek? [Do you feel energetic?]. For evaluation the items 1, 5, 7, 11 and 13 have been reversed and the number of positive answers has been counted. A sum of less than five positive answers are considered normal, depending on age, education, and complaints, a sum between five and eight positive answers indicates mild depression, a sum ≥ 8 of positive answers is defined to be an indication of a moderate depression and a sum ≥ 12 suggests a severe depression (Yesavage, n.d.). The used cut-off

scores here are eight and twelve to indicate depression. They can be seen as remarks for a subclinical and a clinical depression respectively (Oonk, 2008). Cronbach's alpha of the GDS-15 in this study is .77. Additionally it was asked if the patients use antidepressants. Stated to the best of own knowledge, this has not been done in earlier research on depression and rheumatic diseases. The item used was "Neemt u door een arts voorgeschreven medicijn om uw stemming te verbeteren?" [Do you take mood enhancing drugs, prescribed by a doctor?]. A positive answer is considered to be note of a clinical depression.

Activity limitations. For the measurement of activity limitations the Health Assessment Questionnaire-Disability Index (HAQ-DI) was used. It consists of 20 items for eight subscales with two to three items per subscale (Bruce, & Fries, 2004). The subscales are: Dressing and grooming, arising, eating, walking, hygiene, reach, grip, and common daily activities. The items are to be answered on a four point-Likert scale, ranging from "without any difficulty" to "unable to do". Item 1b is for example: "Kunt u uw haren wassen" [Can you wash your hair]. For analyses the points of the Likert-scale get the values zero to three. There are four additional items assessing, whether devices and help of other people are used by the patients within the domain of the eight subscales, or not. The domains can be chosen from a list. For this study the Alternative Disability Index is calculated, wherefore these items are neglected, because help of other people is measured with a separate questionnaire. For the HAQ-DI, the highest value of each subscale is taken and added with the highest values of the other subscales. The score on the HAQ-DI is this sum divided by the number of subscales (see appendix). Values from zero to three are possible. Cronbach's alpha of the HAQ in this sample was .95.

Participation restrictions. To get data about the participation restrictions the Impact on Participation and Autonomy (IPA) was used. It consists of 32 items and five subscales with five to seven items per subscale (Cardol, Beelen, Van den Bos, De Jong, De Groot, & De Haan, 2002). The subscales are Autonomy indoors, Family role, Autonomy outdoors, Social relations, and Work and educational opportunities. Answers are given on a five point-Likert scale ranging from "zeer goed" [very good] to "slecht" [bad]. One example of an item is: "De mogelijkheid om mensen te helpen of steunen die me nodig hebben is:" [The possibility to help or support people who need me is:]. For the computation of a sum score the values zero to four are assigned to the points of the Likert scale. According to the ICF, it is difficult to differentiate clearly between activity and participation (WHO, 2005), so they are measured together in the IPA. The WHO points out that researchers can use own criteria to discern activity domains from participation domains (WHO, 2005). They propose three alternatives. Here the first possibility to use domains without overlap is applied. Therefore the subscales Autonomy indoors and Family role were excluded. In an earlier study with rheumatoid arthritis patients and participation was found that 65% did not answer the subscale Work and educational opportunities, because they did not apply to most of the patients (Hagens, 2008). Therefore this subscale was neglected to minimize the number of patients of whom the data would have to be neglected. The remaining subscales of the IPA Autonomy outdoors and Social relations were used. That are 12 items. To express the participation restriction, the sum of the values of the answers on the items are computed and divided by the number of items. A higher score means more restriction. Cronbach's alpha of this reduced IPA in this sample was .90.

Instrumental support. Instrumental support was measured with the subscale instrumental support of the Sociale Steun Lijst - Interacties [social support list – interactions] (SSL-I). It consists of seven items (van Sonderen, 1993). The respondents are asked to answer these items by rating them on a scale from one to four. One means rarely or never, four means that it happens very often, two means once in a while and three means regularly. Here only five items were used, because two items measure informational support in my opinion. For evaluation of the answers the sum score gets computed. The higher it is, the higher the

instrumental support. Cronbach's alpha of this subscale in this sample was .45. Therefore another two items were deleted to upgrade the inter item reliability to .58.

Demographic data. Gender, age, diagnosis and onset of the disease were asked at the computer, before the patients started answering the first questionnaire.

Data analyses

The questionnaires were evaluated by following the instructions of their manuals. For the analyses of the collected data, statistical software was used and for all analyses an alpha of .05 was applied. Descriptive statistics including mean values, ranges, std. deviations and frequencies were computed.

A factor analysis of the IPA items using maximum likelihood method, showed a highly significant result for one factor. The χ^2 value was 231.0. This is a significant result at a level of $\alpha \leq .001$ and indicates a good reflection of participation with this item selection.

The Factor analysis of the SSL-I items revealed one factor with an eigen value higher than one. This factor explains 55.5% of the variance and therefore reflects instrumental support moderately. A χ^2 value could not be computed for three items.

Hypotheses 1 and 2: The prevalence of depression and the percentage of women were assessed by using frequency analyses of a) patients with a GDS-15 score ≥ 8 , or taking an antidepressant, or both; b) patients with a GDS-15 score ≥ 8 ; c) patients using an antidepressant; d) patients using an antidepressant and still having a GDS-15 score ≥ 8 ; e) patients with a GDS-15 score ≥ 12 ; and f) patients with a GDS-15 score ≥ 12 and taking an antidepressant. Thereupon χ^2 -tests were done to compute, whether existing gender differences in the prevalence were significant.

