University of Alberta

Long Term Impact of Injury on Housekeeping Engagement: A Retrospective Analysis of Relationship

by

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Abstract

This retrospective non-experimental study utilizes data gathered during third party occupational performance evaluations in order to analyze the long term impact of injury on engagement in housekeeping activities. Data from the Sickness Impact Profile (SIP) on fifty-one files was utilized to determine reported engagement in home management, physical activities and psychosocial activities. Data regarding fitness level, life satisfaction and several demographic factors was also considered in the analysis.

Stepwise linear regression determined that the SIP's physical and psychosocial dimensions were both significant predictors of engagement in home management activities following injury. Other factors were considered significant in bivariate analysis, but their value as predictor variables were accounted for within the dimensional scores.

Occupational therapists must consider the impact of injury on engagement in household work as a part of occupational performance. Both the physical and psychosocial dimensions must be considered as possible risk factors for decreased engagement in household work.

DEDICATION

To my husband Jim, for his love and support throughout this academic journey as well as life's journey.

To my daughters, Kiersten and Linea, for the joy they bring and for putting up with my "grumpy days". May you always continue to learn and follow your dreams.

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INTRODUCTION

The impact of injury due to a motor vehicle accident or other traumatic event is often measured in terms of payment of medical, rehabilitative and pain management treatment costs and/or financial loss due to time off work. Although these costs are certainly significant, the impact of injury extends beyond our physical health status or our role as worker. Injury also impacts other productivity roles including that of household work.

Each of us fulfills a number of life roles including work, home and family, community service, studying and leisure (Super and Neveill, 1984). Accomplishing the multiple tasks associated with these role demands takes place within a variety of environments, producing a dynamic system of person-environment-occupation (PEO) interactions that are unique to each individual (Law et al, 1996). When there is a loss of function due to injury there is a domino effect and the impact resonates throughout the PEO system, affecting all life roles.

Household work, a component of the home and family role, is a form of productivity that is often overlooked in the literature examining the impact of injury on work capacity. However, as noted by Statistics Canada "people spend roughly as much time on unpaid work as they do at their paid job" (Statistics Canada, 1995, pg. 1). Capacity for household work is arguably at least as relevant as capacity for paid employment, given that every adult is expected to do some form of household work whether gainfully employed or not. Being unable to cook and clean for oneself and/or family can impact safety, nutrition and general health as well as affect an individual's psychosocial status and perceived quality of life.

This exploratory study is a secondary analysis of previously collected data pertaining to engagement in household work following injury. In keeping with the PEO model, several personal (P) and environment (E) factors are correlated with the reported impact of injury on the person's engagement in household work (O).

LITERATURE REVIEW

Current practice for measuring impact of injury

The incidence of motor vehicle accidents/events causing physical injury in Canada is estimated at 224,000 road users (600 per day) with an economic cost of $10 billion to $25 billion annually (Transport Canada and the Canadian Council of Motor Transport Administrators, 2002). American studies estimate that up to 50% of functional disabilities are due to falls or motor vehicle accidents (Guerrero, Sniezek and Sehgal, 1998). These authors state functional disability impacts activities such as self care, money management, shopping, transfers, and mobility. A recent telephone survey of construction workers with soft tissue injuries with symptoms lasting more than two months found that 24% of the respondents had persistent symptoms resulting in major or substantial interference in the ability to carry out personal or household activities. An additional 37% reported interference to a minor or moderate extent (Welch, Hunting, and Nessel-Stephens, 1999). Neither of these studies examined in detail the degree of impact on household work specifically or the relevance of demographic or personal factors. The primary question of interest in the present study is "To what degree are people disabled from participating in their usual household work tasks following injury?" Secondary questions

examine the ability of several independent variables to predict a greater impact on housekeeping engagement.

What is household work?

Generically, the National Occupational Classification defines housekeeping as medium work (handling loads weighing 10-20 kg) and requiring work in body positions other than or in addition to sitting, standing and walking (Human Resources and Skills Development Canada, 2001). Household work can also be measured in terms of energy expenditure expressed in METs. Household work tasks vary in intensity from 1.5 to 9.0 METs, with many tasks falling into the 3-5 range. This is equivalent in energy demand to such occupations as farming or carpentry (Ainsworth et al., 1993). Statistics Canada (Frederick, 1995) classifies unpaid work into the following categories: cooking, housekeeping, maintenance/repairs, other (gardening, grounds maintenance, pet care, household administration), shopping, child care and volunteer.

Importance of household work

Using data from the General Social Survey, Statistics Canada found that Canadians over the age of 15 spend an average of 3.6 hours per day on unpaid work (Fast and Frederick, 1998). When Statistics Canada undertook to measure the value of the nation's unpaid work, it identified that households are economic entities, and "the way in which households manage their time and other resources is important as it affects the efficiency, productivity and well-being of the individual, the household and society as a whole" (Statistics

Canada, 1995, p.16). Their data revealed that household work occupies about 95% of time spent on unpaid work, with the balance going to voluntary work (pg. 7). As estimated by Statistics Canada in 1992, unpaid work was valued as at least $235 billion or 34% of the GDP (Statistics Canada, 1995). This amounts to $304 billion in 2006 dollars.

Occupational therapists define "occupation" as encompassing self-care, leisure and productivity, including paid and unpaid work. Occupational therapists believe that occupation is meaningful to individuals, a determinant of health and well being, and shapes and is shaped by environments (Canadian Association of Occupational Therapists, 2002). Current occupational therapy practice in Canada is conceptualized in the Canadian Model of Occupational Performance, which states

Occupational performance is the result of a dynamic relationship between persons, environment and occupation over a person's lifespan. Occupational performance refers to the ability to choose, organize, and satisfactorily perform meaningful occupations that are culturally defined and age appropriate for looking after one's self, enjoying life, and contributing to the social and economic fabric of a community (Canadian Association of Occupational Therapists, 2002, p. 30).

In personal injury litigation household work has "an economic value capable of quantification" (Moore and McMurtry, 2003, p. 4). The loss of housekeeping capacity is compensable and awards for loss of capacity for household work have been higher for injured individuals with higher incomes or more severe injury. In Canada, one-time awards for household work losses have been as high as $130,000 with an average of $25,000 (Brown, 2003).

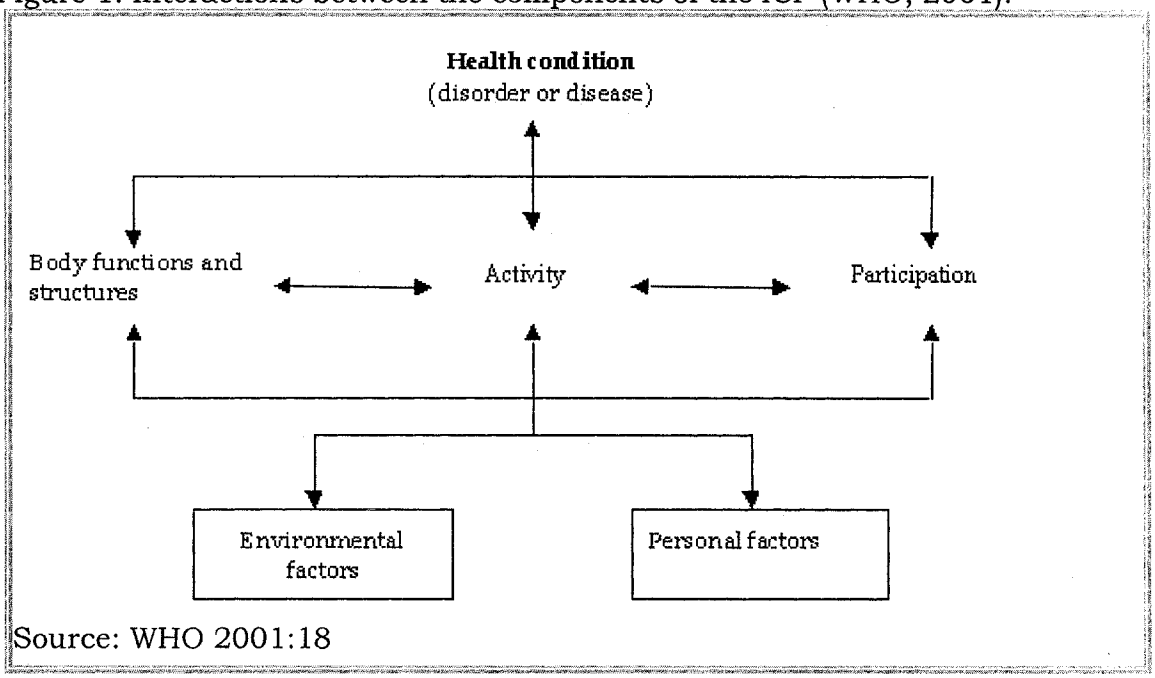
Household work is also personally meaningful to individuals in pursuit of fulfilling their home and family role. As long ago as 1940, Super stated that "work is not the most salient role for a significant number of individuals – other roles may occupy that position" (Madill, Brintnell, MacNab, Stewin and Fitzsimmons, 1988). Super later proposed that "a successful and satisfying career may be one in which a good balance is struck between roles" (Madill et al., 1988). He developed the Life Roles Inventory, which later became the Values Scale and the Salience Inventory (Super and Neveill, 1984). The inventory measured the relative importance to individuals of the roles of work, home and family, community service, student and leisure. In a group of injured individuals, it was found that "commitment to working, home/family, and other roles is not likely to change following injury. The manner in which clients seek to implement their role values following injury does change" (Brintnell, Madill, Montgomerie and Stewin, 1994). In their study a greater disruption in role participation was found in married women after injury, associated with the multiple demands of both the work and home /family roles.

Environmental and personal factors

Diagnosis or severity of injury alone is not a reliable indicator of function (Birkenback, et al., 1995; MacKenzie, Shapiro, Moody, Siegel, and Smith, 1986; Mackenzie, et al., 1987). When evaluating an individual's impairment, physicians are instructed to consider both anatomic and functional losses and to consider age, gender and other environmental conditions when determining what 'normal' is for an individual. (Anderson and Cocchiarella, 2001). The World Health Organization's (WHO) International Classification of Function

(ICF) recognizes that capacity and performance are not only related to body function and structure, but are also affected by environmental and personal factors (Figure 1).

Figure 1: Interactions between the components of the ICF (WHO, 2001).



Source: WHO 2001:18

Table 1 illustrates how the Canadian Model of Occupational Performance can be linked to the ICF according to established linking rules (Stamm, Cieza, Machold, Smolen and Stucki, 2006).

Table 1: Linking of CMOP and ICF

CMOP Concept	**ICF Category**
1st level: Person	
2nd level: Affective	b1529 Emotional functions, unspecified
2nd level: Cognitive	b199 Mental functions, unspecified
2nd level: Physical	Body functions and body structures
2nd level: Spirituality	d9309 Religion and spirituality, unspecified
1st level: Occupation	
2nd level: Self-care	d599 Self-care, unspecified
2nd level: Productivity	d859 Work and employment, other specified and unspecified
2nd level: Leisure	d9209 Recreation and leisure, unspecified
1st level: Environment	
2nd level: Physical	e199 Products and technology, unspecified
2nd level: Institutional	e599 Services, systems and policies, unspecified
2nd level: Cultural	e465 Social norms, practices and ideologies
2nd level: Social	e465 Social norms, practices and ideologies

"Environmental factors make up the physical, social and attitudinal environment in which people live and conduct their lives" (WHO, 2001, p. 129). Environmental factors include both the individual or immediate environment of the person as well as the services and systems of the community or culture in

which an individual lives. Environmental factors can be barriers (eg. stairs can be a barrier to mobility) or facilitators (eg. family support can allow an individual with disabilities to function in their own home). While it is recognized that physical and attitudinal factors impact on participation in household work, this study focuses on factors in the social environment, specifically the family.

Personal factors

Personal factors are not classified by the WHO, but are recognized as being a component of health.

Personal factors are the particular background of an individual's life and living, and are composed of features of the individual that are not part of a health condition or health states. These factors may include gender, race, age, other health conditions, fitness, lifestyle, habits, upbringing, coping styles, social background, education, profession, past and current experience (past life events and concurrent events), overall behaviour pattern and character style, individual psychological assets and other characteristics (WHO, 2001, p.15).

