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Use of Accommodations for Valued Life Activities: Prevalence and Effects on Disability Scores

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Abstract

Objective—To describe the prevalence of using 4 specific behavioral accommodations (assistive devices, personal assistance, limits on the amount or kind of activities, and taking more time to perform activities) in the performance of valued life activities (VLAs), and to examine the impact of accounting for these accommodations on VLA disability scores.

Methods—Data were from a panel study of 467 individuals with rheumatoid arthritis (RA) interviewed annually by telephone. VLA disability was assessed using a 29-item scale, rating difficulty performing each activity and asking whether the 4 types of accommodations were used. An unadjusted difficulty score based solely on difficulty ratings was calculated, as well as 3 adjusted scores accounting for use of assistance or devices, use of assistance, devices, or limitations in activities, and use of all 4 accommodations.

Results—Accommodations were widely used by individuals with RA to perform daily activities. Limits and more time were used for more activities than assistance and devices. Adjustment for accommodations produced substantial increases in disability scores (e.g., the mean total VLA difficulty score increased by 84% after adjustment for all 4 accommodations).

Conclusion—The accommodations included on the Health Assessment Questionnaire, the most commonly used measure of functioning for RA, include only assistive devices and personal assistance, which were not the accommodations most frequently used in our sample. If assessments are intended to estimate total disease burden, they should include use of a broader range of accommodations to develop a more complete picture of how daily function is affected.

Keywords

Rheumatoid arthritis; Function; Disability; Accommodations; Valued life activities; Health Assessment Questionnaire

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AUTHOR CONTRIBUTIONS

Dr. Katz had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study design. Katz.
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INTRODUCTION

The use of assistive devices or equipment and personal assistance has been shown to reduce disability (1–4). For example, in one study of adults ages ≥35 years with moderate to severe difficulty in performing a task, use of devices or assistance reduced the difficulty for 75–85%, and completely resolved the difficulty for ~25% of the subjects (3). Both assistive devices and personal assistance appear to be widely used by individuals with arthritis, although estimates depend on the populations and activities surveyed, and the manner in which devices and/or assistance are defined.

Use of other behavioral accommodations, such as limiting activities or taking more time to perform them, to improve functioning or reduce disability may be more common than use of devices or assistance (5–8). In a study of self-management behaviors used to cope with the functional limitations of rheumatoid arthritis (RA), taking more time to perform activities was the most common strategy reported (by 80% of respondents), followed closely by avoiding or limiting certain activities (75% of respondents) (7). Asking for help was reported by ~60%, but use of equipment was mentioned only rarely.

The most widely used measure of functioning in rheumatology, the Health Assessment Questionnaire (HAQ) (9), includes questions about use of assistive devices and personal assistance, as well as assessing difficulty in specific actions. The HAQ does not specify whether difficulty questions should be answered with or without taking the use of accommodations into account, however in scoring, difficulty ratings are automatically increased if accommodations are used. In other words, the use of aids is viewed as a reflection of worse functioning or greater disability. In reality, the use of aids can improve the functional ability of an individual. An intervention introducing relevant aids may appear to produce declining functioning because HAQ scores would increase due to increased use of aids, whereas an individual's actual ability to negotiate the environment might increase.

Ziebland et al pointed out that the scoring of the HAQ reflects 2 models of disability (10). The items querying difficulty focus on the discomfort or difficulty experienced in performance, not on whether a function can be performed. The recommended scoring in which difficulty ratings are increased if personal assistance or equipment is used is based on a dependence model, which focuses on the help (either equipment or personal) needed to accomplish a specific task. The validity of this strategy of integrating the 2 dimensions of difficulty and use of accommodations has rarely been investigated. In one study, van der Heide et al reported that difficulty and use of devices were distinct dimensions of physical function (11). Difficulty was mainly associated with inflammatory activities and psychological well-being. On the other hand, use of devices was associated with disease duration, which suggests that such use may reflect adaptations to limitations over time.

