Published in final edited form as:

Disabil Health J. 2012 July ; 5(3): 168–176. doi:10.1016/j.dhjo.2012.03.002.

Assessing Stress in Disability: Developing and Piloting the Disability Related Stress Scale

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Abstract

Background—Stress negatively influences health, but few scales capture the unique stressors encountered by people with physical disability.

Objective/Hypothesis—Conduct a pilot study to develop and evaluate the factor structure of a stress measure targeting unique stressors facing people with physical limitations due to impaired movement of the upper and lower extremities.

Methods—Development of the Disability Related Stress Scale (DRSS) included: (1) obtaining input regarding content and items from focus groups and outside experts and (2) piloting the instrument. Participants recruited from an independent living center attended a focus group or completed the pilot survey. The piloted measure was a 107 item two-part survey. Part 1 assessed stressors encountered over the past week and Part 2 assessed stressors encountered over the past six months. Participants included a convenience sample of 143 adults who experienced a physical limitation; 26 attended focus groups and 117 completed the instrument. Respondents were predominantly women (60%), Caucasian (58%), and unemployed (92%). Respondents' were 50.51 ± 14.46 years old and had lived with their disability for 15.64 ± 13.04 years.

Results—Exploratory factor analyses revealed a four factor solution for Part 1 and a two factor solution for Part 2 of the DRSS. Estimates of both scales' internal consistency (Part 1 Cronbach's $\alpha = .78 - .84$; Part 2 Cronbach's $\alpha = .72$) and factor loadings (.40–1.00 for Part 1; .43–.87 for Part 2) indicate adequate reliability.

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Portions of this manuscript were presented at the 28th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Washington, DC, March 21–27, 2007 and at the 30th Annual Meeting and Scientific Sessions of the Society of Behavioral Medicine, Montreal, Quebec, Canada April 22–25, 2009.

FINANCIAL DISCLOSURES

The authors have no financial disclosures or conflicts of interest to report.

Conclusions—Preliminary results provide initial support for the instrument's reliability and factor structure although further validation studies are warranted.

Keywords

stress; health; disabled persons

Consistent evidence demonstrates a relationship between stress and infectious diseases, cancer, cardiovascular disease, and chronic conditions, such as diabetes, asthma and gastrointestinal disorders (1). People with disabilities have significantly higher rates of stress-related health conditions than the general population, including obesity, hypertension, diabetes, and sleep disturbances (2) and these conditions often occur at earlier ages among those with disabilities than in the general population (3, 4). Thus, it is worth exploring the potential role stress may play above behavioral (5) and environmental (6–10) factors in the onset of these conditions for those with disabilities.

Several methods for assessing stress have stemmed from the various theories of stress, and currently researchers have not reached a consensus about appropriate stress measures. The primary types of stress that have been examined include major life events, minor life events, and chronic stress. Laboratory simulated stressors and physiological measures of stress response have also been used as objective measures of stress. However, the most generalizable and commonly used measures of stress are subjective, self-report questionnaires. Several major life events scales have been developed and tested for use with non-disabled populations, including the Schedule of Recent Experience (11), the Social Readjustment Rating Scale (12), and the Life Experiences Survey (13). These scales measure the impact of relatively infrequent major stressors, such as a divorce, or the death of a loved one.

More contemporary stress theorists have begun to study the impact of minor life events, termed *daily stressors* or *hassles*, on health and behavior, because of the increased frequency with which they occur relative to major stressors (14, 15). Additional evidence indicates that the effect of minor life events on the progression of physical and psychological illness may be greater than the influence of major stressors (15, 16). In particular, one longitudinal study reported that minor stressors were more important than major life events in the development of cardiovascular disease risk factors in young adults, particularly when coupled with poor coping (17).