Of these factors, gender, age, and coping styles (psychosocial behaviours) are addressed in this study and are expanded upon below.

The amount of time individuals spend in different roles varies greatly in relation to their marital status, parenthood status, employment status, age and gender (Statistics Canada, 1995). For example, throughout the lifespan, women consistently spend more time on unpaid work than men and the kinds of tasks performed often differs between men and women (Frederick, 1995). Individuals who are married, parents, unemployed, or between the ages of 25 to 69 spend

more time in unpaid work than their counterparts. Mothers between the ages of 25 and 44 spend the most time on unpaid work, including household work (Fast et al., 1998). It follows that there may be a relationship between personal factors and the reported impact of injury on engagement in household work.

Psychosocial impact

Whereas much of the literature and clinical practice in the return to work field focuses on the individual's physical capacities for work, recent research has begun to examine the relevance of psychosocial variables on return to work (Asanti et al., 2007; Cacciacarro and Kirsh, 2006; Keough and Fisher 2001; Sullivan, Adams, Rhodenizer and Stanish, 2006; Truchon and Fillion, 2000). It is reasonable to assume that these same factors will affect participation in household work.

In a study identifying variables related to perceived restrictions in participation, it was found that "emotional distress was the most important explanatory variable for restrictions in participation in every domain" (Cardol et al., 2002, p. 30). Another study of the long term impact of traumatic injury identified psychological risk factors as relevant (Richmond, Kauder, Hinkle and Shults, 2003

Psychosocial health is understood to decline when an individual does not participate in the worker role (Stone, 2003 Wilcock, 2006; Yerxa, 1998). Similarly, it is proposed in the present study that a loss of capacity for household work and decreased participation in the home/family role would also affect psychosocial health. Brintnell et al. (1994) found that "by compromising the working role, women also stand to lose other roles that may contribute

significantly to their identity, level of self-worth, and well-being" (p. 145). Decreased engagement in the physical activities associated with employment or household work often sets in motion a cycle of deconditioning, increased physical disability, declining psychosocial well-being and further decreased engagement in role function. This study examines whether decreased engagement in household work correlates more with a greater reported impact of injury in the physical or in the psychosocial dimension.

In summary, the literature shows that engagement in household work is an activity that has considerable economic and personal value. A loss of functional capacity following injury is associated with a decline in engagement in productive activities including paid employment and household work, and an associated decline in well-being. Psychosocial and personal variables influence the degree to which an individual's engagement in household work is impacted following injury.

Physical fitness

The decreased activity level associated with decreased engagement in physical activities can set in motion a cycle of deconditioning, and increased functional limitations. Huang et al. (1998) found that physically fit individuals reported fewer functional limitations even after controlling for age, length of follow-up, body mass index, smoking, alcohol consumption, and presence of chronic disease.

In the disabled population, participation in physical activity is often even more limited than in the general population, leading to a decline in physical capacity greater than that caused by the initial injury. "Poor stamina, reduced

muscle strength, and limited flexibility restrict functional ability and, therefore, personal independence". (Heath and Fentem, 1997, p.195).

It is therefore expected that physical fitness level will influence the degree of functional limitation or decreased participation in household work.

RESEARCH QUESTIONS AND HYPOTHESES

The primary objective of this study is to determine the impact of injury on a specific area of occupational performance, household work. The following questions and related hypotheses follow from a review of the literature and the writer's clinical experience.

1. Do injured individuals report a change in their engagement in household work following injury?

   Hypothesis: Injured individuals will report a decreased engagement in household work.

2. Is the reported change in engagement in household work following injury related more closely to the impact on the psychosocial or physical dimension?

   Hypothesis: Psychosocial factors will be more closely correlated to a decreased engagement in household work than will physical factors.

3. Is there a relationship between a reported change in engagement in household work and life satisfaction?

   Hypothesis: A higher impact on engagement in household work will correlate with lower life satisfaction.

4. Are environmental and personal factors of age, gender, marital status, parenthood status and employment status related to reported change in engagement in household work following injury?

   Hypothesis: Married women with children at home will report a higher impact on housekeeping engagement following injury. Employment status will not correlate with engagement in household work.

5. Does fitness level relate to reported change in engagement in household work following injury?

   Hypothesis: A lower fitness level will be related to a greater decrease in engagement in household work.

DESIGN AND METHODS

Definition of variables

For the purposes of this study, variables were defined in the following manner.

Reported impact (of injury) on engagement in household work (dependent variable):

Reported impact (of injury) on participation in household work tasks including meal preparation, cleaning the home, shopping, interior and exterior maintenance.

Physical function (independent variable):

Reported impact (of injury) on engagement in physical activities of daily living including ambulation, mobility, bodycare and movement.

Psychosocial function (independent variable):

Reported impact (of injury) on engagement in psychosocial activities of daily living including social interaction, alertness behaviour, emotional behaviour and communication.

Life satisfaction (independent variable):

Reported level of satisfaction in the areas of living arrangements, employment, financial situation, social life, sexuality, and general health. Responses from each category were summed to produce one overall rating.

Age (independent variable):

Chronological age at time of assessment. Only those over 18 years of age at the time of evaluation were included in this study.

Gender (independent variable):

Male or female.

Marital status (independent variable):

Married (including common law), or ***not*** married (including separated or divorced).

Parenthood status (independent variable):

Never-married children under the age of 19 do or do not live in the home. This definition is that used by Statistics Canada in the General Social Survey and subsequent publications (Fast and Frederick, 1998; Frederick, 1995; Statistics Canada, 1995).

Employment status (independent variable):

Employed (includes self employed) or unemployed at the time of the assessment.

Fitness level (independent variable):

Predicted maximal volume of oxygen consumption, grouped according to categories identified by the 1981 Canada Fitness Survey (excellent, above average, average, below average, poor).

Site

The Occupational Performance and Analysis Unit (OPAU), located at the University of Alberta, Department of Occupational Therapy, is a not-for profit clinical service unit. Based upon the Occupational Performance model, and operating within a small business context, the OPAU conducts third party (medical-legal) functional assessments. Evaluations are a "snapshot" of an individual's current level of functioning within their personal capacities, their current environment and in their customary life roles. OPAU uses the Canadian Model of Occupational Performance as the conceptual framework for individualized evaluation plans and clinical reasoning. The end product is an evaluation report which documents findings, opinions and recommendations; intervention is not a component of this third-party evaluation service. Case files of evaluations dating from 1998 to 2007 provided the data for this study.

The OPAU granted the researcher permission to use the archived data (Appendix C).

Individuals referred to OPAU for third party functional evaluations undergo an informed consent process (Appendix D) which includes consent for use of the data gathered for research and teaching purposes.

Original data collection is done through a standardized evaluation procedure (occupational performance evaluation) involving a combination of

questionnaires, interview, and skilled observation of the evaluee while engaged in a series of structured evaluation activities. A list of the tests administered during a typical evaluation is appended (Appendix E). Evaluation data is recorded at the time of the assessment, both in the form of clinical observations/ field notes, test scores and the evaluee's responses to standardized evaluation forms and questionnaires. Throughout the assessment the therapist observes the evaluee's physical performance, approach to tasks, compensatory strategies and pain behaviors. Subjective pain ratings are solicited at specified intervals and pain behaviours are observed and noted by the therapist. Sincerity of effort is indicated by accessory muscle recruitment, altered or compensatory biomechanics, competitive approach to tasks, and heart rate responses, and well as by triangulation in testing components (eg. consistency between medical documentation, client report and actual performance during the evaluation). The evaluation is documented in a comprehensive report in which the evaluee's functional abilities and injury-related limitations are detailed and the impact of the injury in the areas of self-care, leisure and productivity is analyzed. Analysis focuses on both paid employment and (unpaid) household work and the evaluator provides a statement of opinion in each area.

Sickness Impact Profile (SIP)

The Sickness Impact Profile (SIP) (Appendix F) is a quality of life measurement that quantifies the respondent's perception of the impact of illness (injury) on the performance of daily activities based on behavioural indicators (eg. "I am not doing heavy work around the house"). There are 136

behaviours organized into 12 distinct domains. Scoring produces a percentage perceived impact in each of these 12 domains, as well as an aggregate percentage perceived impact in the physical and psychosocial dimensions.

The psychosocial dimension includes statements related to social interaction, alertness behavior, emotional behavior and communication. The physical dimension includes statements related to ambulation, mobility and body care and movement. All statements are organized into the five independent domains of sleep and rest, eating, ability to work, home management, and recreation / pastimes. Independent categories are combined with physical and psychosocial scores to produce the total perceived impact score.

The SIP has been used in a number of studies to assess the perceived impact of injury or illness on functional status. Although some studies have included regression analysis to determine whether demographic or other variables can predict overall SIP scores, none have specifically considered the impact on home management scores (Hall and Yoels, 2001; Holstag, Post, Lindeman and Van der Werken, 2007; Jurkovich et al., 1995; Post, Ros and Schrijvers, 1999; Post, Van Der Sluis and Ten Duis, 2006; Richmond et al., 2003; Tian and Miranda, 1995).

The SIP is a well-researched quality of life instrument with acceptable reliability and validity. Brooks, Jordan, Divine, Smith and Neelon (1990) found that SIP scores distinguish between psychosocial and physical dysfunction and the psychosocial dimension is strongly related to depression. Construct validity testing performed by DeBruin, DeWitte, Stevens and Diedriks (1992) reported a 0.67 correlation between the psychosocial dimension summary score on the SIP and the Carroll Depression Rating Scale. Therefore the calculated psychosocial

dimension score was used as the score for the psychosocial function in the present study.

The reliability and validity of the SIP was established in the process of its development. A number of data sets were used including a large random sample and several smaller diagnosis-specific samples (Bergner, Bobbitt, Pollard, Martin and Gilson, 1976; Bergner, Bobbitt, Carter and Gilson, 1981). Reliability and validity of the SIP was further examined in several subsequent studies and the Measurement Excellence and Training Resource Information Centre reports "The test has shown adequate reliability and reports substantial validity evidence in a number of studies" (retrieved from Internet April 2006; http://www.measurementexperts.org). Jenkinson states that "the SIP represents one of the most sophisticated and comprehensive attempts to date to assess health status. Moreover, it has been extensively tested and has been shown to be a reliable and valid instrument" (1994, p. 130).

One advantage of using the SIP to measure the loss of engagement in household work is that it compares each respondent only to him or herself. The respondent is asked to endorse only those statements that relate to their health condition. In this way, males and females can be included in the same study, even though females generally spend more time on household work than males. Because the actual hours of household work are not measured, it is also not necessary to account for the difference between the fastidious and the less particular housekeeper, or for a task taking more time due to pain or other factors.

Physical fitness testing

Prior to assessment at the OPAU, potential evaluee's are administered a Physical Activity Readiness Questionnaire (PAR-Q) (Appendix G). A 'yes' response to any question on the PAR-Q is considered a risk factor and unless a medical doctor gives clearance, fitness testing is not conducted.

Those evaluees who are not screened out by the PAR-Q undergo fitness testing conducted by an exercise physiologist. The evaluee's maximal aerobic capacity is estimated using Astrand's (1954, 1960) sub-maximal aerobic testing (predicting maximal oxygen uptake from charting heart rate versus work load on a bicycle ergometer). . Application of the 1981 Canada Fitness Survey (1983) norms based on age and gender produces a rating of excellent, above average, average, below average or poor.

Maximal aerobic capacity is a measure of cardio-respiratory fitness. Research has indicated that there is a moderate to high correlation between maximal aerobic capacity and overall endurance, which includes capacity to perform household tasks (Astrand, 1954; Huang et al., 1998; Heath et al., 1997).

While alternative methods of measuring fitness level have since been introduced into practice (Jackson, 2006; Peacock, 2004; Sayers Menear, Sims and Phillips, 2007; Swain, Parrott, Bennett, Branch and Dowling, 2004; Wittink, et al., 2000) the Astrand method has been consistently used by OPAU since 1992 and the physical fitness data accessed for this study were generated using the accepted procedure outlined above.