This study aimed to describe the prevalence of 4 types of behavioral accommodations (use of assistive devices, personal assistance, limits on the amount or kinds of activities performed, and taking more time to perform activities) in the performance of valued life activities (VLAs). Because behavioral accommodations are such a critical component of living with the physical limitations of RA, an examination of how their use affects estimates of disability was necessary to understanding what disability scores actually represent. Therefore, the second goal of the study was to examine the impact of accounting for those accommodations on VLA disability scores.

SUBJECTS AND METHODS

Subjects

The sample for the present study was drawn from the 2005 wave of the RA Panel Study (n = 467). The RA Panel was constructed in 1982 from a random sample of rheumatologists practicing in Northern California. Participants were recruited from lists maintained by participating rheumatologists of all persons with RA presenting to their offices over a 1-month period who expressed an interest in participating in the study. The original RA Panel consisted of 822 patients who were enrolled between June 1982 and July 1983. There were subsequently 4 additional enrollment periods in 1989–1990, 1995, 1999, and 2003, during which 203, 131, 122, and 169 individuals were enrolled, respectively. Annual retention has averaged 93% (the 7% attrition includes deaths). The principal data source for the RA Panel is an annual telephone interview that includes questions on demographics, RA symptoms, comorbidities, and functioning. The study was approved by the University of California, San Francisco Committee on Human Research, and all participants provided written consent. Characteristics of the study participants are shown in Table 1.

Variables

The VLA disability scale has been developed and refined over the past decade (see reference 12 for details). Assessment of disability with the VLA scale represents differences from previous instruments in 3 ways. First, a wide spectrum of activities is included, ranging from obligatory activities, such as self-care, to discretionary activities, such as recreation and social participation, in contrast to the HAQ, which queries fairly basic levels of functioning. When the HAQ was first developed, treatments for RA were often less successful than they are currently, and expectations of functional outcomes were less optimistic. However, with today's improved treatments, examination of a broader range of activities may be more consistent with patients' expectations of their functional outcomes. Second, the VLA scale takes personal value into account. Activities that are not applicable to an individual (e.g., taking care of children, if the individual has no children) or are not important to the individual (e.g., cooking, if the spouse does all of the cooking) are not included in scoring of the scale. Finally, unlike most disability indices, the VLA scale asks respondents to attribute performance difficulties to the health condition under study.

The version of the VLA scale used in these analyses included 29 activity domains. Activities were defined as obligatory, committed, or discretionary based on the definitions of these activity categories as described by Verbrugge et al (13–15). According to Verbrugge and colleagues, obligatory activities were those required for survival and self-sufficiency, including activities of daily living-type tasks such as hygiene and self-care, walking inside, walking outside, and using transportation or driving; committed activities were those associated with one's principal productive social roles, such as paid work, household responsibilities, or child and family care; and discretionary activities were activities such as socializing, exercise, engaging in leisure time activities and pastimes, participating in religious or spiritual activities, pursuing volunteer work or hobbies, or other activities in which individuals engage for relaxation and pleasure. The full text of the scale items is listed in Appendix A. The validity of the VLA scales has been demonstrated through its construction and item selection process and its correlation with other measures of functioning (12).

In the telephone interview, participants rated the difficulty of performing the 29 life activities, using a 4-point scale corresponding to the response scale of the HAQ where 0 = no difficulty and 3 = unable to perform. Activities that participants deemed unimportant to them, or that they did not do for reasons unrelated to RA, were not rated and were not included in scoring. Following the difficulty ratings, participants were asked whether they had made any of 4 types

of behavioral accommodations: limitations in the amount or kind of activity within the domain, taking more time to perform activities, needing help from another person, and using special devices or aids. In a few cases, all 4 possible accommodations were not queried for a specific domain because the accommodations were not deemed to be relevant or because during pilot testing, the questions were problematic. For example, although it is possible for individuals to limit the amount or kind of activities related to taking care of basic needs, in pilot testing respondents reacted very negatively to the question, therefore this accommodation was not queried in the final scale.