Likewise, several authors note that the array of stressors for those with disabilities may be broader than for those without disabilities (2–4). People with disabilities are more likely to be unemployed (18), rely on government assistance (18), live in poverty (18), and report poorer health (19). Additionally, people with disabilities experience participation barriers including inadequate transportation, inaccessible environments, lack of financial resources, lack of awareness of activities, and little accommodation from community organizations (20). These factors combined with functional limitations substantially impact the daily lives of people with disabilities. Adequately assessing stress experienced by people with disabilities requires using measures that capture the unique stressors the group commonly encounters. Existing minor event measures typically assess domains such as work, health, relationships, environment, finances, leisure, and transportation (14, 16, 21–23), but generally do not address the broader environmental, social, and physical issues common to the daily lives of those with disabilities.

Two disability-specific stress measures have been developed. The 30-item Lifestress Inventory (24) assesses typical minor and major life events encountered by people with

intellectual disability. The survey includes issues such as if they know someone who is seriously ill or died, have ability to choose things that are important, have sufficient privacy time, understand other people's instructions, feel confident handling money and counting change, etc. The survey quantifies the frequency and intensity of life events and generates three factor scores: general worry, negative interpersonal relations, and coping difficulties. A second measure, the 22-item Physical Disability Stress Scale (25) assesses wheelchair users' general stress appraisal in four domains: access, physical, social, and burden of care. PDSS items ask respondents to rate how stressful they appraise various situations to be, but do not ask participants to endorse whether they have experienced the situation nor provide a time frame. Thus, a limitation of the PDSS is that individuals' rate their global distress, rather than evaluate the frequency and impact of specific disability-related stressors. Furthermore, without frequency and impact ratings, the instrument is limited in detecting change in stress over time. While both stress measures target important and relevant disability-specific issues such as dealing with caregivers, having physical limitations, and developing intimate relationships, they were designed to address the stressors of narrow respondent groups (e.g., intellectual disability and wheelchair users).

Thus, there is a need to develop a stress measure for a broader group of individuals with disabilities that assesses both exposure to and intensity of disability-specific stressors. The purpose of this study was to develop and evaluate the factor structure of a self-report measure of stress, the Disability Related Stress Scale (DRSS) that encompasses common minor stressors confronting people experiencing impairments of movement-related body structures (i.e., upper or lower extremities) that result in physical limitations.

METHODS

Participants

Participants were recruited for two separate phases of the study. The first phase included obtaining qualitative information from individuals with physical disabilities about common stressors they faced. The second phase served as a pilot study of the newly developed stress instrument. Participant recruitment yielded a convenience sample of 143 participants across both study phases: 26 attended focus groups, and 117 completed the preliminary DRSS. Recruitment proceeded separately for each phase and focus group members were eligible to complete the survey for the pilot phase. Participants were recruited through a midwestern Independent Living Center (ILC) serving 1000+ clients. ILCs are nonprofit organizations that provide housing, employment, benefits and advocacy referral services. Following approval by the sponsoring Institutional Review Board (HSC #9960), for the first phase the ILC distributed recruitment fliers for the focus groups. About six months later, the pilot version of the DRSS was mailed by the ILC to potential participants for the second phase. For both phases, all participants were required to be fluent English speakers and have impaired movement of their upper or lower extremities that causes physical limitations. Exclusion criteria included: having cognitive and/or sensory impairments that could interfere with participating in focus group discussions or providing independent survey responses. Focus group attendees signed consents in person and survey respondents returned signed consents by mail. Participants received \$35 for attending focus groups plus transportation costs and survey respondents received \$10.

Procedures—Literature Search. Before convening focus groups, researchers reviewed all existing self-report stress measures designed for non-disabled populations (e.g., scales covering major and minor life events; daily, weekly, monthly and annual checklists of stressors; measures of perceived global stress). This guided decisions regarding content, language, scaling, and time intervals for assessing stress. The decision was made to model

the response format after the Daily and Weekly Stress Inventories, in order to capture both the frequency and intensity of stressors that occur on a frequent basis, and to allow for the assessment of stress over time via repeated administrations of the measure (16, 26). Specific items from existing measures were not included in the DRSS. Rather, items generated for the new measure emerged from focus group discussions.

