JOB SATISFACTION OF INJURED AND NON-INJURED HOSPITAL EMPLOYEES AS MEASURED BY THE MINNESOTA SATISFACTION QUESTIONNAIRE (MSQ)

by

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There is a current focus on job satisfaction and how it is related to occupational injury, specifically musculoskeletal disorders (MSD) since they are the most common injuries employees experience. Job satisfaction has been defined as an employee's satisfaction with the reinforcers found on the job (Weiss, Dawis, England, & Lofquist, 1967). Numerous reinforcers exist, but the Minnesota Satisfaction Questionnaire (MSQ) has been developed to measure what has been found to be most involved in gauging employees' level of job satisfaction.

This study attempted to compare the job satisfaction of hospital employees with a history of occupational MSD to their non-injured counterparts. Problems with recruitment, which resulted in a small study sample, forced the specific aims of this study to be modified. The findings showed only a few areas of statistically significant difference between groups of employees in levels of satisfaction for the 21 attributes measured by the MSQ. These findings, however, must be viewed with caution because of the small sample size and subsequent subgroups used for the analyses. Two of the subscales of the MSQ were found to be correlated with age. Isolation of the dissatisfied employees did not indicate that history of MSD was affecting the satisfaction scores of any of the attributes.

Results of this study may be useful for rehabilitation counselors working with individuals who are working with individuals who have, or are interested in, careers in healthcare. The attributes seen as high and low satisfaction areas for the study sample may carry over to the general

population of healthcare workers, giving some insight into what the client values as important in a job. Differences found between groups may have clinical significance, alerting a counselor to focus more on these areas with certain individuals. Information gained from this study can also assist with the formulation, or modification, of an employee return to work program to increase the chances for a successful return to work.

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1. INTRODUCTION

The study of variables that influence workers' compensation claims has evolved over the years (Gice, 1995). The current focus is on job satisfaction and its role in the compensation process. Job satisfaction has been defined as an employee's satisfaction with the reinforcers found on the job (Weiss, Dawis, England, & Lofquist, 1967). Research has demonstrated that measurement of job satisfaction includes variables such as: autonomy (Chandra, Bush, Frank, & Barrett, 2004; Gice, 1995; Janssen, Peeters, de Jonge, Houkes, & Tummers, 2004; and Spence Laschinger, Rinegan, & Shamian, 2001); consultation with supervisors and decision making with peers (Campbell, Fowles, & Weber, 2004); and working conditions (Janssen et al., 2004; Spence Laschinger et al., 2001; Taylor & Weiss, 1972; and Yassi et al., 2004).

Job satisfaction has also been used to predict events such as: the reporting of low back injury claims (Gice, 1995); tenure and absenteeism (Campbell et al., 2004; Chandra et al., 2004; Taylor & Weiss, 1972; and Yassi et al., 2004); perceived risk for injury (Huang, Chen, Rogers, & Krauss, 2003); and musculoskeletal disorders (MSD) (NIOSH, 1997). Researchers have also found rates of return to work to be associated with job satisfaction (Ekbladh, Haglund, & Thorell, 2004; Fisher, 2003; Krause, Dasinger, Deegan, Rudolph, & Brand, 2001).

MSD are the most common injuries employees experience, and, concomitantly, cost employers more than any other occupationally related disorder (Marin, Irvine, Fluharty, & Gatty, 2003). Before the work environment for these employees can be improved, further research regarding job satisfaction of individuals with occupationally related MSD is needed. Results of job satisfaction measures could be incorporated into an employee's return to work program as a

form of job maintenance, with the hopes of increasing tenure and attendance and decreasing risk for re-injury.

1.1. BACKGROUND

In the United States, studying the underlying cause of workers' compensation claims first began when insurance coverage became available to workers. Research has progressed from focusing on demographic variables, to health factors, to psychological factors, to job stress and job satisfaction. Current research shows that job stress is related to compensation claims involving work related psychological disorders. Job satisfaction, or rather, job dissatisfaction, is related to physical injuries sustained in the workplace. (Gice, 1995)

The Theory of Work Adjustment, which was borne from the University of Minnesota's Work Adjustment Project conducted in the 1960s and 1970s, has defined job satisfaction as an employee's satisfaction with the reinforcers found on the job (Weiss et al., 1967). While numerous reinforcers exist, the Work Adjustment Project chose only a small proportion on which to focus research efforts for the development of the *Minnesota Satisfaction Questionnaire* (MSQ). These included: ability utilization, achievement, activity, advancement, authority, company policies, compensation, co-workers, creativity, independence, security, social service, social status, moral values, recognition, responsibility, supervision-human relations, supervision-technical, variety, and working conditions (Weiss et al., 1967). These 20 facets cover a broad range of the potential reinforcers an individual experiences in the workplace.