Occupational Performance Questionnaire (OPQ)

The OPQ (Appendix H) is a questionnaire developed by OPAU that incorporates the concepts of the Canadian Model of Occupational Performance. The OPQ is mailed to the evaluee for completion prior to attending the scheduled evaluation appointment. The completed OPQ forms the basis of a semi-structured interview during the evaluation in which the therapist reviews the evaluee's responses, clarifying and expanding on the information provided. One portion of the OPQ solicits the evaluee's rating of their life satisfaction in their living arrangements, employment, financial situation, social life, sexuality, and general health using a Likert-type scale of very dissatisfied (1), somewhat dissatisfied (2), neutral (3), somewhat satisfied (4) or very satisfied (5). In order to control the number of variables in this study, the responses were added to produce a summed score of between 6 and30, with a higher score reflecting a higher life satisfaction. While Likert scales are considered generally considered to be ordinal data, Jaccard and Wan (1996) reviewed the literature and acknowledged that in statistical procedures, they may be treated as interval data.

Evaluation report

The evaluation report is a compilation of data gathered during the assessment and the analysis developed through triangulation process as described by Lincoln and Guba (1985). At the OPAU, triangulation has two parts:, (1) data collection through a number of sources, and (2) analysis of the data by more than one experienced therapist. The final report includes demographic data and incorporates data from medical reports, data gathered

during standardized testing, and the therapist's clinical observations made over the course of the evaluation process. The report is written by the evaluating occupational therapist and then peer reviewed by another experienced therapist.

DATA COLLECTION

The following data was gathered and tabulated from the files:

Table 2: Data collection

Research Question	**Dependent Variable**	**Source of data**	**Measurement Level**
Do injured individuals report a change in their engagement in household work following injury?	Reported change in engagement in household work	Sickness Impact Profile-subscore for Home Management	Interval Percentage score
Is the reported change in engagement in household work following injury related more closely to the impact on the psychosocial or physical dimension?	Reported change in physical function	Sickness Impact Profile – Physical Dimension subscore	Interval Percentage score
	Reported change in psychosocial function	Sickness Impact Profile-Psychosocial Dimension subscore	Interval Percentage score
Is there a relationship between a reported change in engagement in household work and life satisfaction?	Life Satisfaction	Occupational Performance Questionnaire – Life Satisfaction	Ordinal 5 pt Likert scale Summed to produce overall scores of 6-30

Research Question	Dependent Variable	Source of data	Measurement Level
How are the environmental and personal factors of age, gender, marital status, parenthood status and employment status related to reported change in engagement in household work following injury?	Age	Evaluation report	Interval
	Gender	Evaluation report	Nominal (dichotomous) Male Female
	Marital status	Evaluation report	Nominal (dichotomous) Married including common-law Single
	Parenthood status	Evaluation report	Nominal (dichotomous) Children under age 19 living in home No children under age 19 living in home
	Employment status	Evaluation report	Nominal (dichotomous) Employed Not employed
Does fitness level relate to reported change in engagement in household work following injury?	Fitness level	Evaluation report	Ordinal Excellent Above average Average Below average Poor

METHODOLOGY

The quantitative approach was most suited to this study as it utilizes existing numerical data, gathered through instruments as opposed to a qualitative approach which utilizes language based data, gathered through human interactions such as focus groups and open ended interviews. Qualitative studies frequently use a smaller number of subjects, purposely chosen to provide rich information, whereas quantitative studies use a larger

sample with specific inclusion and exclusion criteria. Results of quantitative research are expected to be generalizeable (Bordens and Abbott, 1999; Domholdt, 2005, Polit, 1996), as are the results of this study.

Domholdt (2005) organized research types by the following matrix, using the design dimensions of research purpose, timing of data collection, and manipulation.

Table 3: Research types

		Timing of data collection	
		Retrospective	Prospective
Purpose of Research	Descriptive	Non-experimental	Non-experimental
	Analysis of relationships	Non-experimental	Non-experimental
	Analysis of differences	Non-experimental	Non-experimental Experimental
		Manipulation (experimental or non-experimental)	

This study analyzed archival data retrieved from case files of the OPAU, therefore it was retrospective and non-experimental. This was a secondary analysis as the data were gathered for another purpose (third party occupational performance evaluations). This method is similar to studies which use hospital records retrospectively and is considered an accepted research methodology (Bordens and Abbott, 1999; Domholdt, 2005).

Statistical analysis

The Statistical Package for the Social Sciences 14.0 (SPSS) software was used for analysis. Alpha level was set at .05. Descriptive data, including measures of central tendency (means), percentages and frequency distributions, described the sample in terms of the dependent and independent variables.

An analysis of relationship was applied for heuristic value, and to identify relationships that allow for a prediction of housekeeping engagement based on the independent variables.

Traditionally, multiple regression is used with numerical data but can accommodate nominal data when arbitrary numbers are assigned to the nominal data. Following this convention, responses on the nominal variables of gender, marital status, employment status and parenthood status were assigned values of "0" and "1", where "1" was the most common response.

Stepwise regression utilizes both forward and backward procedures by examining each predictor (independent) variable separately for correlation with the criterion (dependent) variable. Each variable is then included or excluded depending on whether it meets the tolerance criteria and does not cause another variable, already included, to drop below the tolerance criteria. In this way, the variables are ordered according to how strongly they correlate to the dependent variable.

Ethical considerations

This study used data gathered over the past 10 years by the OPAU. Each evaluation file contains a copy of the Script for Informed Consent and the signed Consent Form (Appendix D).

Prior commencing the assessment, the examiner reads the Script for Informed Consent to the evaluee. The script includes notification that the data gathered may be used in research or for teaching purposes. It is also stated that the evaluee's identifying information would not be revealed. The Consent Form summarizes the script and the evaluaee is encouraged to read it prior to signing it. Assessment does not commence until the informed consent has been signed.

This study involves a retrospective analysis of the case files as a group, not as individual files. Descriptive data and demographics are reported only as they pertain to the entire group. The individual identities are protected and anonymity maintained. Findings are reported as aggregate data. Approval for this study was obtained from the Health Research Ethics Board at the University of Alberta.

Sampling procedure and sample size

The files in the OPAU were accessed and all files that met the study criteria were included in the convenience sample of 51 subjects. It is acknowledged that the evaluees were in litigation at the time of the assessment and are referred by lawyers. Evaluees are typically 1-4 years -post injury when seen in OPAU. In order to maintain consistency, those not in litigation and those who were less than 1 year post injury were excluded. Males and females over the age of 18 at the time of their injury and who have completed the Sickness Impact Profile were included. Also excluded were individuals who are deemed to be unreliable historians. ie. those cases in which the final report documents a substantial discrepancy between the medical history, clinical presentation and the evaluee's self-report.

RESULTS

Descriptive statistics

When comparing males and females in the sample, it was noted that women were more likely to be married, employed and have children under the age of 19 living at home.

Table 4: Frequencies and percentages of married, employed and those with children under the age of 19 at home.

	Total Sample (n=51)		Male (n=29)		Female (n=22)	
	Frequency	**Percent**	**Frequency**	**Percent**	**Frequency**	**Percent**
Married	31	60.8	16	55.2	16	72.7
Employed	24	47.1	13	44.8	11	50.0
Children under 19 living at home	22	43.1	11	37.9	11	50.0

Means of ratio variables are shown in Table 5. It is noted that 6 files were missing life satisfaction data, resulting in n = 45 (23 male, 22 female) for life satisfaction only.

Table 5: Range, means and standard deviations of age, life satisfaction, physical dimension scores, psychosocial dimension scores and home management scores.

	Total Sample (n=51)		
	Range	**Mean**	**SD**
Age	19-70	37.9	11.2
Life satisfaction	6-24	14.1	4.9
Physical dimension	0-53.5	14.5	12.4
Psychosocial dimension	0-63.9	22.7	18.0
Home management	0-66.5	27.6	19.1

Fitness scores, shown in Table 6, show an overall low level of fitness.

Table 6: Frequencies and percentages of aerobic fitness level

	Frequency	**Percent**
Excellent	2	3.9
Above average	1	2.0
Average	1	2.0
Below average	2	3.9
Poor	20	39.2
Unable to complete test	5	9.8
Test not administered due to PAR-Q risk factors	15	29.4
Test not administered due to other factors	5	9.8

Analysis of relationship

The stepwise method of linear regression determined that the physical dimension score and the psychosocial dimension score on the SIP were the best predictors of loss of engagement in home management. Results of the regression analysis, presented in Table 7, show that physical dimension scores alone accounted for the most variance in the constant (home management scores). Inclusion of the psychosocial dimension scores resulted in higher predictability. SPSS then excluded all other variables as predictors as they did not significantly add to the regression equation.

Table 7: Stepwise Regression Analysis, Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Standard Error of Estimate**
1	.727 a	.528	.505	13.4
2	.792 b	.628	.589	12.1

Predictors: (Constant), physical dimension total on SIP

Predictors: (Constant), physical dimension total on SIP, psychosocial dimension total on SIP

When independent variables are closely correlated to one another, they do not contribute new information to the regression equation and are in fact, redundant. These variables are then excluded from the equation (Brace and Sneglar, 2000; Domholdt, 2005; Polit, 1996). To this end, bivariate analysis was performed to identify the inter-relationships between independent variables.

Bivariate analysis (Table 8) showed that several variables (age, employment status, life satisfaction and fitness level) correlated significantly with the physical dimension scores. These variables are accounted for within the physical dimension score.

Parenthood status, gender, and marital status showed no significant correlation to either the dependent variable (home management scores) or the predictor variables (physical and psychosocial dimension scores). In considering these non-significant variables, post hoc power calculations reveal a low power of .06 to .29. A larger sample may find a correlation between home management and these variables, but the results of this study show that gender, marital status and parenthood status do not predict the degree of impact an injury will have on home management activities. Or, stated another way, all people, regardless of their demographic profile, are at risk of experiencing a decline in engagement in home management activities following injury.

While physical dimension scores were the best predictor of home management scores, bivariate analysis (Table 8) revealed that the correlation between the psychosocial dimension and home management scores (.671) was almost as strong as that between the physical dimension and home management scores (.695).

Table 8: Bivariate correlations of independent and dependent variables

	A	G	MS	ES	PS	LS	FL	PD	PSD	HM
Age(A)	1	.035	.401**	.243	.127	-.068	.493**	.306*	.154	.394**
Gender (G)		1	-.180	.051	.121	-.088	-.096	-.068	.009	-.168
Marital Status (MS)			1	.167	-.344*	.220	.101	-.039	-.141	.049
Employment Status (ES)				1	-.107	-.459**	.133	.356*	.464**	.350*
Parenthood Status (PS)					1	-.017	-.047	.093	.105	.204
Life Satisfaction (LS)						1	-.011	-.450**	-.447**	-.453**
Fitness Level (FL)							1	.344*	.199	.337*
Physical Domain Subscore (PD)								1	.625**	.695**
Psychosocial Domain Subscore (PSD)									1	.671**
Home Management Score (HM)										1

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

DISCUSSION

Engagement in household work

Hypothesis: Injured individuals will report a decreased engagement in household work.

The hypothesis is accepted, as this study found a significant mean decrease of 27.6% in engagement on household work.

This impact was greater than that reported on either physical or psychosocial activities. Only 5 subjects (4 male, 1 female) reported no impact on home management. More than 90% of subjects reported decreased engagement in home management. Further, 70% of subjects reported an impact of greater than 20%, considered a "severe" impact by the authors of the SIP (Jurkovich, et al., 1995). Clearly, engagement in household work is negatively affected by injury.

Other studies using the SIP often report only the dimension (physical and psychosocial) and total scores. Those studies reporting scores on household management (considered an independent category on the SIP) are reviewed below.

Table 9: Comparison of dimension and home management scores between studies.