Focus Groups: Three 90-minute focus groups were convened and all discussions were tape-recorded. Nineteen people attended one of two initial focus groups to generate content areas regarding disability-unique stressors, and seven people attended a third to provide feedback on item appropriateness, language, length, and overlooked issues in the preliminary measure. Focus group participants' ages ranged from 19 to 81 years ($M = 43.12$). Most were men (65.4%), Caucasian (53.8%), and reported receiving less than \$15,000 annually (57%). Nearly half (46.2%) reported completing college, 27% were currently employed, and 12% were married or living with a partner. Participants experienced one or more of the following impairments: spinal cord injuries ($n = 7$), cerebral palsy ($n = 3$), spina bifida ($n = 3$), degenerative disc disease ($n = 2$), osteoarthritis ($n = 1$), fibromyalgia ($n = 1$), lupus ($n = 1$), rheumatoid arthritis ($n = 1$), stroke ($n = 1$), muscular dystrophy ($n = 1$), amputation ($n = 1$), orthopedic problems ($n = 1$), and multiple sclerosis ($n = 1$). Most (92.3%) reported their disability as moderate or severe.

Transcribed audio tapes were coded by a research assistant who first identified recurring themes and subthemes and then categorized all comments accordingly. The research team reviewed this list for appropriateness and reconciled disagreements. This process informed content areas and items for the preliminary measure.

Expert Input: Two-hundred items were drafted and sent to 8 experts in stress measurement and disability research for review on content, wording, instructions, and time frame. This resulted in rewording several items, dropping 17 items, and dividing the measure into two sections to separate frequent from infrequent events.

Pilot-testing the Preliminary Stress Measure: The ILC mailed survey packets to 400 consumers with physical limitations and reminder postcards three and six weeks later. Survey packets contained an introductory letter, informed consent, survey, reimbursement voucher, and a self-addressed, stamped return envelope.

Measures

Demographic Questionnaire—Focus group and survey participants completed questions assessing sex, birth date, race/ethnicity, marital status, education, employment, and average yearly income. Disability information included condition type and number experienced, year of disability onset, and self-rated disability severity based on the question, “How would you rate the severity of your disability – mild, moderate, or severe?” Disability type and number of conditions was assessed via one item asking participants to check all conditions they experienced from a list of 18 common causes of physical limitation. Number of disabling conditions was determined by summing all conditions endorsed.

Disability-Related Stress Scale (DRSS)—The DRSS was divided into two parts based on focus group feedback regarding the frequency of event occurrence. Part 1 assessed 83 minor life event items that may have occurred in the past week, while Part 2 assessed 24 minor life event items that may have occurred in the past six months. Every DRSS item contained two questions: “Did this happen?” (yes/no) and “How stressful was the event?” which was rated on a 7-point Likert scale with anchor points of *Not at all stressful* [1], *Moderately stressful* [4], and *Extremely stressful* [7]. The scale yields an “Event score”

(total number of events endorsed) and an “Impact score” (sum of subjective ratings of endorsed items) for both parts. Readability analyses revealed a reading ease of 78 and Flesch-Kincaid grade level of 6.2.

Analytical Procedures

Psychometric properties were evaluated by examining item statistics and associations among items (i.e., Cronbach’s alpha). Exploratory factor analysis (EFA) was used to determine the optimal number and nature of common factors needed to account for the patterns of these associations separately for Parts 1 and 2 of the DRSS (27). Parallel analysis (29) was used in addition to more conventional methods (i.e., eigenvalue > 1 , scree plot) to determine the number of factors to extract (27–29).