Hypothesis 3a: The third research question, if depressive patients and not-depressive patients differed in their mean HAQ-DI and IPA scores, was answered by making parametric independent samples t-tests for the two GDS-15 groups (1. Score < 8 ; 2. Score ≥ 8). The HAQ-DI variable and the IPA variable were normally distributed. With the Kolmogorov-Smirnov z-test a $z(0.74, 0.40) = 1.35$, $p = .06$ (two-tailed) was computed for the HAQ-DI and a $z(2.11, 0.31) = 0.73$, $p = .66$ (two-tailed) for the IPA. After that, one-tailed, left sided confidence intervals were calculated for the differences in the HAQ-DI and the IPA score between the not-depressive group (GDS-15 score < 8) and depressive group (GDS-15 score ≥ 8).

Hypothesis 3b: To examine whether the GDS-15 score is stronger related with the IPA score than with the HAQ-DI, correlations were computed. With a Kolmogorov-Smirnov z-test of $z(2.9, 7.34) = 1.74$, $p = .01$ (two-tailed), the GDS-15 variable is not normally distributed, so the Spearman correlation was used.

Hypothesis 4a was answered by applying a one-tailed, right sided Mann-Whitney U-test for two independent samples. This non parametric test was chosen, because the GDS-15 score was not normally distributed, $z(2.9, 7.34) = 1.74$, $p = .01$. Instrumental support served as grouping variable. A low instrumental support group and a high instrumental support group were established by dividing the sample at the median of the SSL-I score. The sum score of the GDS-15 served as the dependent variable.

Hypothesis 4b: To analyze, if the relations of the GDS-15 score of the two GDS-15 groups with the constructs of functioning differs between patients with a high or low instrumental support, at first the median of instrumental support was computed to build two groups of equal size. The median turned out to be 6. The groups of patients with scores above the median are said to have a high instrumental support and the patients with a score lower than the median are said to have low instrumental support. Then a MANOVA, and separate ANOVAs were carried out with the SSL-I and the GDS-15 variables as the independent variables and the HAQ-DI and the IPA as dependent variables.

Results

Hypothesis 1. Fourteen of the 76 patients (18.4%) who answered the GDS-15 and the medication item showed indications of depression (see table 2). For the computation of the percentage of patients with a GDS-15 score ≥ 8 , the medication item was neglected. The one patient who scored 12, or higher on the GDS-15 did not answer the antidepressant item. He also belonged to the group of patients with a GDS-15 score ≥ 8 .

The mean score of these 76 patients on the GDS-15 was 2.94 with a standard deviation of 2.66. This mean score is that low, because only five patients scored 8 or higher on the GDS-15 (see tabel 2). As it was expected to find a prevalence of indication of depression higher than 10%, hypothesis 1 is supported.

Hypothesis 2. As shown in table 2, no significant gender differences were found. Hypothesis two is not confirmed.

Table 2

Frequencies of indications of depression in the sample of 76 patients and differences between women and men

	n (total)	% (total)	n (♀)	n (♂)	% (♀)	% (♂)	χ^2	p (gender diff.)
GDS-15 ≥ 8 , or/and antidepressant	14	18.4	9	5	64.3	35.7	1.14	.29
GDS-15 ≥ 8	5	5.3	4	1	80	20	1.80	.18
Antidepressant	11	14.5	7	4	63.6	36.4	0.82	.37
Antidepressant and still GDS-15 ≥ 8	2	2.6	2	0	100	0	.	.
GDS-15 ≥ 12	1	1.3	0	1	0	100	.	.

p (gender diff.) = p (gender difference); χ^2 for 1 degree of freedom

Hypothesis 3a. Seventy patients have answered the GDS-15, the HAQ and the IPA. Six of the 76 patients did not answer all three questionnaires. One amongst them had a GDS-15 score ≥ 8 . Sixty-six (94.3%) of the remaining 70 patients had a score < 8 (group one) and 4 (5.7%) had a score ≥ 8 on the GDS-15 (group two). The parametric independent samples t-test with the grouping variable GDS-15 score showed significant results for both dependent variables the HAQ-DI, $t(68) = -2.12$, $p = .02$ and the IPA score $t(68) = -2.79$, $p < .001$ (see table 3). The upper bound of the one-tailed and left-sided 95% confidence interval for this difference between the GDS-15 groups on the HAQ-DI is at -0.16 (table 3), indicating that 95% of the patients of the GDS-15 group two score at least 0,16 points higher on the HAQ-DI than the GDS-15 group one. For the IPA score the upper bound of the 95% confidence interval of the difference between the GDS- 15 groups shows that 95% of the patients from the group with indications of depression score at least 0.31 points higher on the IPA than the not-depressive GDS-15 group (table 3). It can be concluded that the patients of the depressive group have more activity limitations and participation restrictions than the patients of the not depressive group.

Table 3

Differences in the HAQ-DI score and IPA score between the two depression groups

GDS-15	Not depr. group (n=66)	depr. group (n=4)	t-test	df	p	upper bound of diff.	Not depr. group (n=66)	depr. group (n=4)
	Mean (SD)	Mean (SD)					CI of mean	CI of mean
HAQ-DI	0.70 (0.63)	1.38 (0.26)	-2.12	68	.04	-0,16	(0.55; 0.85)	(1.05; 1.70)
IPA	2.06 (0.55)	2.83 (0.14)	-2.79	68	< .001	-0.31	(1.93; 2.20)	(2.61; 3.05)

depr. group = patients with GDS-15 score ≥ 8 ; not depr. group = patients with score < 8 ; SD = standard deviation; df = degrees of freedom, p (one –tailed), upper bound of diff = upper bounds of one-tailed 95% confidence interval of the difference of the not-depressive group and the depressive group; CI of mean = two-tailed 95% confidence interval of the mean score

As the mean score of the HAQ-DI of the not-depressive group is close to 1, this means that not-depressive patients have in the average range some difficulty in activities, according to the manual of the HAQ (Stanford University School of Medicine, 2004). The mean score 1.38 of the HAQ-DI computed for the group with indications of depression is also close to one, so according to the HAQ manual the functioning of the depressive group would also be labeled with some difficulty.