Author and date	**Description of sample**	**Mean physical dimension score (SD)**	**Mean psychosocial dimension score (SD)**	**Mean home management score (SD)**
Holstag et al., 2007	Follow-up of 335 trauma patients 12-18 months post injury	7.2 (9.8)	8.7 (12.0)	13.2 (19.3)

Author and date	**Description of sample**	**Mean physical dimension score (SD)**	**Mean psychosocial dimension score (SD)**	**Mean home management score (SD)**
Jurkovich et al., 1995	Follow-up of 329 lower extremity fracture patients 6 and 12 months post-injury	6 months 8.2 (9.7) 12 months 5.5 (8.3)	6 months 6.8 (11.4) 12 months 5.5 (10.4)	6 months 14.5 (20.1) 12 months 9.3 (16.1)
Tian et al., 1995	One year follow-up of 3655 patients admitted to ICU	6.9 (11.1)	7.1 (10.6)	14.7 (18.7)
Williams and Bury, 1989	Administration UK equivalent to SIP (FLP) to 92 outpatients with Chronic Obstructive Airway Disease	19.8 (5.7)	18.7 (5.2)	34.8 (9.5)
Current study	Secondary analysis of occupational performance assessments of 51 clients one or more years post injury	14.5 (12.4)	22.7 (18.0)	27.6 (19.1)

Upon comparison, these studies show a trend of similar physical and psychosocial dimension scores, and in all studies, the home management score is higher than either the physical or psychosocial scores. Upon comparison, these studies show a trend of similar physical and psychosocial dimension scores, and in all studies, the home management score is higher than either the physical or psychosocial scores. (p = .026 for psychosocial dimension scores and <.0005 for physical dimension scores).

While the results of the current study are similar to what others have found, most other studies reported generally lower scores. A factor in the current study may be that the subjects are in litigation and their responses may be influenced by the focus on loss and compensation. The SIP is a self-report instrument \and it may be postulated that OPAU evaluees consciously or unconsciously endorse more statements in the hopes of obtaining a larger settlement. However, during assessment, every effort is made to ensure the reliability of self-report and, as noted earlier, unreliable historians were screened out of this study. Evaluee self-report is triangulated with physiological responses and biomechanical indicators during activity as well as with medical documentation. Discrepancies are noted, and when the reliability of an evaluee's self-report is in doubt this is noted in the evaluation report. These OPAU files were not used in this study. While amplified responses due to the potential for monetary compensation cannot be ruled out, it is unlikely that it accounts entirely for the higher scores.

Upon comparing studies, several differences in samples and procedures were noted. Individuals referred to the OPAU for evaluation are often complex cases who have current functional difficulties, while the subjects in the larger study groups were more inclusive of a range of functional abilities, including full recovery from initial injury (Holstag et al., 2007; Jurkovich et al., 1995; Tian et al., 1995). As well, the OPAU sample included subjects who had sustained multiple injuries, had co-morbid or pre-morbid medical conditions, head injury or psychiatric diagnoses, whereas some of the other studies excluded subjects with one or more of these characteristics (Williams and Bury, 1989; Jurkovich et al., 1995; Hall and Yoels, 2001). Tian and Miranda (1995),

who mailed out the questionnaires to discharged intensive care clients, recognized that those who did not respond may in fact be generally "sicker" than those who responded, and therefore would have had higher scores on the SIP. Had these "sicker" clients responded, the scores in that study could have reflected a higher perceived impact on home management and other dimensions.

Overall, the subjects included in this study were unique in that they were identified as being functionally impaired prior to referral and had more complex, catastrophic conditions than those sampled in other studies.

The legal community seeks to quantify and compensate loss due to injury by calculating replacement costs. This study found an overall loss of 27.6% in housekeeping engagement. The average Canadian over the age of 15 is estimated to spend approximately 3.6 hours per day on unpaid work. When applying this study's results to the Statistics Canada data a loss of .9936 hours of housekeeping engagement per day was found.

Given the current cost of housecleaning in Alberta of $25.00 an hour, (Lamb and Bruce, 2006), this translates to an average annual loss of $9,066.60 per person in this sample. Given a mean age of 38, this equates to a total loss of $244,798.20 to age 65 per person. This type of calculation is helpful to lawyers wishing to advance a claim on behalf of their client for compensation for loss of capacity for household work.

When an individual is unable to complete the household work they previously performed, the effect can be widespread. Aside from the loss of their productive capacity in the home, decreased engagement in household work can

also affect the psychological health, safety, nutrition and general health of the individual and their family.

Clinical experience in OPAU as well studies on similar groups (Lofgren, Ekholm, and Ohman, 2006) show that when an individual is unable to perform their usual housekeeping duties, a variety of strategies may come into play. Other family members are often recruited to perform household tasks in addition to what they did previously. The spouse of an injured individual may do most or all of the household work in addition to their paid work during the time when the injured individual is unable to contribute. Children may be called upon to do more than is customary for their age, including food preparation, house cleaning or caring for younger siblings. By taking on a more adult role, the child's role in school and at play may be compromised, and they may experience elevated levels of stress. The change in the distribution of household work within the family may result in resentment or tension among family members.

Another strategy to address the inability to perform certain tasks is to let them go undone, resulting in an unhygienic or unsafe environment, which can lead to illness or injury. When paid help is sought, family finances may be stretched to an unreasonable point, having less disposable income for basics such as food or for leisure activities such as sports or extracurricular activity fees.

For the individual who derives personal satisfaction from a clean, well-run home, being unable to perform household tasks may affect self worth and self efficacy (James, Miller, Brown and Weaver, 2005; Petrella, McColl, Krupa and Johnston, 2005; Kielhofner, 1995; Stevens-Ratchford, 2005). Those who

continue to perform household tasks may do so at a slower pace and at the expense of increased pain and fatigue (Verbrugge and Sevak, 2004; James, et al., 2005). A qualitative follow-up study of OPAU evaluees would be valuable to determine to what extent various strategies are employed and what effect they have on family dynamics.

Psychosocial and physical function

Hypothesis: Psychosocial factors will be more closely correlated to a decreased engagement in household work than will physical factors.

This hypothesis is rejected as the physical dimension scores correlated more strongly with home management scores than did the psychosocial dimension scores.

Although physical dysfunction is a stronger predictor of decreased engagement in home management tasks than psychosocial dysfunction, the difference is small. Rather than rely on only one dimension, both physical and psychosocial status should be addressed when assessing the impact of an injury on a person's role engagement. When considered together, physical and psychosocial dimension scores account for a significant portion of the home management impact scores.

While it recognizes the relevance of psychosocial risk factors, this study does not support Cardol's (2002) finding that psychosocial risk factors are the most important explanatory variable for restricted engagement in activities. Other studies that recognize the importance of psychosocial factors in engagement on paid work activities and this study shows that psychosocial

factors are also relevant to engagement in the unpaid work of housekeeping (Asanti et al., 2007; Cacciacarro and Kirsh, 2006; Keough and Fisher 2001; Sullivan et al., 2006; Truchon and Fillion, 2000; Richmond et al., 2003; Stone, 2003; Wilcock, 2006; Yerxa, 1998; Brintnell et al.,1994).

Life satisfaction

Hypothesis: A higher impact on engagement in household work will correlate with lower life satisfaction.

Bivariate analysis found a correlation with home management scores therefore this hypothesis is accepted, However when regression analysis was performed, life satisfaction did not emerge as a significant predictor. Life satisfaction showed a strong correlation with both the physical and psychosocial dimension scores therefore any variability that life satisfaction produced is accounted for within those dimensions.

Life satisfaction scores indicated an overall level of 'somewhat dissatisfied'. This study did not distinguish between different areas of life satisfaction, as the scores for living arrangements, employment, financial situation, social life, sexuality and general health were summed to obtain one overall score. Further research, comparing different aspects of life satisfaction and comparing life satisfaction to participation in different domains is indicated to determine what, if any, areas are of particular concern. It may also reveal the resilience of the human spirit. In the face of great performance barriers, some elements of life can still be rewarding, thus over-shadowing losses.

Environmental and personal factors

Hypothesis: Married women with children at home will report a higher impact on housekeeping engagement following injury. Employment status will not correlate with engagement in household work.

This hypothesis was accepted in part. Only age and employment status correlated with home management scores, however regression analysis showed they were not significant predictors once the dimension scores were considered. As age correlates with the physical dimension and employment status correlates with both the physical and psychosocial dimensions, any variability is accounted for within these dimensions.

While environmental and personal factors such as age, gender, marital status, parenthood status and employment status are useful in describing the sample, they do not appear to predict those who are most impacted in the area of home management. This in itself is significant as it reinforces that household work is relevant to all people, as opposed to paid employment, which is not always relevant to all (Fast et al., 1998; Frederick, 1995).

However, as Statistics Canada data showed, married women with young children spend more time on household work, therefore a given impact from injury translates into a greater amount of time to replace the loss for this group. Also, young males tend to be more involved in heavier, outdoor and maintenance work, which often carries a higher replacement value, translating into higher replacement costs (Fast et al., 1998; Frederick, 1995).

Essentially, although demographics are not a predictor of the impact injury will have on an individual's engagement in household tasks, the

demographics must be considered when calculating the replacement cost in terms of time and money (Fast et al., 1998; Frederick, 1995; WHO, 2001).

Fitness level

Hypothesis: A lower fitness level will be related to a greater decrease in engagement in household work.

The hypothesis is accepted, however fitness level was correlated to physical dimension scores and regression analysis showed it was not a significant predictor after physical dimension scores were considered. This supports the work of Huang et al., (1998) which found fitness level, as part of physical disability, to be a significant predictor of functional disability even after controlling for factors including chronic disease.

The subjects in the present study tended to have a poor state of fitness. After removing the 5 subjects who did not undergo fitness testing for non-medical reasons, only 13% of the remaining 46 subjects scored 'below average' or better in aerobic fitness testing. Stated another way, 87% of the subjects had a 'poor' level of fitness, were unable to complete the test, or were deemed medically at risk for fitness testing. It is possible that a number of the subjects had a poor fitness level prior to their injury, however, it is equally likely that the post-injury pain-inactivity-disability cycle is a contributor (Heath and Fentem, 1997). Given the body of research on the importance of remaining active despite injury, illness or pain (van der Ploeg, van der Beek, van der Woude and Van Mechelen, 2004; Cress, et al., 2004; Feuerstein and Zastowny, 1995; Fordyce, 1995; Waddell, 1998; Bandura, 1997; Sullivan, 2006; Rooks, 2007;

Chatzitheodorou, Kabitsis, Malliou and Mougios, 2007), this area needs further attention in rehabilitation program planning.

CONCLUSIONS

This study illustrated that 51 adults with accident injuries reported a significant overall average impact of 27.6% on their engagement in household work, which is higher than their reported impact on either the physical or psychosocial dimension as measured by the Sickness Impact Profile. In moving beyond loss of paid employment as a measure of function following injury, this study paints a more comprehensive picture of the impact an injury can have on occupational performance and the fulfillment significant roles other than paid work.

A relationship exists between engagement in household work and both physical and psychosocial behaviours, with a stronger relationship to the physical dimension, however causality cannot be determined from this data.

Age, employment status, life satisfaction and fitness level correlated with decreased engagement in home management activities however, their value as predictors was accounted for within the physical and psychosocial dimension scores. Marital status, parenthood status and gender did not correlate with decreased engagement in home management tasks, but are relevant when determining compensation for loss of domestic role function (unpaid household work), in regard to the time people in different life situations tend to spend on household work (Statistics Canada, 1995).

The descriptive data highlighted that the subjects in this study were somewhat dissatisfied with life and demonstrated poor physical fitness, consistent with the writer's clinical experience in working with this group.

Limitations of the study and further research

People referred to OPAU for third party evaluations are involved in litigation, have not fully recovered from their injuries and often have complex histories that include pre-existing or co-mobidities. As such, the results of this study may not generalize to other populations with traumatic injuries. It does, however, help to identify the factors that are more closely correlated with decreased engagement in household work following injury.

The dependent variable, household work engagement, as well as several independent variables, rely on client report. In a sample of subjects who are involved in litigation, the issue of secondary gain becomes relevant. Evaluees may report more functional losses in order to obtain a larger settlement (Sulllivan, 2004; Mittenberg, Patton, Canyocxk & Condit, 2002). While OPAU clinicians make every effort to ensure the reliability of self-report through triangulation and cross validation, further research using a similar sample of people who are not engaged in litigation or who have completed the litigation process would be of interest.

As well, further research would be indicated to directly compare these results with assessment results based on performance and therapists' observations, essentially comparing (reported) engagement to (measured) capacity for household work.

The independent variables include physical function and psychosocial function as well as personal and lifestyle issues. While this list is by no means exhaustive in terms of possible variables that can be correlated to a change in household work engagement, it includes several of the factors most frequently cited in the literature (age, gender, marital status, parenthood status, physical fitness, psychological function and life satisfaction). Sample size was small compared to other studies. A larger sample would result in higher power and may find stronger relationships between demographic variables and engagement in housekeeping. Future research, using a larger sample could also address other factors such as income level, educational level, severity of injury, etc.

