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## Relationships Among Occupation/Activity Patterns, Health and Stress Perceptions, and Life Orientation in Well Adults

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# Relationships Among Occupation/Activity Patterns, Health and Stress Perceptions, and Life Orientation in Well Adults

## Abstract

**Background:** This study examined the relationships among activity choices, perceived health, stress, and life orientation (optimism-pessimism) in a general population of 675 healthy adults ranging in age from 18-91 years. The objective was to examine assumptions that occupational scientists and practitioners hold regarding the relationships among health factors and engagement in activities/occupations.

**Method:** The study used four self-report measures, including a customized activity card sort that asked participants about both healthy and unhealthy activity patterns. Responses were then compared with the participants' perceptions of overall health, stress levels, and degrees of optimism and pessimism (life orientation).

**Results:** Major findings confirmed that being engaged in more activities overall is aligned with more optimally perceived health, positive life orientation, and lower stress. However, participation in unhealthy activities negatively affected overall health, stress perception, and life orientation. The study also confirmed that women tend to have higher perceived stress than men and that caring for others is associated with more positive health ratings.

**Conclusion:** The amount and type of activity participation appears to matter for even healthy individuals in terms of overall health, stress perception, and life orientation. This study confirms the importance of participating in a wide repertoire of activities and underscores the need for practitioners to ask clients about engagement in unhealthy activities as well as healthy ones.

## Comments

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## Keywords

Occupation, Participation, Stress, Health

## Cover Page Footnote

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## Credentials Display

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The occupational science and therapy literatures consistently articulate assumptions about how participation in life activities and occupations affect health (Stav, Hallenen, Lane, & Arbesman, 2012; Wilcock, 2006) and how we might shape interventions for our clients accordingly. However, the various forms of occupational engagement that promote or harm health have not yet been clearly and fully documented in the occupational therapy literature (Eklund & Leufstadius, 2007; Reid, 2008). Law, Steinwender, and Leclair (1998) have commented that there is insufficient occupational therapy evidence examining the complex, multi-faceted dynamics of participation, occupation, and health. Law (1998) further noted that, while there are clearly articulated associations among occupation, health, and well-being within and outside of the occupational science and occupational therapy literatures, there is little research that systematically investigates potential relationships among these variables within our own profession. Few, if any, studies within occupational therapy and occupational science have investigated the full spectrum of positive to less-than-positive occupations to determine potential relationships among occupation choices and (a) health and illness, (b) perceived stress, and (c) life orientation.

Of note, the literature lacks consistency in occupational taxonomy, and the terms “activity” and “occupation” are frequently used interchangeably. Activities are generally described as goal-directed human actions, while occupations are defined as goal-directed sets of activities that typically extend over time and have embedded

meaning in the performance. Zemke and Clark (1996) eloquently described this as “chunks of daily activities that can be named in the lexicon of the culture . . .” (p. iiiiv). Although most practitioners and researchers agree with these definitions, there are difficulties delineating activities and occupations, because an activity for one individual has the potential to be construed as an occupation by another. For the purposes of this paper and study, we describe our variables of interest as “activities” and used the term “occupation” when speaking more broadly.

## **Background**

### **Health, Stress, and Life Orientation**

**Health.** The World Health Organization (WHO, 2001) has a conceptual model of health and the provision of health services: the International Classification of Function, Disability and Health. This model integrates the interactions of body functions with an individual’s capacity, performance, and participation as they are influenced by individual and environmental factors. Implicit in this definition is the belief that health and the ability to engage in life are not solely related to the absence of injury or illness. Even the healthiest of people will sometimes engage in unhealthy behaviors. However, literature published in other professions (e.g., psychology) suggests that unhealthy behaviors tend to coexist as clusters within a person’s life, rather than as occasional isolated behaviors (Kvaavik, Batty, Ursin, Huxley, & Gale, 2010).