Four types of summary scores were calculated to reflect the average difficulty ratings. Scores were first calculated based solely on the difficulty ratings (unadjusted scores). The first adjusted score took into account the use of aids and need for assistance. In this case, if individuals reported needing assistance or using devices for a particular activity, and their difficulty rating was <2 (i.e., great difficulty), the difficulty rating was raised to a 2, similar to the way adjustments are made in calculating the HAQ score. The second adjustment took into account limitations in activities in addition to use of aids and assistance. Again, if individuals reported needing assistance, use of aids, or limiting the amount or kind of an activity, their difficulty rating was raised to a 2. The final adjusted score took into account all 4 accommodations (needing assistance, use of aids, limiting the amount or kind of an activity, or needing more time to perform activities); if individuals reported any of the 4 accommodations, their difficulty rating was raised to a 2. These 4 scores were calculated for the total VLA scale, and for the obligatory, committed, and discretionary subscales.

Statistical analysis

The frequency of use of each accommodation for each activity was tabulated. Summaries were calculated of the number of accommodations used overall and for each category of activities. Unadjusted and adjusted disability scores, and differences in these scores were calculated. Cross-tabulations were performed to examine the use of limits and more time by those who did and did not report use of assistance and devices. All analyses were conducted using the Statistical Package for the Social Sciences, version 14.0 (SPSS, Chicago, IL).

RESULTS

Frequency of accommodations

Behavioral accommodations were commonly used (Table 2). Use of devices or equipment was the least frequently reported accommodation, although such accommodations were used by ~20% of the sample for 3 of the 4 obligatory activities. In contrast, use of devices at this frequency was reported for only 1 of the 10 committed activities (preparing meals 20.9%), and for 2 of the 15 discretionary activities (travel 18.8% and gardening 19.0%).

Assistance was less commonly reported than use of devices for obligatory activities, with the exception of getting around the community by car/public transportation. In contrast, assistance was more commonly reported for committed activities. Of the 10 committed activities, ~50% of the panel needed help for 2 activities (heavy housework 45.3% and minor home repairs 51.2%), and ~25% needed help for an additional 4 activities (child care 24.2%, shopping/errands 24.7%, preparing meals 28.7%, and light housework 29.3%). Assistance was used more frequently than devices for most discretionary activities, but the rates of use did not approach those of the committed activities except in the case of 4 of the 15 discretionary activities (activities with children 21.0%, having others visit in the home 34.2%, travel 37.3%, and gardening 56.7%).

Compared with the 2 previous accommodations, the prevalence of limiting activities and taking more time to perform activities was higher for every activity, at least twice as high in most cases. At least 25% of the panel members reported limiting each obligatory activity, at least 33% reported limiting 8 of the 10 committed activities, and at least 33% reported limiting 13 of the 15 discretionary activities. In general, rates of taking more time to perform activities were even higher for specific activities than rates of limiting the performance of activities. More than 50% of the sample reported taking more time to perform 5 of the 10 committed activities and 6 of the 12 discretionary activities (taking more time was not asked for 3 of the discretionary activities).

Overall, considering all 4 accommodations, >33% of the sample used at least 1 modification for 27 of the 29 activities, and >50% of the sample used at least 1 modification for 20 of the 29 activities. Summarizing the number of obligatory activities for which behavioral accommodations were used, devices or assistance were used for ~1, limits were used for twice as many, and taking more time for 3 times as many (Table 3). On average, assistance was used for 1.7 committed activities, devices for 0.7, and limits and taking more time were used for an average of 3.2 activities. Likewise, for discretionary activities, the number of activities for which limits and more time were used was considerably larger than the number for which assistance and devices were used.

Device use was fairly consistent across the activity categories, used by ~33% of the sample for at least 1 activity in each category. Assistance use was roughly equivalent to device use for obligatory activities, but was reported by twice as many individuals for committed and discretionary activities. Even greater proportions of subjects reported use of limits or more time for activities in each category. Overall, almost all panel members reported use of limits (94.4%), and only slightly fewer reported using more time (91.2%).