Several studies have documented examples of the domain of job satisfaction measured by the MSQ. An increased sense of autonomy has been cited as important in obtaining high levels of job satisfaction (Chandra et al., 2004; Gice, 1995; Janssen et al., 2004; and Spence Laschinger et al., 2001). The ability to consult with supervisors and become involved with peers

during decision-making has also been linked to higher levels of job satisfaction (Campbell et al., 2004). In populations of nurses, working conditions, specifically job strain, has been credited with higher levels of job dissatisfaction (Janssen et al., 2004; Spence Laschinger et al., 2001; Taylor & Weiss, 1972; and Yassi et al., 2004).

Job satisfaction can be used as a predictive measure. Two very large studies conducted at the Boeing Company found job dissatisfaction to be significantly correlated with the reporting of low back injury claims; history of prior low back injury was the only other factor predictive of low back injury in this population (Gice, 1995). Measures of job satisfaction are also related to tenure and absenteeism (Campbell et al., 2004; Chandra et al., 2004; Taylor & Weiss, 1972; and Yassi et al., 2004). Job satisfaction and job level are also related (Sawyer, 1988). Bodur (2002) found a difference in job satisfaction among groups of employees, such that employees in higher-level jobs have higher satisfaction ratings. Perceived risk for injury has been linked to job satisfaction. Part-time employees who perceived their risk for work related injury as low have higher levels of job satisfaction (Huang et al., 2003).

Researchers have also found rates of return to work to be associated with job satisfaction. Primarily, employee motivation to return to work is a key factor regarding job satisfaction (Ekbladh et al., 2004; Fisher, 2003). Individuals who experience job dissatisfaction, specifically low supervisory and coworker support, before a work injury are more likely to have lower return to work rates (Krause et al., 2001) and lower productivity at work once they return (Chandra et al., 2004). The recognition an employee receives, the sense of achievement experienced, and the perception that management regards employee job satisfaction as important (Fisher, 2003) all affect return to work rates.

The National Institute for Occupational Safety and Health (NIOSH) has also cited job dissatisfaction as a predictor of MSD, which includes injuries involving nerves, tendons, muscles, bones, and intervertebral discs (1997). The most common injuries employees experience are those classified as MSD, which often result in higher levels of pain, discomfort,

lost work time, and disability (NIOSH & NIAMS, 2001). The ageing population will continue to increase the incidence of MSD among Americans, and as a result, these injuries will continue to cost employers more than any other occupationally related disorder (Marin et al., 2003).

The NIOSH and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) persist in their requests for additional research regarding occupationally related MSD and the psychosocial and work organization variables impacting them (NIOSH & NIAMS, 2001). The continued rise in workers' compensation costs (Huang & Feuerstein, 2004; Marin et al., 2003) has proven the need for more explorative research regarding the issues occupationally injured employees face.

A large amount of research has focused on obtaining data from individuals that have experienced an occupationally-related MSD and their course of returning to work (Battie, Fulton-Kehoe, & Franklin, 2002; Bernacki & Tsai, 2003; Ekbladh et al., 2004; Kirsh & McKee, 2003; Klanghed, Svensson, & Alexanderson, 2004; MacKenzie et al., 1998; Nordqvist, Holmqvist, & Alexanderson, 2003; Robert-Yates, 2003; Schultz et al., 2004; Strunin & Boden, 2004; Trinkoff, Lipscomb, & Geiger-Brown, 2004; van Duijn, Miedema, Elders, & Burdorf, 2004; Wasiak, Verma, Pransky, & Webster, 2004; Wickizer et al., 2004). Researchers have also focused on preventative measures that employers can implement to reduce the rate of occupationally related injuries in their workplaces (Fisher, 2003; Freeman, 2004; Huang & Feuerstein, 2004; Marin et al., 2003; Moyers & Dale, 2004; Olafsdottir, 2004).