Retention of factors is commonly guided by Cattell’s (28) scree test and Kaiser’s (29) eigenvalue greater than 1 (K1) criterion. However, others have indicated problems with these approaches. For example, K1 criterion is intended as an upper bound for the number of factors to be retained and thus researchers tend to reserve more factors in practice (i.e., overfactoring) (30) and the scree test suffers from subjectivity and uncertainty especially when there are either no clear breaks or two or more breaks in the eigenvalue plot (31) and definite breaks are less likely with smaller sample sizes (32). Parallel analysis (30), which is a sample-based alternative to population-based K1 criterion (30), attempts to overcome overfactoring (26). Parallel analysis involves generating a number of random data sets and comparing observed eigenvalues obtained from random data with average eigenvalues obtained derived from real data. Because meaningful common factors extracted from the real data should have greater eigenvalues than the parallel factors derived corresponding eigenvalues in the from random data (33–35) – the real eigenvalues equal to or less than the parallel random eigenvalues are considered due to sampling error (30, 36, 37). Thus, only factors with the observed eigenvalues greater than the parallel average random eigenvalues are retained. Numerous studies have shown parallel analysis to be very accurate (92% of the time; 30) and to consistently outperform other retention methods (36–40). Accordingly, researchers have recommended the use of parallel analysis, with the scree test used as an adjunct but not by itself (37, 41).

In the parallel analysis conducted in this study, eigenvalues were derived from 50 sets of random data, using weighted least square (WLS) estimation (42–45). The number of common factors to retain was determined by comparing the average random eigenvalues to the real eigenvalues, i.e., the first average random eigenvalue was compared to the first real eigenvalue, the second average random eigenvalue was compared to the second real eigenvalue, and so on. Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and the chisquare model fit test were used to assess model fit of the factor solution. Models with CFI $\geq .9$ and RMSEA $\leq .08$ were considered to have adequate model fit (46–48). Given known sensitivity to sample size (49), less attention was paid to the chi-square statistic. Promax oblique rotation was used to interpret factor loadings, and loadings $\geq .4$ were considered to be representative of the underlying construct and practically significant (50).

RESULTS

Of the 168 surveys returned from the 400 mailed (42% received), 51 were excluded from analyses based on (1) failure to sign the informed consent ($n = 9$); (2) incomplete or invalid item responses, including surveys with all or no items endorsed, patterned responses, or other idiosyncratic responses ($n = 18$); or (3) self-reported cognitive, memory, or sensory disability ($n = 24$). Consequently, all analyses proceeded with 117 final participants (29%).

Descriptive Statistics

Respondents' average age was 50.51 ($SD = 14.46$) years and most (60.7%) were female (Tables 1 and 2). More than half were Caucasian (58.1%) and one-third were African American (34.2%). Twenty-two percent were married, over half completed at least some college (53.8%), and most were unemployed (92.3%). On average, respondents reported 2.46 ($SD = 1.76$) disabling conditions, living with their disability for 15.64 ($SD = 13.04$) years, and most rated their disability as either moderate or severe (98.9%).

Item Statistics

Items were excluded if respondents endorsed less than 10% or greater than 90%, or if item-total correlation in the Event score fell below .30 or above .80 (51). This resulted in excluding 20 items from Part 1 (with an increase in Cronbach's alpha from .93 to .94), and two from Part 2 (with no change from .84). The endorsement rate ranged from 8.5% to 9.4% ($M = 8.9\%$; 5 items) and the item-total correlation ranged from .12 to .30 ($M = .24$; 17 items).

Factor Analysis

Figure 1 shows average random eigenvalues and real eigenvalues in DRSS Parts 1 and 2. In Part 1, a stiff "cliff" is observed between the first two eigenvalues ($\Delta = 16.05$), followed by a shallow "scree." However, a moderate decrease between the fourth and fifth eigenvalues ($\Delta = 1.06$) is also observed within this scree. In Part 2, a break point at which the scree begins is not apparent. If the scree test is used, an arbitrary decision for the number of factors to retain would be likely. In contrast, parallel analysis suggests that a 4-factor solution is optimal for Part 1, as the first four eigenvalues obtained from real responses on Part 1 items (21.16–3.76) are greater than the average random eigenvalues (3.83–3.17). The correlations among those four common factors ranged from .31 to .44. Similarly, a 2-factor solution was derived for Part 2 as the first two real eigenvalues (8.05–2.84) were greater than the corresponding average random eigenvalues (2.35–2.12). The correlation between these two common factors was .52. The 4-factor solution for part I (RMSEA = .04; CFI = .97; χ^2 [81] = 97.50, $p = .10$) and the 2-factor solution for part 2 (RMSEA = .08; CFI = .90; χ^2 [43] = 79.43, $p < .01$) fit reasonably (46–48).