In general, 3 major trends were noted. First, limits and more time were used for substantially more activities than assistance and devices. Second, the frequency of use of devices and assistance shifted from rough equivalence for obligatory activities to almost a doubling of use of assistance for committed and discretionary activities. Finally, the frequency of use of limits and more time shifted through the activity categories. For obligatory activities, taking more time was more prevalent; for committed activities, use of the 2 strategies was equivalent; and for discretionary activities, limits were more commonly used than taking more time.

Effect of adjustments for accommodations on disability scores

Adjustments for accommodations produced substantial increases in disability scores, more so for obligatory activities than for committed and discretionary activities. For example, the mean obligatory difficulty score adjusted for all 4 accommodations was 134% higher than the unadjusted score, whereas the comparable committed and discretionary adjusted scores were 73% and 77% higher than the respective unadjusted scores (Table 4). Mean total difficulty ratings increased from 0.69 with no adjustment to 0.89 after adjustment for help and devices, 1.16 after additional adjustment for limitations, and 1.27 after adjustment for all 4 accommodations. The total difficulty scores after adjustments represent increases from the unadjusted difficulty rating of 29%, 68%, and 84%, respectively.

Disability scores increased for 40–60% of subjects when devices and personal assistance were considered for the subscale scores, and total scores for 78% of subjects increased when devices and personal assistance were considered (Table 4). Further adjustment for limits increased scores for 66% to >90% of subjects. The last adjustment for taking more time increased the disability scores of 76% (obligatory) to 95% (total) of the subjects. Overall, the proportion of subjects whose scores increased after adjustment grew as activities moved from obligatory, to committed, to discretionary.

Relationship between use of assistance or devices and other accommodations

Limiting activities and taking more time were almost universally used by individuals who used assistance and/or devices for specific groups of activities (Table 5). Among those who did not use assistance or devices for obligatory activities, 48.0% reported use of limits and 58.7% used more time. For committed activities, over half of those who did not use assistance and/or devices reported using limits or more time, with relative equivalence of limits (58.2%) and more time (53.2%). For discretionary activities, even greater proportions of those who did not use assistance and/or devices reported using limits or more time, and using limits was more common than using more time (77.9% versus 60.3%). Overall, considering all VLAs, the majority of individuals who did not use assistance or devices reported using limits (73.8%) or more time (64.3%).

DISCUSSION

Use of behavioral accommodations is common. Although a considerable amount of study has been done of the use of assistive devices and personal assistance, less has focused on use of other behavioral accommodations. In fact, limiting activities and taking more time to perform activities appeared to be used much more often than devices and assistance. Use of these accommodations was reported by anywhere from twice as many individuals to more than 10-times as many, compared with use of devices and assistance. The patterns of use of limits and more time varied in the 3 activities categories. For obligatory activities, taking more time was more prevalent than limiting activities. This is probably due to the fact that obligatory activities are, by definition, necessary for self-sufficiency and accommodations must be made to perform them; they cannot be relinquished without jeopardizing independence. However, taking more time to perform these activities may entail making choices to limit or relinquish other activities.

In contrast, committed, and especially discretionary activities may be more likely to be relinquished, so accommodations may be less evident or the accommodation used may be limiting the activity. In previous studies, we found that committed and discretionary activities were much more likely to be rated unable to perform (12), and that less time was spent in committed and especially discretionary activities as functional problems increased (16). In the current study, we saw that individuals were most likely to limit the amount or kind of discretionary activities, which in essence means that they are not engaging in them as often, although it is possible that accommodations may not address difficulties with committed and/or discretionary activities as well.