The mean scores on the IPA of the not-depressive group is close to 2. For the second GDS-15 group, the mean score on the IPA is close to 3. Participation is therefore acceptable in the not-depressive group, but only moderate in the group with a GDS-15 score ≥ 8 , according to the IPA manual.

The patients with indications of depression have significantly higher scores on the HAQ-DI and IPA than the patients without indication of a clinical, or subclinical depression. Concerning the interpretation of the scores according to the manuals of the questionnaires, the difference has meaning only in the case of the IPA. The difference between the HAQ-DIs of the two groups can not be expressed by labels provided by the test manual.

Hypothesis 3b. To see if depression and participation restrictions are stronger related than depression and activity limitations, the Spearman's correlations of the GDS-15 score with the IPA score and HAQ-DI score were assessed. The scores on the GDS-15 and on the HAQ-DI correlated at .53 (sig. two-tailed $\leq .001$). The GDS-15 sum score and the IPA score correlated at .51 (sig. two-tailed $\leq .001$). These analyses let conclude that the GDS-15 score is related with the HAQ-DI and the IPA score. Having used Fisher's z-transformation (see appendix), a z-score of 0.25 for the comparison of the correlations resulted, which is significant at a level of higher than .40. At the chosen level of alpha of .05 this is thus no significant difference. Hypothesis 3b could not be confirmed.

Hypothesis 4a. Before testing hypothesis 4a, two instrumental support groups were established by dividing this sample at a median of 6 on the SSL-I score. Both instrumental support groups then contained 35 patients. The one-tailed, right-sided, U-test of Mann-Whitney resulted in a significant difference in the GDS-15 score between the groups with high and low instrumental support (see table 4). Surprisingly it appeared that patients with high instrumental support are more depressive than patients with low instrumental support. This relation is the opposite of the expected one. Hypothesis 4a is therefore not confirmed. Because both instrumental support groups scored with a mean less than 5, both groups do not indicate a form of depression (Yesavage, n.d.).

Table 4

Differences in GDS-15 score between the two instrumental support groups

SSL-I	Low support (n=35)	High support (n=35)	U	Z	p
	Mean (SD)	Mean (SD)			
GDS-15	2.26 (0.39)	3.60 (0.48)	420.00	-2,29	.01

SD = standard deviation ; U = U of Mann-Whitney U-test; p (one –tailed)

Hypothesis 4b. Sixty-seven patients have answered all questionnaires. Seventy patients had answered the GDS-15, the HAQ and the IPA and 70 patients had answered the GDS-15 and the SSL-I. Because the order of the questionnaires was changed at one time, the two groups of 70 patients were not the same patients. Therefore it is not the case that three of 70 patients stopped, but that 67 patients responded to all questionnaires. Thirty-four patients then were in the low support group and 33 in the high support group. The GDS-15 variable was split as usual at the score of 8 to get one group with, and one without indication for depression. Each depressive group with high, or low instrumental support consisted of two patients, the low instrumental support group without indications of depression of 32 patients and the high instrumental support group without indications of depression of 31 patients. This applies for

the interaction of the GDS-15 variable with the SSL-I variable on the HAQ-DI and the IPA score.

The MANOVA gave the following result: Wilk's Lambda of $F(2, 62) = 0.71$, $p = .50$ (two-tailed) was not significant. Separate ANOVAs resulted in an $F(1, 0.53) = 1.29$, $p = .26$ (two-tailed) for the interaction concerning the HAQ-DI, and in an $F(1, 0.02) = 0.08$, $p = .79$ (two-tailed) for the IPA score. Both apart are thus also not significant at a chosen alpha level of .05. Therefore it is not possible to find that patients with high instrumental support show a significantly weaker relation of the GDS-15 score with the HAQ-DI and the IPA score than patients with low instrumental support. Hypothesis 4b can not be confirmed.

Discussion

Aim of this study was to find out about the prevalence of depression in rheumatic diseases and to investigate possible relations of depression with physical and social functioning in patients with rheumatic complaints.

Hypothesis 1 and 2. The rate of 18.4% of patients who show moderate, or severe indications of depression met the expectation, but can not be compared to other studies. There seems to be no earlier study on the depression rate in rheumatic diseases in general in which it was asked for the use of antidepressants, too. The percentage of 64.7% of females among depressive patients matches Kessler's statement (Kessler, 2003) that depression is about two times more common with women than with men in the general population. No literature whether this holds in the population with rheumatic diseases could be found.

To address the validity of this result, the measurements of depression need to be discussed. The GDS-15 has a Cronbach's alpha of .75. This is the result of a study done by Friedman et al. (2005) on 960 functionally impaired elderly people. In the study here it was .77. The reliability is thus fairly good. Disputable though are the used cut-off scores. Eight and 12 are suggested by the Yesavage (n.d.) as indications of mild and severe depression. Today mainly the scores 9 and 12 are handled, as Greenberg (2007) for example does. For these cut-off scores the sensitivity was found to be 92% and the specificity 89% (Greenberg, 2007). Almeida and Almeida found the highest sensitivity of 97% of the GDS-15 for a major depressive episode at the cut-off score 4/5 when using just one cut-off score (Almeida and Almeida, 1999). Van Marwijk, et al. (1995) used a cut-off score of 3 and Lam et al. (2004) of 10 in their studies (Wancata, Alexandrowicz, Marquart, Weiss, & Friedrich, 2006). For the cut-off scores used here, the sensitivities and specificities are not known. They were chosen for this study, because one intention was to replicate the findings of Oonk (2008), who did research on the depression rate in rheumatic diseases at the Medisch Spectrum Twente one year earlier. She just found 8.8% of the patients with a GDS-15 score ≥ 8 . Here it was 5.3% detected with the GDS-15, but with the additional medication item, 18.4% showed indications for a depression. Dependent on the cut-off scores, other depression rates could have been found. It must also be mentioned that 31 of the patients of this sample could not answer the medication item, because of a mistake in the administration of the computer system in the Medisch Spectrum Twente. Among the 45 patients who were asked for medication, 24.4% answered „yes“, so the real depression rate in this sample is likely to be higher than 18.4%. In 2006, between 31.3% and 35.6% of the general population of the region Twente, where this study was done, took antidepressants (Rijksinstituut voor Volksgezondheid en Milieu, 2009a). Antidepressants get prescribed not only for depression, but also for anxiety disorder, or pain (Rijksinstituut voor Volksgezondheid en Milieu, 2009b). It was tried in the study here to filter the patients who take antidepressants only for depression, so a percentage of 24.4% is seen as realistic, because patients who take antidepressants for feelings of anxiety or for pain should not have given a positive answer. The item though could be formulated more directly, for example: “Do you take drugs prescribed by a doctor against depressive feelings?” That