Exploration is needed regarding the job satisfaction of individuals with occupationally related MSD. Satisfaction measures of these employees should be compared to their non-injured co-workers, looking for differences between groups. Once areas of low satisfaction have been identified, employers and rehabilitation professionals can begin to work to improve the work environment to increase employee satisfaction. This could be incorporated into an employee's return to work program as a form of job maintenance. Increasing job satisfaction will not only

lengthen the tenure and increase the attendance of employees; it will also decrease their risk for re-injury (Gice, 1995).

1.2. SPECIFIC AIMS

This study was designed to compare and contrast the effects of a musculoskeletal occupational injury on overall job satisfaction and job reinforcers, as measured by the MSQ, among groups of workers in the healthcare field. Issues with recruitment prevented much of the originally planned exploration and analysis of these relationships. The study sample does include participants with and without a history of musculoskeletal occupational injury obtained while working at the current employer, but the small sample size of 89 forced the specific aims to be modified.

The study attempted to determine how overall job satisfaction and job reinforcers differ: 1) in the no history of MSD group versus the history of MSD groups (occupational only, non-occupational only, and occupational and non-occupational); 2) between the five job groups present in the sample (officials and managers, professionals, technicians, office and clerical, and service workers), defined by the current employer; and 3) between employees who are male versus female and full-time versus part-time.

Descriptive analysis was used to investigate: 1) the amount of lost time for the occupational MSD and non-occupational MSD groups; 2) the number of injuries for the occupational MSD and non-occupational MSD groups; 3) pain for the occupational MSD and non-occupational MSD groups, and overall sample; and 4) the attribution of injury cause for the occupational MSD group.

In addition, correlations of the 21 subscales of the MSQ with age and years with employer, for the entire sample, were examined to determine if either of these variables were influencing

the satisfaction subscale scores in any way. The pool of dissatisfied employees was also identified using the entire sample for each of the subscales. It was then determined to which injury group they belonged looking for significant differences between groups and outliers. This was done by comparing history of any MSD (occupational or non-occupational) to no history of MSD. It was hoped that this analysis would allow for additional insight into the dissatisfied group, thinking that a history of MSD might be a common factor between these individuals.

2. METHODS

A descriptive correlational research design was used. Data was collected using the *Minnesota Satisfaction Questionnaire* (MSQ), which has been designed to measure worker job satisfaction and generate information regarding the reinforcers present in occupations (Weiss et al., 1967). A demographics sheet was also included with the questionnaire to capture non-identifying demographic information, pain experienced within the last week, and attributions of injury cause.

2.1. SUBJECTS

2.1.1. Study Population

In order to focus on persons employed in the healthcare setting, the sample for this study was obtained from UPMC health system's Shadyside facility. The UPMC health system has over 40,000 employees among its 19 hospitals and large network of smaller care centers throughout western Pennsylvania (UPMC, 2005). UPMC Shadyside is one of its 19 hospitals. Serving the community since 1866, the Shadyside facility is a 486-bed tertiary hospital with a wide range of specialty departments (UPMC Shadyside, 2005).

All employees working at the Shadyside hospital were eligible to participate in the study. A contact at UPMC, Linda Croushore, distributed surveys to the facility's Unit Directors who then gave each employee a paper copy of the survey. Approximately 1600 employees were given surveys. With such a large pool of subjects receiving surveys, it was expected that the final sample would most likely include individuals both with and without a previous, or current, occupationally related MSD obtained while working at the UPMC Shadyside facility.

2.1.2. Recruitment

Linda Croushore, the UPMC contact, distributed copies of the study survey to the Unit Directors at UPMC Shadyside facility. The Unit Directors then distributed the surveys to the employees they oversee. The survey cover letter asked participants to complete and return the survey to Linda Croushore via UPMC interoffice mail and a return envelope was included. There was only one distribution of the study survey. It was planned that approximately two weeks after the surveys had been distributed to the Unit Directors, Linda Croushore would remind the Unit Directors, via e-mail, to prompt their employees to complete and return the survey if they were interested in participating in the research study. It was also planned that sixty days post distribution of the study survey to the Unit Directors, data collection would cease.