**Stress.** In the literature, stress emerges as a major contributor to poor health (Wilcock, 2006).

Stress can present as either an acute, short-lived, adaptive response to challenges or as a more enduring, chronic state in which individuals perceive burden over extended periods of time. This latter form is often referred to as either allostatic load or chronic stress (McEwen, 2002). Chronic stress has been linked to negative health effects, including changes in the immune system and greater susceptibility to illness (McEwen, 2002). Further, chronic stress has been recognized as mediating relationships in occupation participation and health/well-being (Wilcock, 2006). High levels of perceived chronic stress combined with decreased perception of control have been thought to compromise both participation and performance; they may affect how individuals prioritize activities (Wilcock, 2006). Finally, chronically high stress perception may limit participation in nonessential occupations and have adverse health outcomes, including increased sedentary activity (Csikszentmihalyi, 1997; Wilcock, 2006).

**Life orientation.** Life orientation (i.e., optimism-pessimism) has also been shown by researchers to have a role in health and life occupation choices (Lench, 2011). For example, greater physical health, more robust immunity, and participation in more health-related activities have all been found to be strongly related to an optimistic life orientation (Rasmussen, Scheier, & Greenhouse, 2009). In a study by Carver, Scheier, and Segerstrom (2010), positive life orientation emerged as a predictor of good health and participation in positive, health-oriented behaviors.

Similarly, optimism appeared to mediate individual coping and recovery from illness and trauma in a study by Scheier, Carver, and Bridges (2001). Further, life orientation may have health benefits by affecting an individual's ability to engage and connect with others in social occupations. Thus, significant research in this area suggests that an optimistic orientation is related to connectivity with others; to participation in healthier lifestyle choices; and to healthier, more robust immune systems (Carver et al., 2010).

### **Participation of Healthy Individuals**

It is important for practitioners to understand the influences of occupational participation on stress and life orientation because both relate to how well clients will respond to therapy interventions and recover. Occupational therapy research investigating the relationships among health variables and participation in meaningful occupations has focused predominantly on populations of individuals with disabilities and/or those with an illness or who are aging (Clark et al., 1997; Katz, Karpin, Lak, Furman, & Hartman-Maeir, 2003). This focus reflects our interests as occupational therapy practitioners in better understanding how aging, disabilities, or chronic illness shape occupation participation. However, less often studied are occupation participation patterns in healthy, well adults across the lifespan, especially regarding participation in activities across both desirable and less desirable (i.e., unhealthy) dimensions.

Those who have studied these relationships in healthy populations have discovered that having

a variety of experiences and successfully managing daily occupations both have positive effects on the perceived health of participants (Håkansson, Lissner, Björkelund, & Sonn, 2009). This is especially true for leisure occupation participation in younger and older adults (Kirk & Rhodes, 2011) and for participation in social occupations (Stav et al., 2012). However, in preparation for this study, no studies were identified that investigated unhealthy occupational patterns in healthy adults and their relationships to stress, life orientation, and health. A strengthened understanding of these relationships would reinforce the assumptions that practitioners apply when asking clients to engage in a broader spectrum of occupations, giving practitioners more insight into how stress and life orientation shape occupational engagement.

### **Measuring Participation in Daily**

#### **Activities/Occupations**

Occupational therapists have a variety of methods available for measuring participation in various activities and occupations (e.g., interviews, direct observations, personal diaries). However, most of these methods do not lend themselves easily to large-scale studies of community-based healthy individuals (Erlandsson & Eklund, 2001). One possible measurement tool for large studies is an activity checklist, such as the Modified Interest Checklist (Kielhofner, 2002). Another measure that has been developed to measure occupation choices and level of participation is the Activity Card Sort (ACS) by Baum and Edwards (2008). The ACS has three versions in the second edition: one for clients in an institutional setting, one for older adults in the

community, and a version designed as a measure of recovery (Baum & Edwards, 2008). This standardized instrument uses a Q-sort method to reliably gather information about individual occupation participation patterns for older adults.