A qualitative study to determine the manner in which people cope with decreased engagement in household work would identify their compensatory strategies (Lofgren et al., 2006 and Primeau, 1992). Are family members (including children) responsible for more household tasks, are things not being done, are injured individuals engaging in tasks at the expense of undue pain and risk of injury? What effect do these strategies have on the family dynamics and the health and safety of family members? Identifying and describing the impact on both the individual and the family could lead to more effective follow-up interventions after the acute injury stage. It may also shed more light on the interaction with life satisfaction.

The results of fitness testing showed a low level of physical fitness in the subjects in this study. In order to determine whether this is a result of injury, chart reviews focusing on prior engagement in physical activity, weight gain since injury and limitations in mobility would be of interest.

The SIP has the potential to explore engagement in a number of occupational performance areas. Engagement in paid work is most often used as a measure of occupational performance, but this study showed that engagement in household (unpaid) work is significantly affected as well. A comparison of evaluee's report of impact on paid work versus household work is possible using responses on the SIP. It is anticipated that the impact on household work is equal to or greater than the impact on paid work. Other aspects of occupational performance, self care and engagement in leisure activities, could also be included, as the SIP addresses all these areas of interest to occupational therapists.

The SIP also allows for a more detailed examination of responses by examining which statements were endorsed that related specifically to household work (Sickness Impact Profile, Appendix F, p.76-77). When compared to the demographic data, this may give a more detailed picture of how injury affects engagement in household work among various demographic groups.

Implications for occupational therapy practice

By accepting that health is a multifactoral phenomenon, occupational therapists recognize that occupation (engagement in activity) is not only an outcome, but also a determinant of health. It impacts and is impacted by other determinants of health such as environmental and personal factors. Occupational therapy is based upon the concept that people derive meaning from engagement in various life roles or occupations. This interaction of meaningfulness and occupation is most frequently cited as "occupational

performance" in the literature. Following injury, an individual is often unable to fully engage in their customary life roles, such as work (paid or unpaid), leisure, or self care. Rehabilitation and legal proceedings often focus on self-care and return to work, whereas the occupation of household work is often overlooked (Primeau, 1992). A search of the literature reveals few references to occupational therapy and household work. Those articles addressing household work were focused primarily on inpatient populations such as stroke survivors (Richards et al., 2005), the aged (Stevens-Ratchford, 2005) or community based mental health programs (Brown, Shiels and Hall, 2001). Those who sustain injuries and are discharged from acute care are not addressed in the literature. Clinical experience suggests that these individuals rarely access ongoing occupational therapy, which is likely the reason for the lack of literature in this area.

The literature supports the value of household work from a social and economic perspective and this study shows a very real impact of injury on engagement in the housekeeping role. Occupational therapists need to be more specific in exploring household work, which is a consideration in both self care and productivity.

The PEO model is instructive in helping us to understand the dynamic system of person-environment-occupation interactions that are unique to each individual. Each area impacts the others and cannot be considered alone. This was illustrated in the bivariate analysis which showed a relationship among several of the personal and environmental variables. The personal and environmental factors considered in this study were primarily demographical, and did not describe the complexity of the environmental and personal changes

a person may experience following injury and which can in turn affect their function as described in the Canadian Model of Occupational Performance (CMOP) and the International Classification Function

CMOP describes three performance components of a Person: cognitive, affective and physical. While physical changes are more easily seen and documented, the cognitive and affective changes are also relevant to engagement in housekeeping activities (O). Cognition may be influenced by pain or by organic factors and may include a decrease in memory, concentration, perception, comprehension and reasoning. Motivation and self efficacy may also be relevant factors. The affective domain may be influenced as a person experiences both intrapersonal and interpersonal losses such as relationship breakdown or loss of self-worth related to an inability to care for one's home and family. The degree that the change in any or all of these three dimensions impact on performance of O (household work) is best determined from qualitative research, but the present findings do support the interaction.

The environment is not only physical, but also cultural, social and institutional. Individuals involved in litigation find themselves in an environment that is unfamiliar and often perceived as hostile because of the necessity to prove claims of decreased function and the process may not allow closure (Mason, Turpin, Woods, Wardrope and Rowlands, 2006; Hadler and Ehrlich, 2003). Meanwhile, social relationships often decrease in quality and quantity (Anke and Fugl-Meyer, 2003). This environmental impact may be reflected in the overall low levels of life satisfaction found in this study.

Occupational therapists address the ability to perform household work in the evaluation and treatment of individuals who have sustained an injury.

While traditionally, women have been more involved in household work, and continue to perform a larger portion of the household work, men also have a role in this area and report an impact similar to women. Personal factors (P) such as age and other demographics alone do not predict loss of engagement. All clients should be screened to determine if household work needs be addressed. Those who experience both physical and psychological impairments are of particular concern. While replacement services are often considered by the legal field to be the answer, occupational therapists can offer various strategies such as work simplification, time management, energy conservation, assistive devices and adaptive equipment. Cognitive behavioural strategies can be used to increase activity involvement and minimize psychological barriers of rehabilitation progress (Sullivan, et al., 2006). By addressing more than the physical aspects of the environment and the person, occupational therapists can influence an individual's engagement in the role of housekeeping. For many individuals who derive meaning from household work, strategies such as work simplification, time management, energy conservation, assistive devices, adaptive equipment and cognitive behavioural therapy can help maintain self worth through involvement and independence in this aspect of occupational performance.

The impact of injury on housekeeping engagement has been overlooked in the literature, but this study shows a significant impact in this area of productivity. Occupational therapists are equipped to offer strategies to the injured client and must address housekeeping as a part of occupational performance.

APPENDIX A

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APPENDIX B

HEALTH RESEARCH ETHICS BOARD APPROVAL

Health Research Ethics Board

213 Heritage Medical Research Centre
University of Alberta, Edmonton, Alberta T6G 2S2
p.780.492.9724 (Biomedical Panel)
p.780.492.0302 (Health Panel)
p.780.492.0459
p.780.492.0839
f.780.492.7808

HEALTH RESEARCH ETHICS APPROVAL FORM

Date: March 2007

Name of Applicant: **Prof. Sharon Brintnell**

Organization: **U of A**

Department: **Occupational Therapy**

Project Title: **Housekeeping Engagement Following Injury A retrospective analysis of relationship**

The Health Research Ethics Board (HREB) has reviewed the protocol for this project and found it to be acceptable within the limitations of human experimentation. The HREB has also reviewed and approved the subject information letter and consent form.

The approval for the study as presented is valid for one year. It may be extended following completion of the yearly report form. Any proposed changes to the study must be submitted to the Health Research Ethics Board for approval. Written notification must be sent to the HREB when the project is complete or terminated.

Special Comments:

The Research Ethics Board assessed all matters required by section 50(1)(a) of the Health Information Act. Subject consent for access to identifiable health information is required for the research described in the ethics application, and appropriate procedures for such consent have been approved by the REB Panel.

Glenn G. Griener

Dr. Glenn Griener, PhD
Chair of the Health Research Ethics Board
(B: Health Research)

MAR 2 2 2007

Date of Approval Release

File Number: B-260307

UNIVERSITY OF ALBERTA

Capital Health
Edmonton and area

CARITAS HEALTH GROUP

APPENDIX C

LETTER OF PERMISSION TO ACCESS OPAU FILES

UNIVERSITY OF ALBERTA
Occupational Performance Analysis Unit (OPAU)
Faculty of Rehabilitation Medicine
1-78 Corbett Hall
Edmonton, Alberta, Canada T6G 2G4
Tel: 780.492.9595
Fax: 780.492.9599

11 April 2006

To whom it may concern:

RE: Christine Whitelaw – research project

This is to advise that Christine Whitelaw has been granted access to the clinical files held in OPAU for purposes of using the data in them for her research project on factors impacting on housekeeping capacity in injured individuals.

Yours sincerely,

Martha Roxburgh, BScOT
Clinical Services Officer, OPAU

APPENDIX D

OPAU SCRIPT FOR INFORMED CONSENT AND CONSENT FORM

OCCUPATIONAL PERFORMANCE ANALYSIS UNIT
Department of Occupational Therapy
University of Alberta

SCRIPT FOR INFORMED CONSENT

The purpose of this evaluation is

to find out what activities are easy for you to do and what activities are difficult for you to do

to find out how your present health status affects your ability to do many of the activities that are required in daily life, including work

No matter who has referred you, OPAU provides an objective, "outsider's" opinion based on the data collected during the evaluation.

OPAU is not part of the legal system. We are health care professionals. The person who referred you pays for our time and expertise; they do not influence our opinion.

- You are encouraged to make your best effort
- You are free to stop any activity at any time if you feel you cannot continue
- You are free to decline to answer any question(s)
- You may ask questions at any time

The evaluation includes a number of parts as you can see from your schedule.

[Review the appointment schedule, describing what types of activities will be required for each appointment -- see attached descriptions for OP and FCE.]

Advise the clinician immediately if you feel

- dizzy
- faint
- nauseated
- short of breath
- your heart is racing or pounding
- excessive pain

The University is a teaching and research institution. A student or another occupational therapist may be present to observe your assessment, in whole or in part. This is an important learning experience and we appreciate your cooperation in allowing them to observe.

The information from your evaluation may be used in research. Your identity will not be revealed or in any way associated with the data.

The data from your file may be used for a case study for teaching purposes. Again, your name and other identifying information will not be revealed.

We appreciate your willingness to contribute to our understanding of the affects of illness or injury on people's lives.

Our report is submitted to the person who referred you for this evaluation (or the person he/she has delegated). Any other person wishing a copy of the report, including you, must obtain one from the referral source.

REPEAT:

The purpose of this evaluation is

to find out what activities are easy for you to do and what activities are difficult for you to do

to find out how your present health status affects your ability to do many of the activities that are required in daily life, including work

- You are encouraged to make your best effort
- You are free to stop any activity at any time if you feel you cannot continue
- You are free to decline to answer any question(s)
- You may ask questions at any time

Do you have any questions or concerns?

Do you understand the purpose of this evaluation?

I would like to take a picture of you for our file. This helps us remember you clearly if we need to refer to your file in the future. It will never be used outside that purpose.

[Have the client sign the form.] [Take the client's picture.]

Functional capacity evaluation consists of two consecutive half-days of testing of physical abilities.

On the first day, the process begins with a one-hour interview in which the evaluator gets to know you and to learn a little about your life. The evaluator will test such things as your range of movement, strength, and sensation. After a rest break, you will be asked to perform one or more hand function tests. Lastly, you will be asked to participate in general fitness testing, including pedalling on a stationary bicycle. Percentage of body fat and grip strength are also measured.

On the second day, you will be asked to perform a number of activities to test your mobility and your physical capacity for walking, climbing, pushing, pulling, lifting and carrying. There is one scheduled rest break.

You are free to discontinue or decline any of the test elements, although we encourage you to participate to your maximum. Testing will be terminated by the evaluator if you appear to be working beyond a safe level of performance.

UNIVERSITY OF ALBERTA

CONSENT

I, _____, consent to undergo an assessment by the Occupational Performance Analysis Unit (OPAU) or by one of its authorized representatives. The purpose and content of the assessment have been explained to me.

I authorize the Occupational Performance Analysis Unit to release and exchange information gathered during my evaluation and to provide a report to the referring agency.

I understand that the assessment findings will become part of the data pool of OPAU and could be used for medical, scientific and educational purposes, including publications.

I understand that all or part of my evaluation may be observed by an occupational therapy student as part of their undergraduate or graduate studies, or by an occupational therapist participating in professional development through OPAU. I understand that they are bound by a code of professional ethics to maintain the confidentiality of my assessment.

I authorize the Occupational Performance Analysis Unit to take a still photograph of me on the understanding that this will be used only within OPAU and will not be used for publication or otherwise released.

A copy of this form is as valid as the original.

Dated at Edmonton, Alberta, this _____ day of _____, 20_____.