Approximately one week after study survey distribution, the primary investigator was informed by the UPMC health system contact that a request was made by the Shadyside facility's Human Resources department to recall the surveys. The Human Resources department feared that employees who participated in the study would expect their responses to lead to change at the facility. The cover letter for the study survey made no indication of this, and stated: "There are no foreseeable risks associated with this project, nor are there any direct benefits to you." It was ultimately decided by the facility to recall the study survey. The UPMC health system contact immediately informed the Unit Directors of the recall.

Even though the employees were asked to return the questionnaires uncompleted, some of them chose to participate in the study regardless and did complete the survey in full. No reminder e-mail was sent to the Unit Directors to prompt their employees to complete and return the surveys, but sixty days were allowed to pass prior to the start of data entry and analysis.

2.2. INSTRUMENT

2.2.1. Minnesota Satisfaction Questionnaire – Long-form (MSQ)

The MSQ long-form, which asks participants to rate their satisfaction by choosing one of five responses (Table 1) for each of the 100 statements, was used in this study. This is a self-administered survey, with instructions for its completion present on the initial page and repeated rating scale directions at the top of each successive page. At most, the survey takes 30 minutes to complete and is rated at a fifth grade reading level. The instructions for the MSQ, state the purpose of the survey being to find out how the participant feels about their current job, with the hope of understanding the specific aspects employees like and dislike about their occupations. (Weiss et al., 1967)

Table 1: Response levels of satisfaction on the MSQ.

Survey Response:	Level of Satisfaction:	Definition:
1	Not satisfied	This aspect of my job is much poorer than I would like it to be.
2	Only slightly satisfied	This aspect of my job is not quite what I would like it to be.
3	Satisfied	This aspect of my job is what I would like it to be.
4	Very satisfied	This aspect of my job is even better than I expected it to be.
5	Extremely satisfied	This aspect of my job is much better than I hoped it would be.

The 100 statements in the questionnaire cover 20 job reinforcement categories, with five items on the questionnaire corresponding to each attribute (Table 2). These attributes were selected to measure not only extrinsic (environmental factors) but also intrinsic reinforcers, such as achievement and ability utilization. The MSQ also generates an overall general satisfaction score, which is comprised of 20 questions out of the total 100, one question from each of the 20 subscales. The MSQ can be used by vocational counselors to evaluate their services and techniques. It can also generate information about reinforcers present in specific occupations. (Weiss et al., 1967)

Table 2: Job reinforcement attributes measured by the MSQ.

Attribute:	Definition:
Ability Utilization	The chance to do something that makes use of my abilities.
Achievement	The feeling of accomplishment I get from the job.
Activity	Being able to keep busy all the time.
Advancement	The chances for advancement on this job.
Authority	The chance to tell other people what to do.
Company Policies and Practices	The way company policies are put into practice.
Compensation	My pay and the amount of work I do.
Co-workers	The way my co-workers get along with each other.
Creativity	The chance to try my own methods of doing the job.
Independence	The chance to work along on the job.
Moral Values	Being able to do things that don't go against my conscience.
Recognition	The praise I get for doing a good job.
Responsibility	The freedom to use my own judgment.
Security	The way my job provides for steady employment.
Social Service	The chance to do things for other people.
Social Status	The chance to be "somebody" in the community.
Supervision – Human Relations	The way my boss handles his men.
Supervision – Technical	The competence of my supervisor in making decisions.
Variety	The chance to do different things from time to time.
Working Conditions	The working conditions.

(Weiss et al., 1967)

The internal consistency reliabilities for the MSQ scales are adequate. The questionnaire is also relatively stable when scores are obtained over time. Investigations of construct validity, assessed indirectly via construct validation studies of the Minnesota Importance Questionnaire (MIQ), which is based on the *Theory of Work Adjustment*, demonstrated that the MSQ measured satisfaction in accordance with expectations from the theory. Concurrent validity has also been tested for the MSQ by comparing group differences, which revealed that professional groups will report higher levels of satisfaction compared to unskilled groups. (Weiss et al., 1967)

Written permission was obtained from the publisher of the MSQ to reproduce the questionnaire in a different format. Royalties were also paid. Study surveys were developed using Verity Teleform Software, Version 9.1, which allows for the creation of data forms that can

be entered into a database using a scanner. This software also allows for automated verification using a computer. Since the study sample was expected to be large, this type of entry and verification was chosen.