The ACS has been studied extensively as it has been utilized with persons with a disability or illness. Studies have included individuals with Alzheimer's disease and multiple sclerosis (Katz et al., 2003), recipients of bone marrow transplants (Lyons, Li, Tosteson, Meehan, & Ahles, 2010), and caregivers of individuals with Alzheimer's disease (Katz et al., 2003). The ACS has been used to a limited extent with college students and more extensively with well adults in a number of countries (Baum & Edwards, 2008). However, although the ACS was attractive for the research study described in this paper, the standard photos and activities did not address both the breadth of ages and scope of activities/occupations desired. As a result, a modified version was developed. We did not conduct a separate validity and reliability study with this modified card sort. Instead, we assumed that since we used the same sorting methods and similar, though expanded, activity options, the previous validity and reliability studies would apply in principle.

#### **Purpose of Study**

The study of occupational participation in well persons and the potential effects on their health and stress contributes important information to conceptual models upon which prevention, wellness, and intervention programs are founded. However, unhealthy occupations are rarely included

in the study of occupational participation within our profession, and there are no baselines of these relationships in healthy individuals. The purpose of this study was to identify possible relationships among participation in both healthy and unhealthy occupations and overall health, stress, and life orientation in healthy individuals. To study potential relationships among these variables, we recruited a sample of well adults living in the United States. Using categories based on the language of the American Occupational Therapy Association's (AOTA, 2008) practice framework about areas of occupation and an additional area, unhealthy activities, our study examined the following questions:

- What are possible relationships among perceived stress, perceived health, and optimism/pessimism orientations in the sample of adults studied?
- What are the potential relationships among level of participation in specific activity categories, including unhealthy ones, and (a) health perception, (b) life orientation (optimism/pessimism), (c) stress perception, (d) gender, and (e) age?

## Method

### Participants

The study was approved by the University of New Hampshire Institutional Review Board for the Protection of Human Subjects. During a two-year period (Fall 2008-Spring 2010), using convenience sampling methods, the authors and 60 occupational therapy graduate students recruited adult participants (N = 675) from our respective social networks (i.e., family, co-workers, friends, acquaintances). Graduate students were asked to share referrals as much as possible, so that the likelihood one would assess someone they knew was slim. Further, assessment procedures were conducted in such a way as to keep participant responses private from the person assessing (as described below). Eighty percent of the participants were from the New England area, with the remaining from other areas within the United States. All participants were English speaking, self-identified as “well,” and were living independently in their respective communities. The demographic characteristics of the participants are shown in Table 1.

**Table 1**

*Participant Demographics (N = 675)*

Gender	Age	Average Income	Race
Males = 261 (39%)	Total sample, 18-91 years (Mean = 35 years; SD 16.7)	\$55,000 (range 15,000 – 100,000+)	94% White
Females = 414 (61%)	18-25 years, n = 328 (48%). Of these, 37% (n = 252) were college undergraduate/graduate students.		6% African American, Asian, or Latino/a
	25-59 years, n = 295 (44%)		
	60-91 years, n = 52 (8%)		

## Tools and Procedures

Three questionnaires and one assessment instrument were used to collect data in the study.

**Perceived Stress Scale.** To assess participant stress perception, the Perceived Stress Scale (PSS) (Cohen & Williamson, 1988), a 10-item questionnaire about personal stress perception, was administered. Higher composite scores reflect higher levels of perceived stress. This scale has been used extensively in psychology, health, and stress research to measure an individual's perception of his or her daily stress level. Normative expectations are available across adult ages, gender, and life stages (Cohen & Williamson, 1988; Roberti, Harrington, & Storch, 2006).