would rather assure that patients do not respond positively, because they used antidepressants for feelings of fear, or pain. This was not done, because with this formulation more socially desired answers were suspected. It is also remarkable, that more patients took antidepressants than there were patients with a GDS-15 score ≥ 8 . For this reason it is assumable that earlier studies on depression in rheumatic diseases not asking for antidepressants underrated the prevalence of depression. The reliability of the medication item can not be computed, because it is just one item. The validity is not tested, but at least it has face validity.

For further research it would be consequent not only to ask for use of antidepressants, but also, whether patients follow psychotherapy because of a depression. This would further improve the accuracy of the measurement of the actual prevalence of indications of depression in the studied population.

For the discussion about the validity of all results of this study it must also be mentioned that the GDS-15 is just a screening instrument for depression. To be able to state that the 18.4% of this sample are really depressive, a clinical interview would be necessary.

In these and the following analyses, only a GDS-15 score ≥ 8 was used as criterion of an indication of a depression. The cut-off score 12 was not used, because only one patient scored higher than that. This is also the reason why the antidepressant item was not taken into account. For further research though it would be interesting to investigate, whether the relations of depression with activity limitations and participation restrictions are the same in cases with severe depression. Moreover it would be interesting to see whether antidepressants just diminish somber feelings, or if they have also beneficial impact on activity and participation.

Hypothesis 3a and 3b. The GDS-15 score is related to participation restrictions and with activity limitations. Patients with depressive thoughts and feelings are more limited in activities and more restricted in participation. These differences are significant, and depression concerns nearly one fifth of the patients, therefore depression should get attention in rheumatology. The relations possibly persist, because activity limitations and participation restrictions lead to depression, or because depression has additional hindering impact on activities and participation, because of the additional symptoms of depression. A longitudinal study would provide better insight, but can nevertheless give evidence for causality. That also leads to the question, whether depression is stronger related with activity limitations, or participation restrictions, which was the next research question.

The HAQ-DI and the IPA-score correlate equally with the GDS-15 score. The hypothesis 3b that IPA and GDS-15 correlate stronger than HAQ-DI and GDS-15 score was therefore rejected. Assuming that activity limitations and participation restrictions cause depression (and are the only causes), it is a substantial finding that participation restrictions cause depression at least in the same amount, as activity limitations and could therefore be an important factor to explain the negative associations of depression in rheumatic diseases. For example patients could get depressive because of participation restrictions and therefore would show worse adherence. If depression is the cause of the impairments, it must be realized that depression influences both domains of functioning equally. That means that the treatment effect of the rheumatic disease on the physical functioning would be diminished by symptoms of depression and that possible efforts to save the social life of the patient could also be diminished by depression. If depression is the consequence of the functional limitations, doctors treating the physical impairment should also prove the participation restrictions of their patients to avoid that their patients get another disease, namely depression. If the patients improve physically, but the participation is nevertheless not satisfying for them, depression could still arise or stay. Another implication is that depression and its negative associations could be diminished by the treatment of the rheumatic disease.

It was not found that IPA score and GDS-15 score correlate stronger than the HAQ-DI and the GDS-15 score. This is possibly because the type of depression was not assessed. In the

study of Akiskal, Benazzi, Perugi, & Rihmer (2005) for example it became evident, that patients with an agitated depression are more talkative and engage in more risky actions, but that the loss of energy and interest is the same with agitated and not agitated depression. That suggests a weakening of the relation between depression and participation in cases of agitated depression. In rheumatoid arthritis, Fitzpatrick, Newman, Archer and Shipley (1991) found depression to be stronger related with the HAQ score ($r = .53$) than with social integration ($r = -.45$). Social integration (measured with two subscales of the Interview Schedule for Social Interaction (ISSI)) is comparable to the subscale Social relations of the IPA. As social integration does not include Autonomy outdoors, this can explain the difference in the correlations found in this study. Another reason for the result that the GDS-15 score is even strong related with the HAQ-DI and the IPA score can simply be, that hypothesis 3b is in fact wrong. The rheumatic disease likely acts as confounding variable with even strong impacts on depression, activity and participation.

A problem which concerns hypothesis 3a and 3b is that some patients had answered the GDS-15 earlier. Whether this was no longer than a year ago, the GDS-15 did not appear again in the computer system for these patients. This means that in the cases of ten patients, old data were compared with new data. They have all answered all questionnaires, except one, who did not answer the SSL-I items. This reduces the reliability of the conclusions. How strong this affects the conclusion can not be told, because the actual GDS-15 score at the time when the other questionnaires were answered is not known.