The WLS factor solutions were inspected to identify the salient items associated with the common factors. Although a factor loading equal to or greater than .30 is usually considered to meet the minimum level in the literature (52), a more conservative value of .40 was used in the present study to highlight practical importance of the items (48, 53). To increase interpretability of the common factors, 13 items with less than .40 loading were removed from Part 1, and four from Part 2. Sixteen items (13 from Part 1, three from Part 2) were further removed because of unclear dimensionality/double loadings. For Part 1, the four common factors were identified as *Disability Impact* (9 items), *Societal Barriers* (7 items), *Participation Limitations* (11 items), and *Medical Care Transportation Barriers* (10 items). For Part 2, the two common factors encompass environmental issues. Factor 1 represents *Accommodation Barriers and Interpersonal Impact* (9 items) and Factor 2 includes *Employment and Social Service Barriers*, (6 items). Table 3 presents the factor loadings of the final 52 items.

Scale Summary

Event and Impact scores were calculated by summing responses on the binary scale and the 7-point Likert scale, respectively. Table 4 presents sample summary statistics of the Event and Impact scores, separately for the six DRSS factors. Internal consistency of the DRSS

scales was acceptable; Cronbach's alpha using the Event score ranged from .78 to .84 for the Part 1 factors, and was .72 for both of the Part 2 factors (see Table 4).

DISCUSSION

Initial DRSS pilot testing provided preliminary support for the instrument's reliability and factor structure. Factor analysis of Parts 1 and 2 using parallel analysis revealed 4-factor and 2-factor solutions respectively, and evidence regarding the instrument's internal consistency revealed both to be adequate. Based on face validity, the items within each factor appear to fit with one dimension from The World Health Organization's International Classification of Functioning (ICF) (54). Thus, the factors were named based on dimensions of the ICF. Factors that emerged from DRSS Parts 1 and 2 encompass the negative influences of disability on functioning, participation, and environment interaction. The common thread of items in Factor 1 relate to *Disability Impact* spanning topics regarding finances, relationships, participation restrictions, and social service needs. The remaining factors of Part 1 reflect environmental issues that pose activity and participation barriers across contexts. Factor 2 represents *Societal Barriers* that address others' negative attitudes, Factor 3 relates to *Participation Limitations*, and Factor 4 reflects *Medical Care and Transportation Barriers*, with items encompassing aspects of accessing medical services such as finances, the built environment, products and technology, and communicating with healthcare providers. Items comprising the two factors in Part 2 can also be viewed as environmental factors influencing peoples' activities and participation. Factor 1 covers *Accommodation Barriers and Interpersonal Impact* and Factor 2 represents *Employment and Social Service Barriers*. These findings reflect similar stressors for individuals with disabilities as those reported by Iwasaki and Mactavish (55) and Furlong and Connor (25): navigating physical, social, and systems environments, including a lack of adequate financial resources.