2.2.2. Demographics Sheet

A demographics sheet was also included with the MSQ to capture non-identifying demographic information. This information ranged from items such as age and gender, to questions asking participants to report their history of MSD while working at the current employer.

Participants were also asked to rate the pain they experienced on average during the previous week: 1) from any occupationally-related musculoskeletal injury(s) obtained while working at the current employer; 2) from any non-occupationally-related musculoskeletal injury(s) obtained while working at the current employer; and 3) overall, using a Likert scale from one to ten, with one being little pain and ten being the worst pain imaginable. Pain rating questions were modeled after those found on the Pain Control Record Chart (MedicineNet, Inc, 2004).

Lastly, participants rated to what degree they felt certain factors were responsible for the cause of their occupationally-related musculoskeletal injury(s) obtained while working at the current employer using a five-point Likert scale (strongly disagree, disagree, neither agree or disagree, agree, and strongly agree). The attribution factors measured were: personal fault; coworker(s) fault; employer practices; patient(s) or customer(s) fault; unavoidable accident; and bad luck.

2.3. ANALYSES

Data was to be entered using the Verity Teleform Software, but technical problems prevented this from occurring. Data had to be entered manually into a spreadsheet. Verification of the data was done by comparing the final database spreadsheet to the paper survey forms. Missing or invalid responses were left blank, as well as items that were not applicable to the participant. Each survey was assigned a data entry system identification number as it was entered.

Data analysis was completed using the Statistical Program for the Social Sciences for Windows, Version 12.0, and the SAS System for Windows, Version 8.02, software packages.

2.3.1. Demographic and Control Variables

Descriptive statistics were computed for demographic variables. The distributions of the continuous demographic variables were examined graphically and normality was assessed via the Shapiro-Wilk test. It was found that years with current employer was the only variable that significantly deviated from that of the normal distribution.

2.3.2. Minnesota Satisfaction Questionnaire (MSQ)

Scores for each subject's responses to the 21 subscales of the MSQ were computed as instructed by the test manual. Missing responses were dealt with as instructed by the test manual:

> If a score is missing for one of the five items in the scale, the modal score value determined from the four remaining items should be used to fill in the missing score. If scores are missing for more than one item in the scale, the scale should not be scored. In case of ties in determining modal score value, the average (rounded to the nearest whole number) should be used. The same procedures are to be followed if scores are missing…used to determine the General Satisfaction raw score. If scores are missing for more than five [items], this scale should not be scored. (Weiss et al., 1967)

Results of these calculations left five of the 21 subscales with 88 participants, meaning one participant was excluded from analysis for each of those five subscales. After computing the 21 subscale scores of the MSQ, the distributions of the subscale scores were examined for normality using graphical representations of the data and the Shapiro-Wilk test.

Finding that the data for the 21 subscales did not significantly deviate from that of the normal distribution, 2-sample t-tests were used to test for significant differences at the 0.05 level in the means of all subscale scores for injured and non-injured participants. Means of subscale scores were also compared across categorical demographic and potential control variables (working status (full-time versus part-time); gender; history of occupationally-related MSD; and history of previous non-occupationally-related MSD) via a 2-sample t-test, with significance being defined as a p-value less than 0.05.

Analysis of variance (ANOVA) scores were obtained, via a generalized linear model (GLM) due to the unbalanced data, to compare satisfaction scores across job groups and across MSD injury groups (occupational only, non-occupational only, occupational and non-occupational, and no history of MSD). It could then be assessed which groups were significantly different via Tukey's studentized range test, identifying p-values less than 0.05. Of note, when the ANOVA analysis was completed for the job groups the Technician job group was excluded from the calculations due to its sample size only being one.

Correlations of the subscale scores with age and years with current employer were also examined, using Pearson correlation coefficients for age and Spearman's Rho correlation coefficients for years with current employer, to identify significant differences at the 0.05 level.