Another relevant problem for hypothesis 3a and 3b is the time line assessed by the GDS-15, the HAQ and the IPA. By the GDS-15 and the HAQ it is asked to rate the items with regards to the passed week. The IPA asks for the general situation. It is assumable that the patients of this sample have a stable mood, because the GDS-15 score which reflects just the mood of the past week, correlates so well with the general participation of the patients. It can also be that the patients had the recent participation better in mind than the participation longer ago. That could explain the relations, too. A questionnaire asking about participation restrictions of the passed week would in spite of that be preferable to the IPA. Research on the relation of the GDS-15 score with the HAQ-DI and the IPA score in a more general manner is not advisable, because of the strong fluctuations of the symptoms of rheumatic diseases.

Additionally two patients reported problems answering the HAQ. They have adjusted their houses with special water-taps, for example and have placed everything in that way that they do not need to reach for things above their heads which are heavier than 1kg. They do not use usual water-taps which are presumably meant in the HAQ and do not reach for heavy things above their heads outside their houses either, because of this they could not answer the items reliably. Generally though the HAQ is reliable with a test-retest reliability between .87 and .99 and valid, which is affirmed in several hundreds of studies (Stanford University School of Medicine, 2004). In this sample Cronbach's alpha was .95.

Cronbach's alpha of the IPA ranges between .81 and .91 (Cardol, et al., 2001). Autonomy outdoors and Social relations which were used here have a test-retest reliability of .89 and .91. Here the chosen items of the IPA had a Cronbach's alpha of .90. The validity of the used subscales is though substantially confirmed, according to Cardol, et al. (2001), as Autonomy outdoors correlates at $-.57$ with the subscale Social integration of the London Handicap Scale (LHS) and Social relations correlates at $-.51$ with this subscale of the LHS (Cardol, et al., 2001). This is supported by the results of the factor analysis which was done for the selected IPA items. Thus the reliabilities and validities of the used instruments are nevertheless good (the GDS-15 was mentioned above).

Hypothesis 4a and 4b. It was expected that patients with high instrumental support are less depressive than patients with low instrumental support. However the opposite was found. It is possible that patients with a depression get more support, because of their depression and the related behavior with that, or because of the evidence that depressive patients have more

activity limitations and participation restrictions and therefore need and get more instrumental support. Then this relation is stronger than the beneficial impact of instrumental support on depression. Perhaps the expected relation would have been found, if the patients had been asked for their perceived instrumental support in place of just instrumental support. The effect of support depends on the fact, whether the one who receives it, perceives it as useful, or not (Morrison, & Bennett, 2006). Perhaps the support the patients of this sample get is not perceived as useful and therefore does not have a strong beneficial impact on depression. Revenson, Schiaffino, Majerovitz, and Gibofski (1991) found in their study in the USA, that support from friends and family in general, which was perceived as helpful, was related to lower depression in rheumatoid arthritis, and that support perceived as not useful was related to increased depression. For this reason it would be better to ask for perceived instrumental support when analyzing the relation of depression with instrumental support.

In terms of the moderating role of social support it is not so important to discriminate between perceived instrumental support and instrumental support, because there the mere help for activities and participation is crucial. In spite of that no moderating role was found. An explanation, which is also relevant for hypothesis 4a, can be the huge difference of the sizes of the groups. In each group of high instrumental and of low instrumental support, two patients had indications of a depression vs more than 30 patients in both groups who did not indicate a depression. In MANOVAs and ANOVAs the values are not weighted by number of data per group, so the results of these computations are not reliable. In addition the reliability of the selected SSL-I items was only moderate, so although the validity was confirmed by factor analysis, the results of hypothesis 4a and 4b have only little to no informative value. The psychometric properties of the GDS-15 were mentioned in the section about hypothesis 1 and 2 in the discussion.

In the following the representativeness of this sample is briefly discussed to provide a reference for the meaning of the findings overall. The rate of female patients of 67.5% of this sample matches the percentage of 65.9% of the study by Chorus, Overbeek, & Rock (2007). They did an epidemiological study on rheumatic diseases in the Netherlands with a sample of 6931 people. The mean age of the respondents with rheumatic complaints is not given, but about 56% were between 40 and 64 years old, about 24% were between 65 and 79 years old, about 11% were between 20 and 39 years and about 9% were older than 80 years. In the study here, sample 51.3% were between 40 and 64 years, 26.3% were between 65 and 79 years old, 17.5% were between 20 and 39 years old and 5.0% were older than 80 years. A precise comparison is nevertheless not possible, but the samples seem to be nearly similar. Chorus, Overbeek, & Rock (2007) also report, that rheumatoid arthritis and osteoarthritis are the most frequent forms of rheumatic diseases. This is the case in the sample here, too.

To check whether this sample is biased in any way regarding depression, activity limitations, or participation restrictions, the patients who did not want to participate in this study were asked to give reasons. Only four patients did not participate, because they felt too ill, so the mean scores on the GDS-15, the HAQ-DI and the IPA are barely to not-biased by the reasons for refusal to participate.

For following research it is advisable to take a larger sample, to try the alternative instruments mentioned and it would be interesting to focus on the effects of antidepressants.

Summarizing the main aspects of this research, depression is a problem for many patients with rheumatic diseases and likely for more than thought so far. Patients with indications of depression show more impairments in activity and participation than those without and therefore activity and participation could both play a role in the negative associations of depression in rheumatic diseases.

Acknowledgements: I would like to thank Dr. Harald Vonkeman, Katharina Bömer, Marietta Müller, Stephan Förster and god.

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Appendix

Startscreen ROMA



_____ Reumatologie Online Monitor Applicatie _____

**Universiteit Twente**
de ondernemende universiteit

Geachte patiënt,

Welkom op de polikliniek reumatologie van Medisch Spectrum Twente.

Met dit systeem kunt u vragenlijsten elektronisch invullen met behulp van een touchscreen (aanraakscherm). U kunt antwoorden selecteren door deze met uw vinger op het scherm aan te raken.