Signature: _____

Occupational Performance Analysis Unit (OPAU)
Department of Occupational Therapy

1-78 Corbett Hall • University of Alberta • Edmonton • Canada • T6G 2G4
Telephone: (780) 492-9595 • Fax: (780) 492-9599

APPENDIX E

TESTS ADMINISTERED IN OPAU EVALUATIONS

Test	*Description*
PAR-Q and general health questionnaire	Health questionnaire
Occupational Performance Questionnaire	A questionnaire developed at the OPAU, which the client completes before the assessment and is reviewed with the examiner.
Jamar Grip and Pinch Strength	Measurement of grip and pinch strength
Bennett Hand Tool Dexterity Test	Arm and hand dexterity test using common hand tools.
Minnesota Rate of Manipulation Tests (MRMT):	Arm-and-hand dexterity; five timed tests performed in standing with test materials at the level of the hip crease.
Laboratory Testing of Physical Fitness	Tests of aerobic fitness, flexibility and body fat content with results compared to Canadian norms.
Mobility Screen	One time performance of various mobility and balance tasks
Valpar 9: Whole Body Range of Motion	Light activity done primarily in a weight-bearing posture which involves using the hands in a variety of work planes, from above-shoulder to below knee level.
Work Cube or EPIC Lift Capacity Test	An untimed progressive test of lifting is used to determine what weight the client can lift and carry at various heights.
Tolerances	Sitting, standing, walking, and climbing tolerances are observed over the course of the day.
Sickness Impact Profile	A quality of life measurement that quantifies the client's perception of the impact of their health condition on the performance of daily activities based on behavioural indicators
Pain Diagrams	Body diagrams which the client shades to indicate area of pain. Severity is indicated on a 0-10 scale.
Other	Other tests may be administered according to the client's condition or specific referral questions.

APPENDIX F

SICKNESS IMPACT PROFILE

Sickness Impact Profile

SIP-10030
SD I-03564
SD II-03657

CALCULATION OF CATEGORY SCORE, DIMENSION SCORES, AND OVERALL SIP SCORE

The score for each category is calculated by adding the scale values for each item checked within the category and dividing by the maximum possible dysfunction score for that category. This figure is then multiplied by 100 to obtain the category score.

Two dimension scores may be calculated. The physical dimension sore is obtained by adding the scale values for each item checked within categories BCM, M, and A, dividing by the maximum possible dysfunction score for these categories, and then multiplying by 100; the psychosocial dimension score is EB, SI, AB, and C, dividing by the maximum possible dysfunction score for these categories are always calculated individually.

The overall score for the SIP is calculated by adding the scale values for each item checked across all categories and dividing by the maximum possible dysfunction score for the SIP. This figure is then multiplied by 100 to obtain the SIP overall score.

In the attached SIP booklet the scale values are coded to one decimal as follows:

1. Following the checking line for each item, the item number and scale value are shown, e.g., 070-083 indicates item 70 has a scale value of 8.3.

2. Following each category code in the upper right-hand corner of the page, the total possible scale value for that category is shown, e.g., SR-0499 indicates a total possible scale value of 49.8 for category SR.

3. On the title page of the booklet in the lower right-hand corner appears SD I-03564 and SD II-03657. These indicate a total possible scale value of 356.4 for the physical scoring dimension, and a total scale value of 356.7 for the psychosocial scoring dimension. These are the denominators for calculating the respective dimension scores.

4. Also on the title page of the booklet in the lower right-hand corner appears SIP-10030 indicating a total possible scale value of 1003.0 for the entire SIP. This is the denominator for calculating the overall SIP score.

Please note that there are two special considerations in scoring Category W - Work:

(1) When a subject answers YES to either,

"If you are retired, was your retirement related to your health?" or

"If you are not retired, but are not working, is this related to your health?"

he is instructed to skip Category W - Work. However, in editing the questionnaire prior to coding or scoring, for subjects who answered YES to either of these questions, item 100 should be checked.

(2) Item 100, the first item, has been coded 100-361, indicating an unusually high scale value. The scale value for this item has been statistically adjusted to take into account the fact that when item 100 is checked no other item in category W can be checked.

THE FOLLOWING ARE FOR THE INTERVIEWER-ADMINISTERED QUESTIONNAIRE

INSTRUCTIONS TO THE RESPONDENT

Before beginning the questionnaire, I am going to read you the instructions.

You have certain activities that you do in carrying on your life. Sometimes you do all of these activities. Other times, because of your state of health, you don't do these activities in the usual way: you may cut some out; you may do some for shorter lengths of time; you may do some in different ways. These changes in your activities might be recent or longstanding. We are interested in learning about any changes that describe you today and are related to your state of health.

I will be reading statements that people have told us describe them when they are not completely well. Whether or not you consider yourself sick, there may be some statements that will stand out because they describe you today and are related to your state of health. As I read the questionnaire, think of yourself today. I will pause briefly after each statement. When you hear one that does describe you and is related to your health please tell me and I will check it.

Let me give you an example. I might read the statement "I am not driving my car." If this statement is related to your health and describes you today, you should tell me. Also, if you have not been driving for some time because of your health, and are still not driving today, you should respond to this statement.

If you are in the hospital today, you are here because of your state of health, and you are not doing a number of the things you usually do. For instance, if driving is usual for you, then you are not driving today because you are in the hospital, and you should respond to this statement.

On the other hand, if you never drive or are not driving today because your car is being repaired, the statement, "I am not driving my car" is not related to your health and you should not respond to it. If you simply are driving less, or are driving shorter distances, and feel that the statement only partially describes you, please do not respond to it.

I am now going to begin the questionnaire. Please tell me if you want me to slow down, repeat a statement, or stop so that you can think about one. Also let me know any time you would like to review the instructions. Remember we are interested in the recent or longstanding changes in your activities that are related to your health.

THE FOLLOWING INSTRUCTIONS ARE FOR THE SELF-ADMINISTERED QUESTIONNAIRE

PLEASE READ THE ENTIRE INTRODUCTION BEFORE YOU READ THE QUESTIONNAIRE. IT IS VERY IMPORTANT THAT EVERYONE TAKING THE QUESTIONNAIRE FOLLOWS THE SAME INSTRUCTIONS.

INTRODUCTION TO RESPONDENT

You have certain activities that you do in carrying on your life. Sometimes you do all of these activities. Other times, because of your state of health, you don't do these activities in the usual way; you may cut some out; you may do some for shorter lengths of time; you may do some in different ways. These changes in your activities might be recent or longstanding. We are interested in learning about any changes that describe you today and are related to your state of health.

The questionnaire booklet lists statements that people have told us describe them when they are not completely well. Whether or not you consider yourself sick, there may be some statements that will stand out because they describe you today and are related to your state of health. As you read the questionnaire, think of yourself today. When you read a statement that you are sure describes you and is related to your health, place a check on the line to the right of the statement. For example:

I am not driving my car ___✓___ (026-031)

If you have not been driving for some time because of your health, and are still not driving today, you should respond to this statement.

On the other hand, if you never drive or are not driving today because your car is being repaired, the statement, "I am not driving my car" is not related to your health and you should not check it. If you simply are driving less or are driving shorter distances, and feel that the statement only partially describes you, do not check it. In all of these cases you would leave the line to the right of the statement blank. For example:

I am not driving my car ____ (026-031)

Remember that we want you to check this statement only if you are sure it describes you today and is related to your state of health.

Read the introduction to each group of statements and then consider the statements in the order listed. While some of the statements may not apply to you, we ask that you please read all of them. Check those that describe you as you go along. Some of the statements will differ only in a few words, so please read each one carefully. While you may go back to change a response, your first answer is usually the best. Please do not read ahead in the booklet.

Once you have started the questionnaire, it is very important that you complete it within one day (24 hours).

If you find it hard to keep your mind on the statements, take a short break and then continue. When you have read all of the statements on a page, put a check in the BOX in the lower right-hand corner. If you have any questions, please refer to these instructions.

Please do not discuss the statements with anyone, including family members, while doing the questionnaire.

Now turn to the questionnaire booklet and read the statements. Remember we are interested in the recent or longstanding changes in your activities that are related to your health.

(SR-0499)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I spend much of the day lying down in order to rest	_____ (070-083)
2.	I sit during much of the day	_____ (062-049)
3.	I am sleeping or dozing most of the time - day and night	_____ (063-104)
4.	I lie down more often during the day in order to rest	_____ (066-058)
5.	I sit around half-asleep	_____ (065-084)
6.	I sleep less at night, for example, wake up too early, don't fall asleep for a long time, awaken frequently	_____ (069-061)
7.	I sleep or nap more during the day	_____ (071-060)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(EB-0705)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I say how bad or useless I am, for example, that I am a burden on others	_____ (274-087)
2.	I laugh or cry suddenly	_____ (272-068)
3.	I often moan and groan in pain or discomfort	_____ (269-069)
4.	I have attempted suicide	_____ (281-132)
5.	I act nervous or restless	_____ (284-046)
6.	I keep rubbing or holding areas of my body that hurt or are uncomfortable	_____ (262-062)
7.	I act irritable and impatient with myself, for example, talk badly about myself, swear at myself, blame myself for things that happen	_____ (273-078)
8.	I talk about the future in a hopeless way	_____ (283-089)
9.	I get sudden frights	_____ (278-074)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(BCM-2003)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

---

1. I make difficult moves with help, for example, getting into or out of cars, bathtubs _____(168-084)
2. I do not move into or out of bed or chair by myself but am moved by a person or mechanical aid _____(170-121)
3. I stand only for short periods of time _____(155-072)
4. I do not maintain balance _____(146-098)
5. I move my hands or fingers with some limitation or difficulty _____(152-064)
6. I stand up only with someone's help _____(165-100)
7. I kneel, stoop, or bend down only by holding on to something _____(171-064)
8. I am in a restricted position all the time _____(158-125)
9. I am very clumsy in body movements _____(148-058)
10. I get in and out of bed or chairs by grasping something for support or using a cane or walker _____(169-082)
11. I stay lying down most of the time _____(162-113)
12. I change position frequently _____(147-030)
13. I hold on to something to move myself around in bed _____(143-086)
14. I do not bathe myself completely, for example, require assistance with bathing _____(310-089)

(CONTINUED FROM PAGE 8)

15.	I do not bathe myself at all, but am bathed by someone else	_____ (312-115)
16.	I use bedpan with assistance	_____ (292-114)
17.	I have trouble getting shoes, socks, or stockings on	_____ (305-057)
18.	I do not have control of my bladder	_____ (290-124)
19.	I do not fasten my clothing, for example, require assistance with buttons, zippers, shoelaces	_____ (298-074)
20.	I spend most of the time partly undressed or in pyjamas	_____ (302-074)
21.	I do not have control of my bowels	_____ (295-128)
22.	I dress myself, but do so very slowly	_____ (300-043)
23.	I get dressed only with someone's help	_____ (297-088)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(HM-0668)

THIS GROUP OF STATEMENTS HAS TO DO WITH ANY WORK YOU USUALLY DO IN CARING FOR YOUR HOME OR YARD. CONSIDERING JUST THOSE THINGS THAT YOU DO, PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESSCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

---

1. I do work around the house only for short periods of time or rest often _____ (117-054)

2. I am doing less of the regular daily work around the house than I would usually do _____ (119-044)

3. I am not doing any of the regular daily work around the house that I would usually do _____ (120-086)

4. I am not doing any of the maintenance or repair work that I would usually do in my home or yard _____ (001-062)

5. I am not doing any of the shopping that I would usually do _____ (106-071)

6. I am not doing any of the house cleaning that I would usually do _____ (116-077)

7. I have difficulty doing handwork, for example, turning faucets, using kitchen gadgets, sewing, carpentry _____ (107-069)

8. I am not doing any of the clothes washing that I would usually do _____ (111-077)

9. I am not doing heavy work around the house _____ (115-044)

(CONTINUED FROM PAGE 10)