**Health questionnaire.** A health questionnaire designed specifically for this study included questions about an individual's perception of his or her health, as well as the number of health concerns in the last six months (e.g., frequency of colds, illnesses, and doctor visits). Health perception was based on a Likert-type scale of 1-10, with the highest value representing optimal health. In addition, we tallied the number of reported doctor visits and illnesses for each participant, generating a separate variable. This questionnaire also included demographic information, such as gender, marital status, and combined family income.

**Life Orientation Test-R.** The Life Orientation Test-R (LOT-R) (Scheier, Carver, & Bridges, 1994) assesses a general tendency toward optimistic/pessimistic perspectives. Scores for both of these tendencies were used in analyses. The

LOT-R questionnaire has been used extensively in studies across cultures and age ranges (Herzberg, Glaesmer, & Hoyer, 2006; Moyer et al., 2009) that support the tool's psychometrics in reliably and validly capturing an individual's tendencies toward one perspective over the other.

**UNH-Lifespan Activity Card Sort.** The UNH-Lifespan Activity Card Sort (UNH-LACS - unpublished) is a modified version of Baum and Edwards' ACS (2008), offering 85 activities with updated photographs. Similar to the ACS, the UNH-LACS requests that individuals sort their activity choices into participation frequency. The UNH-LACS includes a wider range of activities that are representative across the lifespan than the original ACS. The UNH-LACS includes an expanded range of physical-active leisure activities, more Internet-related activities (e.g., social media), and an added list of unhealthy activities. To keep the number of cards manageable, daily self-care activities, such as grooming, brushing teeth, and bathing, are collapsed into one subcategory.

This modification was discussed with, and received the verbal permission of, the original author (personal communication with C. Baum; April, 2010). Face validity of the expanded list of activities was established by reviewing the literature for frequent adult activities (Håkansson et al., 2009). The administration and frequency of participation levels remained consistent with the ACS (Baum & Edwards, 2008).

As part of the modification process, graduate occupational therapy students in a research course generated lists of both healthy and unhealthy

activities. We added an activity to the master list if at least three students submitted it. We also collapsed similar activities (e.g., participating on Facebook, texting, phone calls) into broader

descriptors when appropriate. Table 2 contains a complete list of the 85 activities utilized in the UNH-LACS.

**Table 2**  
*UNH- LACS Card Sort Activities by Category*

Physical-Active Leisure (n = 31)	Low-Active Leisure (n = 14)	Unhealthy Activities (n = 13)	Care of Self/ADLS-IADLs (n = 13)	Care of Others/IADLs (n = 4)	Social Face to Face and Virtual (n = 10)
Water skiing	Watching TV	Under eating	Sexual activity with partner	Volunteering	Visiting with friends
Walking	Playing	Excessive drinking	Resting	Teaching	Going to a Pub or bar with friends
Photography	computer/video games	Use of crack or cocaine	School/education/ studying for personal advancement	Caring for a child/parent	Discussing current events/ philosophizing
Hiking	Recreational reading	Use of amphetamines (ecstasy, speed, etc.)	Home maintenance	Caring for a pet	Family dinner/gathering
Canoeing/kayaking	Fishing	Risky sex (without protection)	Partner in a committed relationship		Going to a party
Group fitness e.g., spinning, yoga...	Reading the newspaper	Excessive caffeine	Cooking meals (necessity)		Going to a place of worship
Ceramics	Attending a sporting event	Excessive inactivity	Doing dishes		Playing cards or a board game
Playing a musical instrument	Going to the beach	Overeating or bingeing	Doing laundry		Dining out
Going to a gym	Going to a concert	Use of tobacco products	Driving		Entertaining
Playing tennis, or similar sport	Going to a movie theater	Cannabis use (e.g. pot, hash, etc.)	Shopping (necessity)		Using a computer for communication (e.g., texting, Face book, MySpace, talking on the telephone)
Gardening	creative writing	Use of methamphetamines (e.g. crystal meth)	Paying bills		
Recreational shopping	Meditating	Use of opiates (e.g. heroin, etc.)	Seeking personal care services (hair, nails, massage, etc.)		
Dancing	Sitting and thinking	Misuse (taken in ways not prescribed) of prescription drugs (e.g. Ritalin, Oxycontin, Klonopin, Adderall, Codeine, Percocet, Demerol, Valium, etc.)	Self-care activities (e.g. grooming, etc.)		
Bowling	Using a computer				
Bicycling	Listening to music				
Doing crafts/activities for pleasure					
Martial Arts					
Painting or drawing					
Skiing or Snowboarding					
Snow Shoeing/Cross Country Skiing					
Team Sports					
Singing					
Traveling					
Sailing/Boating					
Drawing					
Ice-skating					
Swimming					
Camping					
Horseback riding					
Running/jogging					