Some research would suggest that relinquishment of activities is a fairly common method of coping with functional problems. For example, Gignac and colleagues identified several domains of adapting to disability, one of which was selection (5,6). Selection included performing activities less often, giving up or avoiding activities, or restricting or limiting activities. Consistent with our results that limiting activities was reported more frequently as activities moved from the obligatory category to committed and to discretionary, Gignac et al found that the use of selection processes increased as activities moved from those that would be classified as obligatory (e.g., personal care; selection processes used by 8.7% of the sample) to committed (e.g., household activities; used by 24.8% of the sample) to discretionary (e.g., valued activities; used by 36.5% of the sample). Other domains were optimization (including expending more time), compensation (including using assistive devices), and receiving help. Use of optimization also increased from obligatory (personal care, 16.5%), to committed (household activities 31.9%), to discretionary (valued activities 33.5%). In contrast, compensation decreased from obligatory (personal care, 61.7%) to committed (household, 29.6%) to discretionary (valued activities, 22.7%). Receipt of help was fairly low and consistent across categories (personal care, 13.2%; household, 16.6%; and valued activities, 7.3%).

We also found that accounting for the use of accommodations created substantial increases in disability scores. In previous comparisons of methods of scoring the HAQ, Wolfe noted a 17% increase in HAQ scores after adjusting for devices and assistance (17), and van der Heide et al reported an 8% difference in scores for patients with less than 1 year of disease duration and a 21% difference for those with longer disease duration (11). In our cohort, HAQ calculated in the traditional manner by increasing scores to account for use of assistance and devices was 33% higher than HAQ calculated without adjustment for assistance and devices. Total VLA difficulty scores were increased by approximately the same amount (29%) when adjusted for use of assistance and devices. However, when adjusted for the more commonly used accommodations, limiting activities, and requiring more time, scores increased even more, with the total VLA disability score almost doubling.

In spite of the frequency of use of accommodations, most assessments of disability assess only difficulty. The original HAQ is an exception with its adjustment for use of aids and assistance. The adjustment of scores for accommodations raises issues concerning the purpose of assessment, since such adjustment may penalize the HAQ scores of individuals who use accommodations even though the accommodations may lessen or resolve performance difficulties. In addition, although both aids and personal assistance reduce task demand, they do not accomplish this in the same manner (3), nor are they used under the same circumstances. Autonomy and self-sufficiency are maintained when equipment is used, but are lost with assistance (3,18). Personal assistance may be dependent upon resources available, such as living with a spouse (18). Finally, assistance and devices are not the most commonly used accommodations. If the purpose of adjustment is to see a more complete picture of disability, assessments should account for other accommodations. In fact, limitations and taking more time may affect quality of life more than use of assistance or devices. Whereas use of assistance, and especially devices, may resolve difficulty, taking more time to perform some activities may entail making choices to limit or relinquish others, which narrows the scope of daily activities in which individuals engage. Other activities may need to be limited because of their physical demands, which further circumscribe daily life.

This discussion naturally progresses to the question of which score is the best or more appropriate to use. The answer depends on the purpose of the assessment. If the purpose is to assess an individual's ability to perform a set of activities, the unadjusted simple ratings of difficulty may be better. Modifications of the HAQ, such as the MHAQ or the HAQ-II use this method (19,20). However, if the purpose is to estimate the burden of disease, adjustment for accommodations may be preferable because such adjustment presents a more complete picture of what the individual copes with and how the scope of their life activities may be affected.

There are potential limitations to this study. It is possible that our assessment of VLAs was incomplete. However, there is no reason to believe that the overall tenor of these results would change as a result of considering additional activities. The way the questions were asked may have affected the results. Participants were not specifically asked to rate activity difficulty with or without the use of accommodations. It is possible that if individuals were asked to provide 2 difficulty ratings (1 without the use of any accommodations and 1 with the use of their usual accommodations) a different estimate of the effect of accommodations would emerge. It is also possible that accommodations other than those included here may be important, but previous work suggests that the accommodations included are the most commonly used. The RA Panel cohort may be unrepresentative of individuals with RA in some way; however, the cohort is very similar in measured characteristics to other large cohorts (21). Additionally, because participants were recruited from community rheumatologists rather than through an academic medical center or tertiary care center, it is probable that the distribution of disease severity and other relevant characteristics was more similar to the population of individuals with RA. Nonetheless, it is possible that individuals who visit rheumatologists for care are systematically

different from those who do not; in particular, they may have more severe disease and more disability.