The DRSS and the Lifestress Inventory both followed the question structure similar to the Weekly and Daily Stress Inventories (16, 26); both ask respondents to indicate whether they have experienced the stressors and if so, ask respondents to rate the intensity of the stress. Thus, both generate scores regarding the frequency of stressful events encountered and impact of stressful events encountered. However, the stressors included in the Lifestress Inventory do not capture common concerns facing individuals living with physical impairments including access issues around transportation, the physical environment, technology, and medical care. While the PDSS includes items that address these important access issues because it was developed for wheelchair users, the measure is a general stress appraisal. That is, rather than asking respondents if they have experienced the stressor and if so, have respondents rate their stress for that encounter, the PDSS asks respondents to provide a general appraisal of how stressful they find specific events to be. For example, one item asks respondents to think of the time when they were unable to travel independently due to inaccessible places and then rate how stressed/upset they were on a scale of 1–5. Therefore, in contrast to the PDSS, which provides respondents' general appraisal of stressful events, the DRSS provides an index of the frequency (Event score) and intensity (Impact score) of minor life events experienced over both short (i.e., in the past week) and longer (i.e., past six months) time periods. Thus, the DRSS can assess fluctuations in respondents' exposure to and intensity of common disability-specific stressors.

Several limitations should be noted. The respondents were more racially diverse (56) and had lower education (56) and employment rates (18, 57) than US citizens with disabilities. Thus, results with a more representative sample may differ from the current sample. Psychometric evaluations were based on a small sample and it is not clear what factors, if any, distinguish responders and non-responders. Recommended sample sizes for factor analytic studies vary from a 2:1 subject to item ratio to greater than 10:1 (58) (56). Although

the subject to item ratio approaches 1.86:1 (Part 1) and 5.32:1 (Part 2) in the current study, clear dimensionality was evident among the final 52 DRSS items. For example, all loadings were equal to or above .40 and each factor included at least six items with loadings greater than .50. Therefore, the current sample appears to be adequate to produce accurate and replicable results. Nevertheless, the small sample size remains a substantial limitation. The current study provides initial support for the DRSS's reliability and factor structure. Further evaluation should assess the convergent and divergent validity of the DRSS with other stress measures and the stability of the DRSS over time. The DRSS can be used to measure frequent and infrequent life events that are related to stress in people with disabilities. Stressful events can contribute to negative health outcomes and quality of life, and have a larger impact on people with disabilities than in the general population (1, 5). Although often overlooked, assessing stress in people with disabilities can provide insight into prevention and treatment strategies. Other potential applications of the DRSS include assessing exposure to and level of stress appraisal by specific groups of individuals with disabilities; examining whether exposure to disability-specific stressors and the impact of stress is related to chronic conditions (i.e. obesity, diabetes, cardiovascular disease) and symptoms experienced; and assessing intervention effectiveness for reducing stress among this population.

Acknowledgments

The study was funded by the University of Kansas Research Institute (grant #QR812250) and in part by NIH grant # R01 HD048628. The project would not have been possible without the cooperation and support of Bonnie Payberah of the Whole Person in Kansas City, MO and the many individuals with disabilities who willingly provided their time and input during focus group meetings. Thank you to all whose interest in the topic and willingness to participate made this study possible. We would also like to acknowledge and thank the array of expert consultants who provided insightful and substantive feedback during the development process: Drs. Elena Andresen, Phillip Brantley, David Gray, Glenn Jones, Margaret Nosek, Suzanne Smeltzer, Alex Zautra, and Ms. Dot Nary.

This study was funded by the KU Medical Center Research Institute, Kansas City, KS Data collection occurred while the first four authors were employees of the University of Kansas Medical Center in the Departments of Preventive Medicine¹ and Occupational Therapy Education.²

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Figure 1.
Eigenvalues of DRSS

Table 1Demographic Information for the Selected Sample ($N = 117$)

Variable	%	<i>n</i>	<i>Mean (SD)</i>	<i>Range</i>
Age (Years)			50.51 (14.46)	19–82
Race				
Caucasian	58.1	68		
African American	34.2	40		
Hispanic	2.6	3		
Native American/Asian/Pacific				
Islander/Alaskan Native/Other	.9	4		
Declined to answer/missing	1.7	2		
Sex				
Male	39.3	46		
Female	60.7	71		
Marital Status				
Single/Never Married	27.4	32		
Married	22.2	26		
Separated	5.1	6		
Divorced	33.3	39		
Widowed	12.0	14		
Education				
Less than High School	25.6	30		
High School Graduate	18.8	22		
Some College	39.3	46		
College Graduate or higher	14.5	17		
Declined to answer/missing	1.8	2		
Unemployed	92.3	108		
Annual income				
Less than \$10,000	58.1	68		
\$10,000 – \$25,000	27.4	32		
\$26,000 – \$35,000	1.7	2		
\$36,000 – \$50,000	.9	1		
Declined to answer/missing	12.0	14		