Druk op de knop: **VERDER**, rechts onder in beeld, om met de vragenlijsten te beginnen.

Als u hiermee klaar bent, of geen vragen hoeft in te vullen nodigen wij u graag uit een kijkje te nemen op de site van het Reumacentrum Twente. Door het logo aan te raken gaat u hier naar toe:

 Reumacentrum Twente

VERDER

GDS-15



_____ Reumatologie Online Monitor Applicatie _____

STOP

**Universiteit Twente**
de ondernemende universiteit

patiënt: _____

Geachte patiënt,

Deze vragenlijst gaat over uw stemming.

Druk op VERDER om met de vragen te beginnen.

VERDER



_____ Reumatologie Online Monitor Applicatie _____

STOP

**Universiteit Twente**
de ondernemende universiteit

patiënt: _____

Vraag 1 t/m 5

Selecteer het antwoord dat het best weergeeft hoe u zich de afgelopen week gevoeld heeft.

	ja	nee
1. Bent u innerlijk tevreden met uw leven?	☐	☐
2. Hebt u veel interesses en activiteiten op moeten geven?	☐	☐
3. Hebt u het gevoel dat uw leven leeg is?	☐	☐
4. Verveelt u zich vaak?	☐	☐
5. Hebt u meestal een goed humeur?	☐	☐

0%

VERDER



Vraag 6 t/m 10

- | | ja | nee |
|---|--------------------------|--------------------------|
| 6. Bent u bang dat u iets naars zal overkomen? | ☐ | ☐ |
| 7. Voelt u zich meestal wel gelukkig? | ☐ | ☐ |
| 8. Voelt u zich vaak hulpeloos? | ☐ | ☐ |
| 9. Blijft u liever thuis dan uit te gaan en nieuwe dingen te doen? | ☐ | ☐ |
| 10. Hebt u het gevoel dat u meer moeite heeft met het geheugen dan anderen? | ☐ | ☐ |

TERUG

35%

VERDER



Vraag 11 t/m 15

- | | ja | nee |
|--|--------------------------|--------------------------|
| 11. Vind u het fijn om te leven? | ☐ | ☐ |
| 12. Voelt u zich waardeloos op dit ogenblik? | ☐ | ☐ |
| 13. Voelt u zich energiek? | ☐ | ☐ |
| 14. Hebt u het gevoel dat uw situatie hopeloos is? | ☐ | ☐ |
| 15. Denkt u dat de meeste mensen het beter hebben dan u? | ☐ | ☐ |

TERUG

70%

VERDER

Antidepressant Item



____ Reumatologie Online Monitor Applicatie ____

STOP


Universiteit Twente
de ondernemende universiteit

patiënt: _____

Vraag 16

16. Neemt u door een arts voorgeschreven medicijnen om uw stemming te verbeteren?

ja ☐ nee ☐

TERUG

95%

VERDER

HAQ-DI



____ Reumatologie Online Monitor Applicatie ____

STOP


Universiteit Twente
de ondernemende universiteit

patiënt: _____

Geachte patiënt,

Deze vragenlijst gaat over de invloed van uw ziekte op het functioneren in het dagelijks leven.

Druk op VERDER om met de vragen te beginnen.

VERDER

**Vraag 1**Kruis het antwoord aan dat het best beschrijft wat u meestal kon doen in de afgelopen week

	zonder enige moeite	met enige moeite	met veel moeite	onmogelijk uit te voeren
Aankleden en verzorging				
a. Kunt u zichzelf aankleden, inclusief veters strikken en knopen dichtmaken?	☐	☐	☐	☐
b. Kunt u uw haren wassen?	☐	☐	☐	☐
Opstaan				
c. Kunt u opstaan vanuit een rechte stoel?	☐	☐	☐	☐
d. Kunt u in en uit bed komen?	☐	☐	☐	☐

0%

VERDER

**Vraag 1 (vervolg)**Kruis het antwoord aan dat het best beschrijft wat u meestal kon doen in de afgelopen week

	zonder enige moeite	met enige moeite	met veel moeite	onmogelijk uit te voeren
Eten				
e. Kunt u vlees snijden?	☐	☐	☐	☐
f. Kunt u een vol kopje of glas naar de mond brengen?	☐	☐	☐	☐
g. Kunt u een nieuw pak melk openen?	☐	☐	☐	☐
Lopen				
h. Kunt u buitenshuis op een vlakke grond wandelen?	☐	☐	☐	☐
i. Kunt u vijf traptreden opklimmen?	☐	☐	☐	☐

TERUG

12%

VERDER



Vraag 4

Kruis het antwoord aan dat het best beschrijft wat u meestal kon doen in de afgelopen week

	zonder enige moeite	met enige moeite	met veel moeite	onmogelijk uit te voeren
Hygiëne				
a. Kunt u zelf uw lichaam wassen en afdrogen?	☐	☐	☐	☐
b. Kunt u in en uit bad komen? (U mag deze vraag overslaan als u geen bad heeft)	☐	☐	☐	☐
c. Kunt u op en van het toilet?	☐	☐	☐	☐
Reiken				
d. Kunt u een 1kg wegend voorwerp, zoals een pak suiker, bereiken en omlaaghalen van net boven uw hoofd?	☐	☐	☐	☐
e. Kunt u voorover buigen om kleren van de vloer op te rapen?	☐	☐	☐	☐

TERUG

50%

VERDER



Vraag 4 (vervolg)