Prior to collecting the UNH-LACS participant data, seven independent variables were created from the card sort choices by sorting occupation patterns into seven categories: (a)

physical-active leisure, (b) low-active leisure, (c) unhealthy activities, (d) care of self/ADLS-IADLs, (e) care of others/IADLs, (f) social face-to-face and virtual, and (g) total number of activities. The first

author and seven faculty occupational therapy colleagues independently coded all 85 activities to establish consensus in “best fit” for the first six categories. Any initial disagreements in category placement were reconciled by discussion and majority vote.

### Data Administration Process

Graduate students were trained to administer the UNH-LACS and questionnaires. To reduce bias and to protect privacy, students were encouraged to perform the card sort with persons they did not know or to whom they were not related.

Participants were assessed in their homes or at a location of their choosing (e.g., coffee shop). The completed questionnaires were assigned a code and no personally identifying information (e.g., names, addresses) was collected. Passive consent (no signature) was collected after the participants read the study consent form.

Each participant sorted the cards alone by frequency of participation based on seasonal expectations. Each card had a code on its back, and respondents were instructed to place their cards face down when answering. To protect participant privacy in responding, once the card sort was completed, the researcher (without looking at them) shuffled the cards in each frequency category and recorded the cards’ codes from the back without looking at the pictures. Frequency of participation options included: (a) often, defined as daily or at least once per week; (b) fairly often, defined as at least twice per month; (c) done but not often, defined as once per month or less; and (d) not done or done only on occasion. Categories for “wish to

do something,” “have done something previously and would like to resume,” and “no interest to ever participate” were included but not assessed in this study.

### Data Analyses

Questionnaire data were scored, checked, and entered into PASW Statistics 18, Release Version 18.0.0 (SPSS, Inc., 2009, [www.spss.com](http://www.spss.com)). We conducted MANOVA and correlation analyses using SPSS. Once these analyses were completed, we conducted a regression analysis using SAS (SAS Institute Inc., 2010) to determine if significant relationships remained among the dependent variables of interest (stress perception, health perception, optimism, pessimism) and each independent variable, controlling for other variables.

### Results

First, we conducted a descriptive analysis of the health perception variable before entering it into further analyses. This was to ensure that there was an adequate range of responses in the sample. We found a strong correlation in the expected direction between the health perception value and the number of reported health concerns ( $r = -.571, p < .001$ ). As a result, we elected to conduct all further analyses using only the health perception value. Responses represented perceptions across both ends of the health perception measure, although they were slightly skewed overall toward more positive health perceptions in the sample. Responses for the entire sample on the health perception measure ranged from 1-10 ( $mean = 7.8, SD = 1.49$ ). Fourteen percent of participants ( $n = 95$ ) reported

six or below on the scale, while 32% reported nine or higher ( $n = 216$ ). The remaining 54% ( $n = 364$ ) of participants reported seven to eight on the scale. These findings fit within our general expectations for well adults.

Second, we created a participation frequency variable for each category in the UNH-LACS based on tallying the number of activities that a participant reported doing within a category at least twice per

month or more (defined as “often” or “fairly often”).