10. I have given up taking care of personal or household business affairs, for example, paying bills, banking, working on budget _____(105-084)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(M-0719)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I am getting around only within one building	_____(134-086)
2.	I stay within one room	_____(128-106)
3.	I am staying in bed more	_____(130-081)
4.	I am staying in bed most of the time	_____(131-109)
5.	I am not now using public transportation	_____(140-041)
6.	I stay home most of the time	_____(133-066)
7.	I am only going to places with restrooms nearby	_____(125-056)
8.	I am not going into town	_____(124-048)
9.	I stay away from home only for brief periods of time	_____(139-054)
10.	I do not get around in the dark or in unlit places without someone's help	_____(121-072)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(SI-1450)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I am going out less to visit people	_____(028-044)
2.	I am not going out to visit people at all	_____(029-101)
3.	I show less interest in other people's problems for example, don't listen when they tell me about their problems, don't offer to help	_____(003-067)
4.	I often act irritable toward those around me, for example, snap at people, give sharp answers, criticize easily	_____(015-084)
5.	I show less affection	_____(007-052)
6.	I am doing fewer social activities with groups of people	_____(012-036)
7.	I am cutting down the length of visits with friends	_____(027-043)
8.	I am avoiding social visits from others	_____(034-080)
9.	My sexual activity is decreased	_____(039-051)
10.	I often express concern over what might be happening to my health	_____(018-052)
11.	I talk less with those around me	_____(002-056)
12.	I make demands, for example, insist that people do things for me, tell me how to do things	_____(038-088)
13.	I stay alone much of the time	_____(023-086)

(CONTINUED FROM PAGE 13)

14. I act disagreeable to family members, for example, I act spiteful, I am stubborn _____ (249-088)

15. I have frequent outbursts of anger at family members, for example, strike at them, scream, throw things at them _____ (240-119)

16. I isolate myself as much as I can from the rest of the family _____ (237-102)

17. I am paying less attention to the children _____ (238-064)

18. I refuse contact with family members, for example, turn away from them _____ (256-115)

19. I am not doing the things I usually do to take care of my children or family _____ (242-079)

20. I am not joking with family members as I usually do _____ (255-043)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(A-0842)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I walk shorter distances or stop to rest often	_____ (050-048)
2.	I do not walk up or down hills	_____ (046-056)
3.	I use stairs only with mechanical support, for example, handrail, cane, crutches	_____ (042-067)
4.	I walk up or down stairs only with assistance from someone else	_____ (044-076)
5.	I get around in a wheelchair	_____ (057-096)
6.	I do not walk at all	_____ (052-105)
7.	I walk by myself but with some difficulty, for example, limp, wobble, stumble, have stiff leg	_____ (049-055)
8.	I walk only with help from someone	_____ (053-088)
9.	I go up and down stairs more slowly, for example, one step at a time, stop often	_____ (040-054)
10.	I do not use stairs at all	_____ (041-083)
11.	I get around only by using a walker, crutches, cane, walls or furniture	_____ (047-079)
12.	I walk more slowly	_____ (051-035)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(AB-0777)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I am confused and start several actions at a time	_____ (223-090)
2.	I have more minor accidents, for example, drop things, trip and fall, bump into things	_____ (234-075)
3.	I react slowly to things that are said or done	_____ (228-059)
4.	I do not finish things I start	_____ (227-067)
5.	I have difficulty reasoning and solving problems, for example, making plans, making decisions, learning new things	_____ (224-084)
6.	I sometimes behave as if I were confused or disoriented in place or time, for example, where I am, who is around, directions, what day it is	_____ (231-113)
7.	I forget a lot, for example, things that happened recently, where I put things, appointments	_____ (222-078)
8.	I do not keep my attention on any activity for long	_____ (220-067)
9.	I make more mistakes than usual	_____ (225-064)
10.	I have difficulty doing activities involving concentration and thinking	_____ (217-080)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(C-0725)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I am having trouble writing or typing	_____ (191-070)
2.	I communicate mostly by gestures, for example, moving head, pointing, sign language	_____ (177-102)
3.	My speech is understood only by a few people who know me well	_____ (179-093)
4.	I often lose control of my voice when I talk, for example, my voice gets louder or softer, trembles, changes unexpectedly	_____ (197-083)
5.	I don't write except to sign my name	_____ (188-083)
6.	I carry on a conversation only when very close to the other person or looking at him	_____ (178-067)
7.	I have difficulty speaking, for example, get stuck, stutter, stammer, slur my words	_____ (176-076)
8.	I am understood with difficulty	_____ (200-087)
9.	I do not speak clearly when I am under stress	_____ (201-064)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

THE NEXT GROUP OF STATEMENTS HAS TO DO WITH ANY WORK YOU USUALLY DO OTHER THAN MANAGING YOUR HOME. BY THIS WE MEAN ANYTHING THAT YOU REGARD AS WORK THAT YOU DO ON A REGULAR BASIS.

DO YOU USUALLY DO WORK OTHER THAN MANAGING YOUR HOME?

_____ YES _____ NO

IF YOU ANSWERED YES, GO ON TO THE NEXT PAGE.

IF YOU ANSWERED NO:

ARE YOU RETIRED?

_____ YES _____ NO

IF YOU ARE RETIRED, WAS YOUR RETIREMENT RELATED TO YOUR HEALTH?

_____ YES _____ NO

IF YOU ARE NOT RETIRED, BUT ARE NOT WORKING, IS THIS RELATED TO YOUR HEALTH?

_____ YES _____ NO

NOW SKIP THE NEXT PAGE.

(W-0515)

IF YOU ARE NOT WORKING AND IT IS NOT BECAUSE OF YOUR HEALTH, PLEASE SKIP THIS PAGE.

NOW CONSIDER THE WORK YOU DO AND RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH. (IF TODAY IS A SATURDAY OR SUNDAY OR SOME OTHER DAY THAT YOU WOULD USUALLY HAVE OFF, PLEASE RESPOND AS IF TODAY WERE A WORKING DAY.)

---

1. I am not working at all _____ (100-361)

   (IF YOU CHECKED THIS STATEMENT, SKIP TO THE NEXT PAGE.)

2. I am doing part of my job at home _____ (094-037)

3. I am not accomplishing as much as usual at work _____ (096-055)

4. I often act irritable toward my work associates, for example, snap at them, give sharp answers, criticize easily _____ (088-080)

5. I am working shorter hours _____ (095-043)

6. I am doing only light work _____ (086-050)

7. I work only for short periods of time or take frequent rests _____ (090-061)

(CONTINUED FROM PAGE 19)

8. I am working at my usual job but with some changes, for example, using different tools or special aids, trading some tasks with other workers _____ (092-034)

9. I do not do my job as carefully and accurately as usual _____ (097-062)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(RP-0422)

THIS GROUP OF STATEMENTS HAS TO DO WITH ACTIVITIES YOU USUALLY DO IN YOUR FREE TIME. THESE ACTIVITIES ARE THINGS THAT YOU MIGHT DO FOR RELAXATION, TO PASS THE TIME, OR FOR ENTERTAINMENT. PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

---

1. I do my hobbies and recreation for shorter periods of time _____(215-039)

2. I am going out for entertainment less often _____(214-036)

3. I am cutting down on some of my usual inactive recreation and pastimes, for example, watching TV, playing cards, reading _____(207-059)

4. I am not doing any of my usual inactive recreation and pastimes, for example, watching TV, playing cards, reading _____(208-084)

5. I am doing more inactive pastimes in place of my other usual activities _____(210-043)

6. I am doing fewer community activities _____(216-033)

7. I am cutting down on some of my usual physical recreation or activities _____(210-043)

8. I am not doing any of my usual physical recreation or activities _____(111-077)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

(E-0705)

PLEASE RESPOND TO (CHECK) ONLY THOSE STATEMENTS THAT YOU ARE SURE DESCRIBE YOU TODAY AND ARE RELATED TO YOUR STATE OF HEALTH.

1.	I am eating much less than usual	_____ (085-037)
2.	I feed myself but only by using specially prepared food or utensils	_____ (073-077)
3.	I am eating special or different food, for example, soft food bland diet, low-salt, low-fat, low-sugar	_____ (081-043)
4.	I eat no food at all but am taking fluids	_____ (077-104)
5.	I just pick or nibble at my food	_____ (083-059)
6.	I am drinking less fluids	_____ (080-036)
7.	I feed myself with help from someone else	_____ (074-099)
8.	I do not feed myself at all, but must be fed	_____ (075-117)
9.	I am eating no food at all, nutrition is taken through tubes or intravenous fluids	_____ (076-133)

CHECK HERE WHEN YOU HAVE READ ALL STATEMENTS ON THIS PAGE ☐

NOW PLEASE REVIEW THE QUESTIONNAIRE TO BE CERTAIN YOU HAVE FILLED OUT ALL THE INFORMATION. LOOK OVER THE BOXES ON EACH PAGE TO MAKE SURE EACH ONE IS CHECKED SHOWING THAT YOU HAVE READ ALL OF THE STATEMENTS. IF YOU FIND A BOX WITHOUT A CHECK, THEN READ THE STATEMENTS ON THAT PAGE.

MEDICAL
OUTCOMES
TRUST

275 Wyman Street, Suite 120
Waltham, MA 02451
1-781-890-4884

FAX: 1-781-890-0922
http://www.outcomes-trust.org

August 30, 2007

Christine Whitelaw, BScOT
Occupational Therapist
Department of Rehabilitation Medicine
University of Alberta
1-78 Corbett Hall
Edmonton, Alberta T6H 5N7
Canada

Dear Ms. Whitelaw:

The Medical Outcomes Trust is pleased to provide the enclosed materials as specified in your request.

We are pleased to grant you permission to use the Sickness Impact Profile (SIP). Included in this mailing you will find the *Sickness Impact Profile questionnaire* and *User's Manual and Interpretation Guide*.

When reproducing the Sickness Impact Profile please include an identifier as follows:

Sickness Impact Profile, Copyright © 1977 Johns Hopkins University.
All Rights Reserved.
Reproduced with permission of the Medical Outcomes Trust.

If you add any questions to it or embed it in a larger questionnaire, please give the larger questionnaire its own name and indicate the following in small type anywhere on the form including at the end: *This questionnaire includes the Sickness Impact Profile, item numbers X to Y in this questionnaire, Reproduced with permission of the Medical Outcomes Trust, Copyright © 1977, Johns Hopkins University.*

If for any reason you change the wording of any part of the Sickness Impact Profile, or delete any questions or responses, please do not refer to it as the Sickness Impact Profile. This is for purposes of standardization of content, scoring, and labeling. We wish to assure users that the designation Sickness Impact Profile refers to the identical instrument and scoring rules in all cases. This will allow comparison of scores across projects and applications.

If you have any questions about the materials you received, please contact MOT at 1-781-890-4884.

We wish you the best of good fortune in pursuing your goals in outcomes measurement. Please contact us if we can be of further assistance.

Respectfully,

Barbara Gandek

Barbara Gandek, M.S.
Acting Administrative Director

Enclosures

A non-profit 501(c)(3)
private corporation.

APPENDIX G

PHYSICAL ACTIVITY READINESS QUESTIONNAIRE (PAR-Q)

OCCUPATIONAL PERFORMANCE ANALYSIS UNIT (OPAU)
Department of Occupational Therapy
University of Alberta
Edmonton, Alberta T6G 2G4
(780) 492-9595 FAX 492-9599

Name: _____ Date: _____

PHYSICAL ACTIVITY READINESS QUESTIONNAIRE - PAR-Q*

Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor? _____ Yes _____ No

Do you feel pain in your chest when you do physical activity? _____ Yes _____ No

In the past month have you had chest pain when you were not doing physical activity? _____ Yes _____ No

Do you lose your balance because of dizziness or do you ever lose consciousness? _____ Yes _____ No

Do you have a bone or joint problem (eg. back, knee or hip) that could be made worse by a change in your physical activity? _____ Yes _____ No

Is your doctor currently prescribing drugs (eg. water pills) for your a blood pressure or a heart condition? _____ Yes _____ No

Do you know of any other reason why you should not do physical activity? _____ Yes _____ No

**[The above questions were adapted for use by OPAU from the Physical Readiness Questionnaire (PAR-Q), revised 2002, copyright Canadian Society for Exercise Physiology]*

FOR WOMEN: Are you pregnant? _____ Yes _____ No

Below, please list your prescription medications, if any:

Please also list any non-prescription medications / remedies you take:

Do you use: (circle any that apply)

glasses or contact lenses
hearing aid(s)
cane, crutches, walker, wheelchair, scooter
splint, insoles or other orthotic: _____
special pillow, back support or other: _____
assistive device(s): _____

2.