Kruis het antwoord aan dat het best beschrijft wat u meestal kon doen in de afgelopen week

	zonder enige moeite	met enige moeite	met veel moeite	onmogelijk uit te voeren
Grijpkracht				
f. Kunt u auto-portieren openen?	☐	☐	☐	☐
g. Kunt u deksels van potten, die al eens geopend zijn, losdraaien?	☐	☐	☐	☐
h. Kunt u een kraan open- en dichtdraaien?	☐	☐	☐	☐
Activiteiten				
i. Kunt u boodschappen doen en winkelen?	☐	☐	☐	☐
j. Kunt u in en uit een auto komen?	☐	☐	☐	☐
k. Kunt u klussen doen, zoals stofzuigen of tuinieren?	☐	☐	☐	☐

TERUG

62%

VERDER



_____ Reumatologie Online Monitor Applicatie _____ STOP

Universiteit Twente
de ondernemende universiteit

patiënt: _____

Geachte patiënt,

In deze vragenlijst worden een aantal vragen gesteld over dagelijkse bezigheden. Het doel van deze vragenlijst is om een beeld te krijgen van de manier waarop uw gezondheid de mogelijkheden beïnvloedt om het leven te leiden dat u wilt, en hoe u dit beleeft en beoordeelt.

Bij de beantwoording van de vragen gaat het uitsluitend om uw mening en uw ervaringen. Er zijn geen goede of foute antwoorden; het gaat erom dat u het antwoord geeft dat volgens u het beste bij uw situatie past.

Bij elke vraag selecteert u steeds één antwoord. Ook wanneer u een vraag onbelangrijk vindt of hierover geen mening heeft, vragen wij u het antwoord te selecteren dat het best bij uw situatie past. Wanneer u twijfelt, kies dan het antwoord dat het dichtst in de buurt komt van wat u denkt.

VERDER



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MOBILITEIT: gaan en staan waar en wanneer u wilt

Eerst willen we u een aantal vragen stellen over mobiliteit: de mogelijkheid om te gaan en staan waar en wanneer u wilt, binnenshuis en buitenshuis. Het gaat er in deze vragen vooral om of u zelf kunt bepalen waar u naar toe gaat en wanneer u dat doet.

	zeer goed	goed	redelijk	matig	slecht
Het bezoeken van burens, vrienden en kennissen <u>wanneer</u> ik dat wil gaat:	☐	☐	☐	☐	☐
Het maken van uitstapjes of een (vakantie)reis <u>zoals</u> ik dat wil gaat:	☐	☐	☐	☐	☐

0%

VERDER

**TIJDSBESTEDING EN ONTSPANNING**

Of u zelf kunt bepalen wat u wilt doen in uw (vrije) tijd, wanneer u dat wilt doen en hoe lang, daar gaat de volgende vraag over.

De mogelijkheid om mijn (vrije) tijd te besteden zoals ik het wil is: zeer goed goed redelijk matig slecht

☐ ☐ ☐ ☐ ☐

TERUG

40%

VERDER

**SOCIALE CONTACTEN EN RELATIES**

De volgende vragen gaan over de kwaliteit en frequentie van uw sociale contacten. Het kan zijn dat door uw gezondheid of beperking sociale contacten anders verlopen of minder vaak voorkomen. In de vragen 6c en 6e wordt gesproken van 'respect'. Met respect wordt bedoeld de mate waarin anderen u correct en beleefd behandelen.

- zeer goed goed redelijk matig slecht
- a. De mogelijkheid tot een gelijkwaardig gesprek met de mensen die me dierbaar zijn is: ☐ ☐ ☐ ☐ ☐
- b. De omgang met de mensen die me dierbaar zijn is: ☐ ☐ ☐ ☐ ☐
- c. Het respect dat ik ontvang van mensen die me dierbaar zijn is: ☐ ☐ ☐ ☐ ☐
- d. De omgang met mensen die ik minder goed ken is: ☐ ☐ ☐ ☐ ☐

TERUG

50%

VERDER



(vervolg)

- | | zeer goed | goed | redelijk | matig | slecht |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| e. Het respect dat ik ontvang van mensen die ik minder goed ken is: | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. De mogelijkheid tot intimiteit, zoals ik dat wil is: | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. De frequentie waarmee ik mensen zie is: | ☐ | ☐ | ☐ | ☐ | ☐ |

TERUG

53%

VERDER



ANDEREN HELPEN OF STEUNEN

Deze vraag gaat over uw mogelijkheden om anderen te helpen of te steunen. Daarbij kunt u denken aan familie, vrienden, buren of kennissen, maar ook aan de vereniging of organisatie waar u misschien lid van bent.

- | | zeer goed | goed | redelijk | matig | slecht |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| a. De mogelijkheid om mensen te helpen of steunen die me nodig hebben is: | ☐ | ☐ | ☐ | ☐ | ☐ |

TERUG

60%

VERDER



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SAMENVATTEND

In deze vragenlijst heeft u vragen beantwoord die te maken hebben met de gevolgen van uw gezondheid of beperking voor uw persoonlijke, sociale en maatschappelijke leven. Wilt u nog eens in het algemeen aangeven of u vindt dat u zelf voldoende kunt bepalen wat u wilt (laten) doen?

zeer goed goed redelijk matig slecht

Mijn mogelijkheid om te leven op de manier zoals ik het wil is: ☐ ☐ ☐ ☐ ☐

TERUG

95%

VERDER

SSL-I



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Geachte patiënt,

De volgende vragen gaan over ondersteuning van andere mensen. Bij deze vragen wordt telkens over 'men' gesproken.

Het is de bedoeling dat u onder 'men' telkens de mensen waar u mee omgaat (dus het geheel van familieleden, vrienden, kennissen, burens, collega's et cetera) verstaat. Wilt u het antwoord geven dat het best bij u past.