Third, we used these UNH-LACS participation frequency variables by category for analyses with the four dependent variables obtained from the three questionnaires: (a) perceived stress, (b) optimism, (c) pessimism, and (d) perceived health (see Table 3).

**Table 3**

*Statistically Significant Correlations Among Activity/Occupation Patterns, Perceived Stress, Life Orientation, Perceived Health, and Age*

	Perceived Stress	Optimism	Pessimism	Perceived Health	Age
Physical- Active Leisure				.188***	-.269***
Low-Active Leisure					-.221***
Unhealthy	.209***	-.124***	.219***	-.144***	-.280***
Self-Care/ADLs-IADLs	.116***			.101**	
Care of Others/IADLs	.125***			.133***	
Social					-.462***
Total # (excluding unhealthy)			-.103**	.173***	-.344***
Age		.135***		-.076*	
Perceived Stress		-.449***	.444***	-.275***	
Optimism			-.502***	.247***	
Pessimism				-.270***	

Note.  $N = 675$ ; Pearson's  $r$ : \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Several significant relationships were identified, including associations among activity types and stress, age, health, and life orientation. Of note, participation in physical-active leisure activity appeared to be associated with higher perceived health, and participation in a higher number of activities overall (excluding unhealthy

ones) seemed associated with a tendency for lower pessimism and higher perceived health. Further, unhealthy occupation participation was associated with increased stress and pessimism and also lower health perception. Age was associated with lower participation in all occupation categories, including the overall number of activities, both healthy and

unhealthy, except for self-care and care of others. Age also was associated with slightly lower perceived health and higher optimism. Optimism, on the one hand, was strongly and negatively correlated with perceived stress and positively correlated with health perception. Higher reported pessimism, on the other hand, was highly correlated

with higher stress perception, while negatively correlated with optimism and health perception.

To address whether gender differences existed among variables, a MANOVA was performed to identify potential differences between gender and the variables of interest. The results are shown in Table 4.

**Table 4**

*MANOVA: Gender Differences in Activity/Occupation Patterns, Life Orientation, Perceived Stress, and Perceived Health*

	Male <i>n</i> = 261 Mean ( <i>SD</i> )	Female <i>n</i> = 414 Mean ( <i>SD</i> )	Total Sample <i>N</i> = 675 F; <i>p</i> -value
Physical-Active Leisure	4.57(3.27)	5.44(3.17)	10.21, <i>p</i> = .001
Low-Active Leisure			<i>Ns</i>
Unhealthy Activities	1.62(1.75)	1.28(1.48)	6.69, <i>p</i> = .01
Self-care/ADLs-IADLs			<i>Ns</i>
Care of Others/ IADLs	7.02(2.03)	8.22(2.15)	45.90, <i>p</i> = .000
Social			<i>Ns</i>
Total # Activities (excluding unhealthy)	26.10(6.93)	28.43(6.97)	15.62, <i>p</i> = .000
Optimism			<i>Ns</i>
Pessimism			<i>Ns</i>
Perceived Stress	13.62(6.40)	16.45(7.12)	23.91, <i>p</i> = .00
Perceived Health			<i>Ns</i>

Gender differences were found on several variables, including perceived stress. Further, gender differences were identified in several occupation categories, including unhealthy activities, caring for others, physical-active leisure, and the total amount of participation in all activities. The results suggested that males had a slightly increased tendency to participate in unhealthy activities when compared to females. In contrast, females appeared to participate in more physical-active leisure and care of others activities, as well as in a higher amount of total activities overall.

Females also reported higher stress perception in comparison to males.

To analyze the extent to which the above correlations remained significant among the independent (IV) and dependent variables (DV) once age was controlled, we ran an ordinary least squares (OLS) regression analysis using SAS. This allowed us to analyze each independent variable's unique contribution to the DV apart from any influence of age. The results are presented in Table 5.