Table 2Disability Information for the Selected Sample ($N = 117$)

Variable	%	<i>n</i>	Mean (<i>SD</i>)	Range
Number of disabilities			2.46 (1.76)	1–10
Years living with a disability			15.64 (13.04)	1–62
Self-rated severity of disability				
Mild impairment	8.5	10		
Moderate impairment	47.0	55		
Severe impairment	43.6	51		
Declined to answer/missing	0.9	1		
Type of disability				
Orthopedic problems (back & knees)	60.7	71		
Osteo or rheumatoid arthritis	38.5	45		
Spinal cord injury/traumatic brain injury	23.1	27		
Degenerative joint disease	21.4	25		
Cerebral palsy/spina bifida	16.2	19		
Stroke	14.5	17		
Lupus/fibromyalgia	12.0	14		
Multiple sclerosis (all types)	11.1	13		
Amputation	4.3	5		
Muscular dystrophy	1.7	2		
Other	35.0	41		

Table 3**Factor Loadings of DRSS**

<u>Part 1</u>				
<u>Disability Impact: finances, interpersonal relations, service needs (9 items)</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>F4</u>
Was a burden to my friends	1.00	0.02	-0.06	-0.05
Did not have enough money to cover basic living expenses (e.g., rent, utilities, telephone, food)	0.95	0.01	-0.18	-0.01
Had to rely on others for financial assistance	0.74	0.27	-0.32	0.04
Needed to follow up with social service programs	0.69	0.13	-0.02	-0.08
Did not have enough money for enjoyable activities (e.g., going out to eat, movies, travel)	0.57	0.05	0.01	0.05
Was not able to participate in enjoyable social activities because of my disability	0.47	-0.07	0.10	0.14
Chose not to participate in enjoyable activities because of my disability	0.47	0.07	0.09	-0.01
Was a burden to my family	0.46	0.02	0.38	0.01
Had to limit activities due to medical treatment	0.40	0.18	0.27	0.02
<i>Eigenvalue</i>	21.16			
<u>Societal Barriers: others' attitudes (7 items)</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>F4</u>
Was treated rudely by another person	0.16	1.00	0.06	-0.30
Was not treated with respect	0.18	0.92	0.14	-0.20
Was spoken down to by another person	-0.11	0.85	0.09	0.14
Dealt with social service program employees who were difficult to talk with	0.13	0.77	-0.10	0.05
Was dismissed by another person	-0.15	0.73	0.09	0.11
Had difficulty meeting or following social service program rules or requirements (e.g., had to "jump through hoops")	0.24	0.66	0.14	0.02
Was treated differently because of my disability	0.30	0.51	0.37	-0.01
<i>Eigenvalue</i>		5.11		
<u>Participation Limitations: physical function and access to environment and technology (11 items)</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>F4</u>
Had difficulty getting into public buildings	-0.11	0.17	0.85	-0.27
Had problems with bowel or bladder functioning	0.07	-0.34	0.68	0.06
Had difficulty accessing public restrooms	-0.32	0.06	0.67	0.18
Had to wait to do things or get things that non-disabled people don't typically have to wait for	0.07	0.16	0.67	0.00
Had difficulty accessing "things" within buildings (e.g., stores, restaurants, movie theater, etc.)	-0.18	0.18	0.63	-0.07
Had to plan ahead in ways non-disabled people don't typically have to	0.17	0.06	0.57	-0.18
Had difficulty using streets, sidewalks, and paths	0.00	0.02	0.56	0.07
Was kept from participating in activities because of personal or medical regimens (e.g., bowel and bladder)	0.11	-0.31	0.53	0.30
Had problems with assistive devices not working or working correctly (e.g., pressure relief cushions, crutches)	0.10	0.04	0.53	-0.07
Had to adjust activities or plans to be able to participate	0.33	0.19	0.47	0.02
Had difficulty accessing appropriate parking	0.06	0.40	0.42	-0.02
<i>Eigenvalue</i>			4.57	
<u>Medical Care and Transportation Barriers (10 items)</u>	<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>F4</u>
Had problems obtaining medical supplies (e.g., catheters)	-0.14	-0.13	-0.14	0.90
Did not have safe transportation	-0.02	0.25	-0.23	0.85
Could not afford medical supplies (e.g., catheters)	-0.02	-0.20	0.05	0.81
Did not have affordable transportation	-0.03	0.09	-0.13	0.78