VERDER



Gebeurt het wel eens dat men:

- | | Zelden of
nooit | Af en
toe | Regel-
matig | Erg
vaak |
|---|--------------------------|--------------------------|--------------------------|--------------------------|
| a. ... u ergens heen brengt | ☐ | ☐ | ☐ | ☐ |
| b. ... aan u spulletjes of een klein bedrag leent | ☐ | ☐ | ☐ | ☐ |
| c. ... u hulp biedt in bijzondere gevallen, zoals bij ziekte, verhuizing, kinderen uitbesteden | ☐ | ☐ | ☐ | ☐ |
| d. ... aan u grote dingen zoals een auto of een groot bedrag leent | ☐ | ☐ | ☐ | ☐ |
| d. ... u praktische hulp biedt bij alledaagse dingen, zoals in het huishouden of bij een klusje | ☐ | ☐ | ☐ | ☐ |

0%

VERDER

Fisher's z-transformation

$$\begin{aligned}
 z(r_1) &= 0.5 \ln [(1 + r_1) / (1 - r_1)] \\
 &= 0.5 \ln [(1 + 0.534) / (1 - 0.534)] \\
 &= 0.596
 \end{aligned}$$

$$\begin{aligned}
 z(r_2) &= 0.5 \ln [(1 + r_2) / (1 - r_2)] \\
 &= 0.5 \ln [(1 + 0.512) / (1 - 0.512)] \\
 &= 0.565
 \end{aligned}$$

z-score of the difference

$$\begin{aligned}
 z &= \frac{z(r_1) - z(r_2)}{\sqrt{1/(n-3)}} \\
 &= \frac{0.596 - 0.565}{\sqrt{1/(70-3)}} \\
 &= 0.254
 \end{aligned}$$

Computation of the HAQ-DI

Patient number	Factor A	Factor B	Factor C	Factor D	Factor E	Factor F	Factor G	Factor H	sum	HAQ-DI
1	0	1	1	1	1	1	1	1	7	0.88
2	1	1	1	1	1	2	2	2	11	1.38
3	0	0	0	0	0	1	1	1	3	0.38
4	1	2	2	2	1	2	1	2	13	1.63
5	1	1	1	1	2	2	1	2	11	1.38
6	3	2	2	1	3	3	2	3	21	2.63
7	0	0	1	0	0	1	0	0	2	0.25
8	1	2	0	1	2	1	0	1	8	1.0
9	1	0	1	0	1	1	1	1	6	0.75
10	1	1	1	2	2	1	2	2	14	1.75
11	3	1	1	2	2	1	1	2	16	1.63
12	1	0	0	0	0	1	1	1	4	0.5
13	1	0	0	1	1	1	1	1	6	0.75
14	0	0	0	0	0	0	0	0	0	0.0

15	0	0	1	0	0	0	0	2	3	0.38
16	1	0	0	0	0	0	0	1	2	0.25
17	2	1	1	1	1	1	0	2	9	1.12
18	1	2	1	1	2	2	1	1	11	1.38
19	1	1	2	0	0	2	2	2	11	1.38
20	0	1	1	0	0	1	1	1	5	0.63
21	0	0	1	1	1	1	2	1	7	0.88
22	0	1	0	0	0	1	1	1	4	0.50
23	0	0	0	0	0	0	0	0	0	0.00
24	1	1	2	2	1	1	1	2	11	1.38
25	0	0	0	2	0	0	0	1	3	0.38
26	0	1	1	0	1	0	1	1	5	0.50
27	0	0	0	0	0	0	0	0	0	0.00
28	1	0	2	0	0	0	1	1	5	0.63
29	1	1	0	1	1	1	0	3	8	1.00
30	1	1	2	1	1	2	2	2	12	1.50
31	1	1	1	0	2	1	1	1	8	1.00
32	1	1	1	1	0	1	1	1	0	0.00
33	1	1	1	1	0	1	1	1	7	0.88
34	2	1	0	1	1	2	0	1	8	1.00
35	1	1	1	2	2	1	1	2	11	1.38
36	0	0	0	0	1	1	0	1	3	0.38
37	0	0	0	0	0	0	1	1	2	0.25
38	0	0	0	0	0	0	1	0	1	0.25
39	0	0	0	0	0	0		0	0	0.0
40	1	1	1	0	0	2	2	1	8	1.0
41	0	0	0	0	0	0	0	0	0	0.0
42	0	0	0	1	0	0	0	0	1	0.12
43	0	0	3	1	0	0	0	3	7	0.88
44	0	0	0	1	0	1	0	2	4	0.50
45	0	0	0	0	0	0	0	0	0	0.00
46	2	2	1	2	1	2	1	2	13	1.63
47	0	0	1	0	0	1	1	0	3	0.38
48	0	0	0	0	0	0	1	0	1	0.13
49	1	0	0	1	0	2	0	1	5	0.50
50	3	2	3	3	3	3	2	3	22	2.75
51	1	1	2	2	2	1	2	2	13	1.63
52	0	0	0	0	0	0	1	1	2	0.25
53	2	1	1	2	3	2	1	3	15	1.88
54	0	0	0	1	0	0	0	1	2	0.25
55	0	1	0	0	0	1	1	0	3	0.38
56	1	0	0	0	0	0	0	2	3	0.38
57	0	1	0	1	0	0	0	3	5	0.63
58	0	1	0	1	0	1	1	0	4	0.50
59	0	0	0	1	0	0	0	0	1	0.12
60	0	0	0	0	0	0	0	1	1	0.12
61	0	0	0	0	0	0	0	0	0	0.00
62	0	0	1	1	0	1	0	0	3	0.38
63	0	0	0	0	0	0	0	0	0	0.00
64	1	1	1	1	1	1	2	1	9	1.12
65	1	1	1	1	1	1	1	2	9	1.12
66	11	112	121	112	21	1	2	2	11	1.38
67	0	0	0	1	0	0	0	0	1	0.13
68	0	0	0	0	0	0	0	0	0	0.00
69	0	0	1	0	1	1	1	0	4	0.50
70	1	1	1	1	1	2	1	1	9	1.12