**Table 5***Ordinary Least squares (OLS) Regression Analysis Among the Independent (IV) and Dependent Variables (DV)*

Dependent variables	Perceived Stress		Perceived Health		Optimism		Pessimism	
	Estimate	Sig	Estimate	Sig	Estimate	Sig	Estimate	Sig
Physical-Active Leisure	-.331	ns	.044	ns	.009	ns	.055	ns
Low-Active Leisure	.135	ns	-.103	**	-.008	ns	.004	ns
Unhealthy Activities	1.07	***	-.175	***	-.205	**	.462	***
Self-Care/ADLs-IADLs	.061	ns	.025	ns	-.025	ns	.104	ns
Care of Others/IADLs	-.153	ns	.185	*	.054	ns	-.044	ns
Social	-.635	**	-.114	ns	.012	ns	.015	ns
Total # Activities	.195	ns	.053	ns	.052	ns	-.105	ns
Gender (Females)	2.85	***	-.152	ns	-.513	*	.27	ns

Note. N = 675; Adjusted R<sup>2</sup> = .017; Model F = 2.32 (9), p = .014; \*\*\* = p < .001 \*\* = p < .01 \* = p < .05

Several relationships remained, associating participation in unhealthy activities with higher stress perception, lower health perception, lower optimism, and higher pessimism. Further, participation in more social activities emerged as associated with lower perceived stress. Caring for others remained positively associated with health perception. Of interest, those individuals perceiving themselves as most healthy reported less participation in sedentary (low- active leisure) activities. The results also suggested that women continued to show significantly higher stress perception than did men, and a slightly lower trend in optimism.

### Discussion

In shaping interventions thoughtfully with clients to enhance and maintain their health, it is essential that occupational scientists and

practitioners understand how both healthy and unhealthy occupation patterns manifest in well people and how occupation participation aligns with health, stress, and life orientation. Although we have well-established conceptual links that shape our practices (Wilcock, 2006), most research has been conducted in other disciplines (Law et al., 1998). While there is a need for well-designed studies to explore relationships among occupational participation and health outcomes, to date we have not fully explored these among broad occupational choices, including unhealthy ones, in healthy individuals. The latter was the intent of this study, making it one of the first in occupational therapy to explore associations among a wide array of human activities and activities associated with health, stress, and orientations toward optimism and pessimism.

We found interesting and confirmatory relationships among perceived stress, perceived health, optimism, and pessimism. As noted, our perceived health scale correlated strongly with participants' notations of colds, flu, and doctors visits during the past six months. Our findings confirmed that individuals who have higher stress perception likely experience more health complaints and accurately perceived their health status to be lower when compared to others who had lower stress perception. Moreover, our findings confirmed the important role that optimism has on health, as noted by others (Rasmussen et al., 2009; Steptoe, Wright, Kunz-Ebrecht, & Iliffe, 2006). Conversely, we noted that pessimism and higher stress perception were linked. Since many scientists and practitioners are concerned with stress management, these findings suggest it may be helpful to better understand each client's life orientation prior to collaborating on interventions. Addressing and shaping one's life orientation perspective prior to occupational participation can enhance benefits from participation, much like a hand therapist would prepare a client for activities through preparatory modalities.

Significant findings between activities and other variables were discovered, many of them confirming practitioners' assumptions. There were associations between unhealthy activities and increased stress perception, as well as decreased health perceptions and decreased optimism. Associations also were found between participating in physical-active leisure activities and higher perceptions of health. Participation in more life

activities overall (with the exclusion of unhealthy activities) was associated with decreased pessimism and good health in our study. Age also was associated with decreased participation in activities overall (including unhealthy activities), with the exceptions of self-care activities and activities that involved care for others. Further, age was associated with a slightly decreased perception of health, but with increased optimism. These findings are important to occupational scientists in further establishing the influence that activities have to our overall perceptions of health and well-being.