What is your height and weight? _____ HT _____ WT

Have you ever been knocked unconscious? _____ Yes _____ No

Have you previously sustained any ***serious injury*** for which you sought medical or other treatment? _____ Yes _____ No

Do you smoke? If yes, how much? _____ _____ Yes _____ No
Since what age: _____

Do you have any ***severe allergies***? _____ Yes _____ No
If so, please specify:

Do you have any of the following medical conditions:

mental health difficulties (eg. depression, anxiety)	_____ Yes	_____ No
high or low blood pressure	_____ Yes	_____ No
problem with your lungs or breathing (eg asthma)	_____ Yes	_____ No
endocrine disorders (eg. thyroid or hormone problems)	_____ Yes	_____ No
problem with your veins, arteries or lymphatic system	_____ Yes	_____ No
seizures or convulsions	_____ Yes	_____ No
diabetes	_____ Yes	_____ No
inflammatory disease (eg. rheumatoid arthritis; lupus)	_____ Yes	_____ No
problem with your blood (eg. anemia; bleeding)	_____ Yes	_____ No
problem with your stomach, bowel, or bladder	_____ Yes	_____ No
cancer	_____ Yes	_____ No
infectious disease (eg. TB, HIV, Hepatitis B, C)	_____ Yes	_____ No
connective tissue disease (such as Marfan's disease or Ehler-Danlos syndrome or similar	_____ Yes	_____ No
have you ever had surgery to your eye(s)	_____ Yes	_____ No

Do you have any chronic illness or condition? If so, please specify:

Please mention anything else you would like us to know about your health:

Please provide the name of your family doctor
or other current treating physician: _____

Phone number and / or address: _____
(if you know it)

APPENDIX H

OCCUPATIONAL PERFORMANCE QUESTIONNAIRE

OCCUPATIONAL PERFORMANCE ANALYSIS UNIT
Department of Occupational Therapy
1-78 Corbett Hall
University of Alberta
T6G 2G4
(780) 492-9595 FAX (780) 492-9599

OCCUPATIONAL PERFORMANCE QUESTIONNAIRE

NAME: _____ **DATE:** _____

Your date of birth: _____ Language(s) other than English:

Marital status:
____ never married
____ married (including common-law, partnered)
____ separated / divorced / widowed

Children: (please give their age and gender)

Please describe your living arrangements:
____ alone
____ with spouse / partner
____ with spouse / partner & children
____ single parent with child(ren)
____ with parents / relatives
____ with friend / roommate
____ with hired attendant

Type of accommodation:
____ house: style _____
____ apartment: no. of bedrooms ____
____ townhouse
____ acreage / farm
____ institution / group home / lodge
____ other (please describe)

When did you become injured or ill?

What is the nature of your injury or illness?

Do you have any other health problems?

SYMPTOMS:

What are the main problems or symptoms that you experience in your daily living activities?

____ pain (please complete the pain diagram on the next page)
____ headache
____ nausea
____ fatigue
____ dizziness
____ shortness of breath
____ "racing" heart
____ difficulty sleeping; ____ falling asleep
____ staying asleep
____ numbness / tingling
indicate body part: _____

____ sensitivity to environmental conditions
circle which one(s) fumes, dust, cold or hot weather, humidity, noise, light

____ mental / emotional symptoms (eg. memory loss, irritability, tearfulness)
please describe:

____ other: (please describe):

TREATMENT / THERAPY: Please list any treatment, therapy, or exercise, past and present.

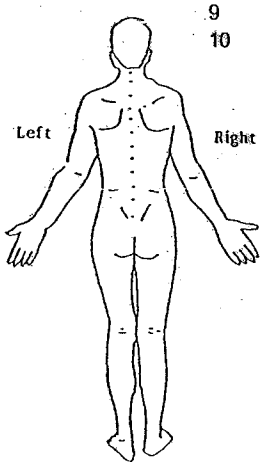
Past:	Present:

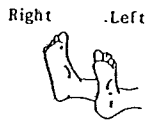
CURRENT PRESCRIPTION MEDICATIONS:

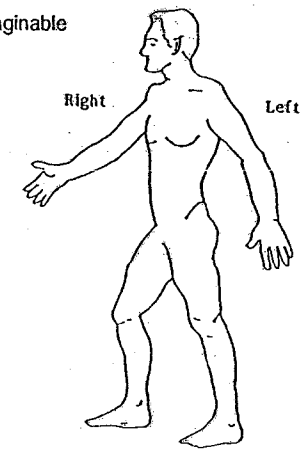
Drug name	Dosage prescribed / amount taken	How often

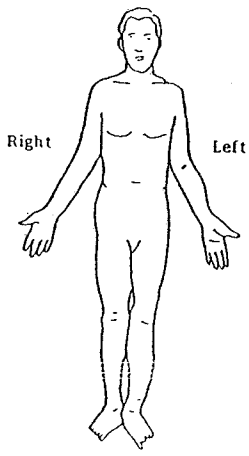
On the diagrams below, please shade in the areas where you have pain. Put a number from 0 to 10 beside each area you have shaded to indicate the usual intensity of pain in that area, using the following scale:

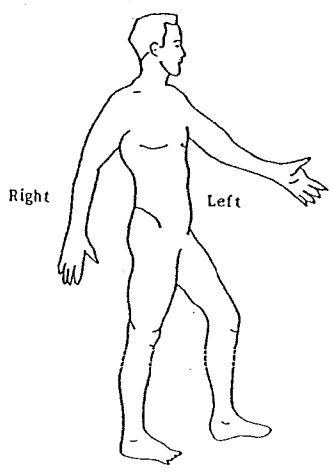
0	no pain
1	
2	mild
3	
4	
5	moderate
6	
7	
8	severe
9	
10	excruciating; the worst imaginable











PRODUCTIVITY:

What is your current employment status?

____	employed	____	full-time
		____	part-time
____	homemaker	____	volunteer / community worker
____	student	____	retired
____	disability leave	____	laid off
____	unemployed	____	social assistance / AISH

When did you last work?

CUSTOMARY OCCUPATION: Please answer this section if you are working, or would normally be working if you were not ill or injured.

What is your usual job or occupation? _____

Please list the main job duties of your usual occupation, indicating under the two columns which ones you find easy and difficult to do now:

Now easy, or only a little difficult to do	Now harder, or very difficult to do

What is the heaviest object that you might have to lift, carry, push or pull on a daily basis? How much does it weigh (your estimate)?

Have you worked in a different job since your injury / illness?

If you are not currently working, do you have a job to return to?

5

DIVISION OF HOUSEHOLD LABOUR:

Please indicate what percentage of the housework you did BEFORE your injury / illness and what percentage you do NOW.

Who provided help before? partner / child / parent / friend / hired help / no one
Who provides help now? partner / child / parent / friend / hired help / no one

	% done by you BEFORE your injury / illness	% done by you NOW
Cooking:		
meal preparation		
kitchen clean-up		
Housekeeping:		
tidy / dust		
sweep floors		
change beds		
laundry, ironing, folding		
clean bathroom		
vacuuming		
clean oven, fridge		
wash / wax floors		
wash windows/walls		
clean basement, garage		
Maintenance & repairs:		
interior maint., repair		
exterior maint., repair		
Other:		
cut grass		
remove snow		
gardening		
pet care		
Shopping:		
bills, lists, budget		
grocery shopping		
run errands		
Child care:		

On the following pages, please rate your independence in the tasks listed using the following rating scale:

INDEPENDENT

I = independent	You are able to do the activity in your customary manner; you are able to do it safely, without modification, assistive devices, or aids, and within the usual time.
MI = modified independence	One or more of the following are true: · it takes you more time than it did before · you do it in a different manner or less often · you use an assistive device to help you do the task · doing the activity without any assistance increases your symptoms.

PARTIAL ASSISTANCE

Min = minimal assistance	You rely on someone else to perform a small part of the overall task (eg. carry the laundry to the basement; carry grocery bags; put dry dishes away on higher shelves).
Mod = moderate assistance	You now require someone to work along with you or to finish about half of the task to get it done (eg. you wash the bathroom sink, mirror and counter, they do the tub and toilet).
Max = maximum assistance	Someone else now does most of the task but you still help out a little, or help once in a while.

DEPENDENT

D = dependent	Someone else now does the entire task **OR** You no longer do the task because of your limitations.

NOT APPLICABLE

NA = not applicable	This task is not applicable in your life (eg. the landlord at your apartment mows the grass).

Please use the "Comments" column if you want to provide additional details to further clarify your abilities and limitations.

I = independent: done the same
MI = modified independence

Min = a little assistance
Mod = moderate assistance
Max = lots of assistance

D = someone else does it now
OR it is no longer done at all
NA = not applicable to your life

SELF CARE:

TASK	RATING	COMMENTS
eating		
grooming		
take a bath / shower		
dressing upper body		
dressing lower body		
use the toilet		
bowel/bladder control		
use the phone		

List any equipment or services you have to assist your independence in this area:

STRUCTURAL BARRIERS:

TASK	RATING	COMMENTS
enter / exit home		
access living areas / rooms		
access basement		
access yard / garden		
use keys		
open doors / windows		
use stairs		
reach or use switch / outlet		
reach high / low shelves		

List any equipment or services you have to assist your independence in this area:

8

I = independent: done the same
MI = modified independence

Min = a little assistance
Mod = moderate assistance
Max = lots of assistance

D = someone else does it now
OR it is no longer done at all
NA = not applicable to your life

HOUSEHOLD WORK:

TASK	RATING	COMMENTS
meal prep, baking		
kitchen clean-up		
tidy / dust		
sweep floors		
change beds		
laundry, ironing, folding		
clean bathroom		
vacuum		
clean appliances		
wash / wax floors		
wash walls, windows		
clean basement, garage		
interior maintenance, repair		
exterior maintenance, repair		
cut grass		
remove snow		
gardening		
pet care		
bills, lists, budget		
grocery shopping		
run errands		
child care		

List any equipment or services you have to assist your independence in this area:

I =independent: done the same
MI =modified independence

Min= a little assistance
Mod= moderate assistance
Max= lots of assistance

D= someone else does it now
OR it is no longer done at all
NA=not applicable to your life

MOBILITY/TRANSPORTATION

TASK	RATING	COMMENTS
transfer to / from: bed toilet bath tub / shower chair car		
walk on level surface		
walk on rough surface		
walk on incline		
drive		
take the bus / airplane		

List any equipment or services you have to assist your independence in this area:

Do you currently hold a drivers licence? ___ yes ___ no

Please estimate your tolerance for:

driving: (time)	standing: (time)
walking: (time & distance)	sitting: (time)

LEISURE:
Compare the time you spend on your leisure activities before your injury / illness and now.

Circle and/or write in the names of your usual activities. Substitute any that are missing.	Frequency or hours BEFORE	Frequency or hours NOW
Sedentary activities:		
Watch TV, videos		
Read		
Listen to radio, music		
Computer, internet, video games		
Attend sports events		
Attend concert, theatre		
Go to movie		
Drives, outings, excursions		
Physical activities:		
Walk, hike, dance		
Team sport: (name)		
Individual sport: (name)		
Run, jog, cycle, swim laps		
Work out at gym		
Creative activities:		
Hobby, craft: (name)		
Carpentry, mechanics		
Art, music, drama: (name)		
Social activities:		
Pool, billiards, bowling		
Board games, cards		
How often do people come to see you?		
How often do you visit others?		
Seasonal: (circle / add yours) · golf · fish, hunt, camp · garden · travel (vacation) · boat, sail, canoe, water ski · ski, skate, snowmobile other:	**Frequency per season before**	**Frequency per season now**

11

HOW SATISFIED ARE YOU WITH THE FOLLOWING ASPECTS OF YOUR LIFE?

	(1) Very dissatisfied	(2) Somewhat dissatisfied	(3) Neutral	(4) Somewhat satisfied	(5) Very satisfied
Living arrangements					
Employment					
Financial situation					
Social life					
Sexuality					
General health					

What gives you the most satisfaction in your life?

Please describe any changes you have experienced in your spousal, family or social relationships.

What do you do when feeling upset, under stress or when having difficulty coping?

Who are you able to talk to, or from whom do you get emotional support?

Is there anything else you would like us to know about you?

Do you have any questions?

revised 02 Jan 2001