Had difficulty getting in and around my health care provider's office	-0.11	0.01	0.02	0.76
Had problems sticking to medical regimens and/or treatment	0.15	-0.20	0.19	0.76
Did not have enough money or health care coverage for needed medical supplies	0.29	-0.02	-0.15	0.71
Had problems talking with health care provider(s)	-0.06	0.21	0.15	0.60
Had difficulty recovering from medical treatment(s)	-0.16	-0.07	0.18	0.57
Had difficulty scheduling health care appointments	0.19	-0.06	0.36	0.48
<i>Eigenvalue</i>				3.76
Part 2				
<u>Accommodation barriers and Interpersonal impact (9 items)</u>		<u>F1</u>	<u>F2</u>	
Had problems getting assistive devices (e.g., wheelchairs, pressure relief cushions, crutches)		1.04	-0.38	
Did not have enough money for assistive devices (e.g., wheelchairs, pressure relief cushions, crutches)		1.01	-0.37	
Did not have enough money for home adaptations (e.g., ramps, railings, grab bars, etc)		0.73	-0.16	
Was required to give up assets to meet eligibility requirements for programs		0.58	0.29	
Did not have enough money to acquire service animals		0.58	0.01	
Experienced loss of a friendship as a result of my disability		0.50	0.22	
Was worried or concerned about changes in my health or functioning		0.50	-0.05	
Did not have enough money for specially-adapted clothing (e.g., shoes, pants, etc)		0.46	0.27	
Had difficulty developing and/or maintaining friendship(s) as a result of my disability		0.43	0.16	
<i>Eigenvalue</i>		8.05		
<u>Employment and social service barriers (6 items)</u>		<u>F1</u>	<u>F2</u>	
Had difficulty understanding how employment may affect benefits eligibility	-0.24	1.02		
Had problem(s) finding employment	-0.19	0.86		
Had problems keeping up with changes being made to social service programs	0.22	0.64		
Had problem(s) getting needed education or training	-0.03	0.63		
Had difficulty finding out about the eligibility requirements for specific social service programs	0.30	0.57		
Had problems with the application process for social service programs	0.20	0.54		
<i>Eigenvalue</i>			2.84	

Table 4Summary Statistics of DRSS ($N = 117$)

	Mean (SD)		Impact
	Event	Impact	Cronbach's α
<u>Part 1 (Items)</u>			
Disability Impact (9)	6.31 (3.34)	33.74 (21.33)	0.80
Societal Barriers (7)	1.97 (2.23)	10.95 (13.69)	0.84
Participation Limitations (11)	4.21 (2.98)	21.76 (18.41)	0.78
Medical care and transportation barriers (10)	2.63 (2.94)	14.62 (17.63)	0.84
<u>Part 2 (Items)</u>			
Accommodation barriers and Interpersonal impact (9)	2.92 (2.20)	16.92 (14.76)	0.72
Employment and social service barriers (6)	1.50 (1.66)	8.79 (10.54)	0.72