Accommodations are widely used by individuals with RA to perform daily activities, but the accommodations most frequently used are not those included in the HAQ, the most commonly used measure of functioning for RA. Not only are the accommodations of taking more time to perform activities and limiting activities much more commonly used, they are also more likely to affect quality of life. Therefore, if the goal is to simply measure how well individuals can perform a set of activities, simple ratings of difficulty may be sufficient. Conversely, if estimating the burden of disease is the goal, assessments should include use of a broader range of accommodations to develop a more complete picture of how daily function is affected.

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Table 1

Subject characteristics*

	Mean ± SD	N (%)
Demographic		
Age, years	59.5 ± 12.9	
Female		396 (84.8)
White		376 (80.5)
Education, years	14.4 ± 2.6	
Married/couple		286 (61.2)
Disease-related		
Disease duration, years	20.4 ± 11.6	
Number of painful joints (range 0–17)	4.2 ± 4.0	
Pain rating (range 0–100)	31.2 ± 28.1	
Severe/very severe fatigue		88 (18.8)
Morning stiffness > 1 hour		91 (19.5)
HAQ (calculated without assistance and aids)	0.78 ± 0.66	
HAQ (calculated with assistance and aids)	1.04 ± 0.74	

*HAQ = Health Assessment Questionnaire.

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Table 2

Behavioral modifications for valued life activities using data from the 2005 Rheumatoid Arthritis Panel (n = 467)*

	Total†	Use assistance	Use devices	Limit activity	Use more time	With any modification
Obligatory activities						
Basic needs	464	74 (15.9)	86 (18.5)	—	256 (55.2)	269 (58.0)
Walk inside	466	32 (6.9)	81 (17.4)	126 (27.0)	253 (54.3)	273 (58.6)
Walk outside	457	63 (13.8)	103 (22.6)	273 (59.7)	294 (64.5)	331 (72.4)
Car/transit	458	76 (16.6)	56 (12.2)	120 (26.2)	100 (21.9)	173 (37.8)
Committed activities						
Appointments	465	67 (14.4)	63 (13.5)	140 (30.1)	118 (25.4)	189 (40.6)
Meals/cook	428	121 (28.7)	88 (20.9)	170 (39.7)	215 (51.1)	269 (62.9)
Light housework	427	124 (29.3)	35 (8.3)	222 (52.0)	258 (61.7)	287 (67.2)
Shopping/errands	440	108 (24.7)	58 (13.3)	223 (50.7)	241 (55.3)	288 (65.5)
Child care	228	55 (24.2)	7 (3.1)	93 (41.0)	93 (41.0)	115 (50.4)
Other family care	295	40 (13.7)	12 (4.1)	102 (34.6)	114 (39.3)	138 (46.8)
Heavy housework	354	154 (45.3)	24 (7.1)	249 (70.3)	246 (73.9)	287 (81.1)
Paid work	176	31 (17.7)	23 (13.1)	87 (49.4)	75 (42.9)	111 (63.1)
Minor repairs	224	110 (51.2)	12 (5.6)	158 (70.5)	136 (64.5)	171 (76.3)
Household business	434	61 (13.9)	27 (6.3)	93 (21.4)	134 (31.1)	158 (36.4)
Discretionary activities						
Leisure inside	466	22 (4.7)	25 (5.4)	73 (15.7)	91 (19.6)	106 (22.7)
Religious/spiritual activities	360	31 (8.6)	27 (7.5)	72 (20.0)	82 (22.9)	101 (28.1)
Having others visit	450	152 (34.2)	38 (8.5)	203 (45.1)	220 (50.8)	288 (64.0)
Visiting others	436	61 (14.1)	47 (10.8)	146 (33.5)	—	169 (38.8)
Leisure outside	438	72 (16.6)	58 (13.4)	183 (41.8)	174 (40.2)	230 (52.5)
Parties/events	421	61 (14.6)	40 (9.5)	192 (45.6)	—	209 (49.6)
Travel	430	159 (37.3)	80 (18.8)	193 (45.1)	208 (48.9)	268 (62.3)
Activities with children	273	57 (21.0)	19 (7.0)	157 (57.5)	—	163 (59.7)
Volunteer work	262	30 (11.6)	14 (5.4)	139 (53.1)	95 (37.1)	154 (58.8)
Hobbies	324	50 (15.6)	18 (5.6)	192 (59.3)	182 (57.6)	221 (68.2)
Gardening	275	152 (56.7)	51 (19.0)	211 (76.7)	210 (78.9)	237 (86.2)
Moderate physical activities	246	26 (10.8)	9 (3.7)	180 (73.2)	116 (49.8)	183 (74.4)