Men's and women's occupational participation patterns, stress perceptions, and health perceptions were mostly similar, with the exception of a few noteworthy gender differences that emerged among variables. The results of the MANOVA suggested that women in the sample reported higher stress perception than did males. This trend also emerged in the regression analysis once other variables were controlled, and is consistent with other research (Cohen & Williamson, 1988; Cohen, Kamarck, & Mermelstein, 1983; Marin et al., 2012; Matud, 2004). In this sample, women reported greater participation in several occupation categories, including caring for others, physical-active leisure, and total number of activities overall. Caregiving participation is not surprising, given the wide literature that points to women being primary caregivers. We also had an active, young, female majority who participated in a variety of sports and outdoor leisure activities. This robust participation in both physical-active leisure and caregiving likely

contributed to the overall higher number of activities in which women participated when compared to the men. Of interest is that most correlations among variables were no longer present in the regression analysis except perceived stress, which strongly remained.

The correlation analyses and subsequent regression suggested that some variables, such as the total number of activities and physical-active leisure, might be influenced by other variables, making correlations a superficial analysis in this study and perhaps in other similar ones. The regression analysis pointed to three primary findings that underscore the importance of this study.

First, women tend to carry and perceive more stress than men. Clinically, this implies that while stress assessment should be part of client assessment overall, it is especially important for female clients. As noted, recovery and health related to stress perception is a theme that runs consistently throughout the literature.

Second, caring for others is linked with better health perception. This, of course, might be interpreted as a tendency to be a caregiver if one is a healthier person. However, one might also infer that caregiving by choice offers a health benefit of sorts. The type of caregiving about which we asked was not necessarily burdensome; we asked about caregiving for pets and children, for example.

Third, in healthy well adults, participation in unhealthy activities seems to matter in relation to life orientation (pessimism and optimism), stress perception, and health. The last finding confirmed

what we assume is important for occupational therapy researchers to consider—especially as health care professionals more frequently work in community-based health and wellness programs. If we are to believe, as the literature suggests, that stress perception, optimism, and pessimism are important contributors to overall health, then it behooves researchers and practitioners to ask about a breadth and range of occupational participation (both positive and unhealthy) as we study relationships among health and occupational participation or plan interventions with clients.

### **Limitations**

An important aspect of the instrument (UNH-LACS) that was used in this study is the introduction to practitioners of a systematic way to comprehensively evaluate self-reported participation in both healthy and unhealthy activities using a card-sort method. A comprehensive profile of participation that may either positively or negatively influence recovery and health status may be helpful when designing interventions or conducting research. However, care must be taken in clinical and research settings when asking about illegal activities and personal sexual behavior to ensure that they are relevant to the setting, privacy regulations, and the client's intervention. This factor was taken into consideration during this study. However, some underlying, unknown distortion of the data might have occurred in the participants' self-reported responses.

Another potential study limitation was that the convenience sample in the Northeast part of the

United States had a majority of White, middle-class participants. The sample also had proportionally fewer adults over 60 years of age. Future studies should expand sample diversity through random selection. Another limitation was that some of the tools used (e.g., custom health questionnaire and UNH-LACS) are in need of further psychometric analyses. Insufficiencies in these tools may have influenced internal validity.

Finally, the measures used were self-reported. However, we noted indicators to suggest that our participants were similar to other research studies. For example, all respondents were within one standard deviation for their age groups on the optimism/pessimism scales. Also, on the stress perception scale, women reported higher values than males, as expected (Marin et al., 2012; Scheier & Carver, 1993).

## **Conclusion**

While this is a descriptive study, this research nonetheless moves to the foreground the ongoing discussion of occupational participation and its relationship to health and well-being, while underscoring the need to consider unhealthy activities as part of a person's occupational profile. Further research directions could include establishing stronger psychometric properties for assessments that target occupational participation patterns; exploring life orientation, occupational patterns, and health and stress perception in persons with chronic health care needs and/or disabilities; and conducting intervention studies that can document the transformative power of occupational participation in both health prevention and rehabilitation programs.

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