	Total†	Use assistance	Use devices	Limit activity	Use more time	With any modification
Vigorous physical activities	345	39 (11.7)	32 (9.6)	279 (80.4)	203 (62.8)	292 (84.6)
Social communications	456	39 (8.6)	48 (10.5)	170 (37.3)	171 (37.7)	219 (48.0)
Educational activities	144	13 (9.1)	7 (4.9)	52 (36.1)	44 (31.2)	60 (41.7)

*Values are the number (percentage).

†Response frequencies vary as a function of the number of participants reporting that the activity either was not important to them or not applicable to them.

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Table 3

Summary of number of activities with behavioral accommodations

	Assistance	Devices	Limit	More time	Any accommodations
Obligatory (5 activities)					
Mean ± SD	0.7 ± 1.2	0.8 ± 1.3	1.4 ± 1.3	2.2 ± 1.7	2.6 ± 1.8
Median (range)	0 (0–5)	0 (0–5)	1 (0–4)	2 (0–5)	3 (0–5)
N (%) who use accommodation	146 (31.3)	165 (35.3)	311 (66.6)	351 (75.2)	376 (80.5)
Committed (9 activities)					
Mean ± SD	1.7 ± 1.8	0.7 ± 1.1	3.2 ± 2.2	3.2 ± 2.4	3.9 ± 2.4
Median (range)	1 (0–8)	0 (0–7)	3 (0–9)	3 (0–9)	4 (0–9)
N (%) who use accommodation	305 (65.3)	168 (36.0)	396 (84.8)	372 (79.7)	411 (88.0)
Discretionary (15 activities)					
Mean ± SD	2.1 ± 2.4	1.1 ± 2.0	5.2 ± 3.5	3.8 ± 2.9	6.8 ± 3.8
Median (range)	1 (0–13)	0 (0–10)	5 (0–15)	4 (0–12)	7 (0–16)
N (%) who use accommodation	309 (66.2)	185 (39.6)	432 (92.5)	390 (83.5)	443 (94.9)
Total (29 activities)					
Mean ± SD	4.4 ± 4.6	2.5 ± 3.8	9.6 ± 6.1	9.3 ± 6.2	12.8 ± 6.8
Median (range)	3 (0–24)	1 (0–19)	9 (0–28)	9 (0–26)	13 (0–29)
N (%) who use accommodation	361 (77.3)	249 (53.3)	441 (94.4)	426 (91.2)	449 (96.1)

Table 4

Summary difficulty scores for valued life activity disability with and without adjustments for accommodations

		Adjusted		
	Unadjusted	Assistance and devices	Assistance, devices, and limits	Assistance, devices, limits, and more time
Obligatory				
Mean ± SD	0.47 ± 0.57	0.69 ± 0.71	0.90 ± 0.74	1.10 ± 0.76
Median	0.20	0.40	0.80	1.20
Increase, unadjusted %	—	47	91	134
Increase, previous %	—	—	30	22
N (%) with increased score after adjustment*	—	191 (40.9)	306 (65.5)	357 (76.4)
Committed				
Mean ± SD	0.81 ± 0.73	1.05 ± 0.77	1.27 ± 0.77	1.40 ± 0.76
Median	0.67	1.00	1.40	1.60
Increase, unadjusted %	—	30	57	73
Increase, previous %	—	—	21	10
N (%) with increased score after adjustment*	—	273 (58.5)	369 (79.0)	385 (82.4)
Discretionary				
Mean ± SD	0.71 ± 0.62	0.88 ± 0.68	1.19 ± 0.69	1.26 ± 0.70
Median	0.55	0.73	1.21	1.33
Increase, unadjusted %	—	24	68	77
Increase, previous %	—	—	35	6
N (%) with increased score after adjustment*	—	281 (60.2)	425 (91.0)	432 (92.5)
Total				
Mean ± SD	0.69 ± 0.60	0.89 ± 0.67	1.16 ± 0.68	1.27 ± 0.69
Median	0.52	0.75	1.20	1.35
Increase, unadjusted %	—	29	76	84
Increase, previous %	—	—	30	9
N (%) with increased score after adjustment*	—	365 (78.2)	440 (94.2)	445 (95.3)

*Compared with unadjusted score.

Table 5

Relationship of use of personal assistance or devices with other behavioral accommodations

	Need help/devices		
	No, n (%)	Yes, n (%)	*P**
Obligatory	254 (54.4)	213 (45.6)	
Limits	122 (48.0)	189 (88.7)	< 0.0001
More time	149 (58.7)	202 (94.8)	< 0.0001
Committed	141 (30.2)	326 (69.8)	
Limits	82 (58.2)	314 (96.3)	< 0.0001
More time	75 (53.2)	297 (91.1)	< 0.0001
Discretionary	136 (29.1)	331 (70.9)	
Limits	106 (77.9)	326 (98.5)	< 0.0001
More time	82 (60.3)	308 (93.1)	< 0.0001
Total	84 (18.0)	383 (82.0)	
Limits	62 (73.8)	379 (99.0)	< 0.0001
More time	54 (64.3)	372 (97.1)	< 0.0001

* Chi-square analysis.

APPENDIX A

Valued Life Activity Domains and Examples of Accommodations Questions

Obligatory activities
Taking care of basic needs, such as bathing, washing, getting dressed, or taking care of personal hygiene
Walking or getting around INSIDE your home
Walking outside, just to get around, in the area around your home or other places you need to go on a regular basis
Getting around your community by car or public transportation
Committed activities
Going to appointments, such as going to the doctor or dentist, or going to have your hair cut/done
Preparing meals and cooking
Light housework such as dusting or laundry
Heavier housework, such as vacuuming, changing sheets, or cleaning floors
Other work around the house, such as making minor home repairs or working in the garage fixing things
Shopping and doing errands
Taking care of your children/grandchildren or doing things for them (if you have them)
Taking care of other family members, such as your spouse or parent, or other people close to you
Working at a job for pay
Household business, such as paying bills or scheduling repairs
Discretionary activities
Participating in leisure activities IN your home, such as reading, watching television, or listening to music
Participating in religious or spiritual activities
Having friends and family members visit you in YOUR home
Visiting with friends or family members in THEIR homes
Participating in leisure activities OUTSIDE your home, such as playing cards or bingo, or going to movies or restaurants
Going to parties, celebrations, or other social events
Traveling out of town
Participating in activities with your children/grandchildren (if you have them)
Volunteer work
Working on hobbies or crafts, or creative activities, such as sewing, woodwork, or painting
Gardening or working in your yard
Participating in moderate physical recreational activities, such as dancing, playing golf, or bowling
Participating in vigorous physical recreational activities, such as walking for exercise, jogging, bicycling, swimming or water aerobics
Social communications, such as writing letters, sending emails, or making telephone calls
Going to school or participating in other educational activities, like taking computer classes or adult education

Using “light housework” as an example, here is how the questions are structured using the following rating scale (0 = none, 1 = a little, 2 = a great deal, 3 = unable):
How much difficulty do you have with light housework because of your rheumatoid arthritis (RA)?
Do you limit the amount or kind of light housework you do because of your RA?
Because of your RA, does it take you more time to perform light housework tasks?
Do you need help from another person?
Do you use special devices or aids?