The pool of dissatisfied employees was isolated using the entire sample for each of the 21 subscales of the MSQ. It was then determined to which injury group they belonged (history of any MSD versus no history of MSD) looking for differences between groups and any outliers. Subjects' raw subscale scores were divided into three groupings: 5 – 9 versus 10 – 19 versus

20 – 25; and for general satisfaction: 20 – 39 versus 40 – 79 versus 80 – 100. Scores were divided in this manner because of the response statements provided by the MSQ.

The only response selection on the MSQ that lacks any satisfaction is “not satisfied” which has a score value of one. Individuals with scores ranging from five to nine for a subscale were placed in this category assuming scores in this range would include subjects who were displaying feelings of dissatisfaction with a subscale. Response statements of “slightly satisfied” and “satisfied”, which have score values of two and three, respectively, were thought to represent subjects with some to average satisfaction for a subscale, therefore individuals with scores ranging from ten to 19 were placed in this category. Lastly, individuals with above average satisfaction were represented by the response statements “very satisfied” and “extremely satisfied” which have score values of four and five, respectively. Individuals in this group had scores ranging from 20 to 25 and were seen to represent the most satisfied subjects in the sample. General satisfaction scores were also handled in this manner. The lower range of 20 to 39 represents individuals who lacked satisfaction. The middle range of 40 to 79 contains individuals with average satisfaction scores. Individuals with above average satisfaction are contained in the upper range of 80 to 100.

Three trials of analysis were performed to compare scores three different ways across the two injury groups using chi-squared tests, and where indicated Fisher’s exact tests, to identify significant differences at the 0.05 level (Table 3).

Table 3: Score comparison groups for chi-squared analysis.

Trial:	**Less Satisfied ---------- Most Satisfied**		
1 - 20 subscales	5 – 9	10 – 19	20 – 25
- General Satisfaction	20 – 39	40 – 79	80 – 100
2 - 20 subscales	5 – 9	10 – 25	
- General Satisfaction	20 – 39	40 – 100	
3 - 20 subscales	5 – 19		20 – 25
- General Satisfaction	20 – 79		80 – 100

Trial one was run to examine the three score groupings and the distribution of subjects across the groups. Trial two was thought to be the best method to isolate the dissatisfied subjects for each subscale, but many of the expected cell counts for the subscales were less than five for the low satisfaction group. Thinking that the low satisfaction score range of five to nine did not include all of the individuals who were dissatisfied with a subscale, it was then decided to perform the trial three analyses, comparing low and average satisfaction groups to the above average group.

3. RESULTS

A total of 89 surveys were completed and returned. Not all of the surveys were completed in their entirety. For instance, only 86 individuals recorded their age on the questionnaire. In addition, five of the subscales had one subject excluded from analysis because of incomplete responses to the MSQ statements used to compute the score for the subscale.

Interpretation of the results from this study must be done with caution. The small sample size, and the subgroups used in the analyses performed, may not have the statistical power needed to draw any strong conclusions between the variables measured.

3.1. DEMOGRAPHIC AND CONTROL VARIABLES

Several of the demographic and control variables were unbalanced in the final sample (Table 4). The sample was 87.5% female and 87.2% of the respondents possessed a working status of full-time with only one subject reporting an employment status of temporary. The majority of individuals reported working at UPMC between one to eight years, 64.0%, with the remaining 36.0% reporting between ten and 34 years of service (Figure 1). The job groups are also unequal. The professional group represents the majority, constituting 68.5% of the sample. Only five job groups are represented, with no individuals surveyed from the laborer, operative, and sales worker categories. The age of the sample is normally distributed, ranging from 20 to 63 years of age with a mean of 41 $\pm$ 10.74.

Of the 88 individuals who responded to the question regarding a history of any MSD, 42.0% indicated a history of MSD. Only 19 individuals reported a history of occupational MSD, and 29 reported a history of non-occupational MSD. Eleven subjects (12.6%) had a history of both occupational and non-occupational MSD. No individuals reported a job change due to a MSD. About one third of participants (36.8%) with a history of occupational MSD reported a history of recurrent MSD. The employees with a history of non-occupational MSD reported the same (33.3%).

Table 4: Study sample demographics.

	n	Min	Mean (Std Dev)	Max	Percentiles (25, 50, 75)
Age	86	20	41.09 (10.74)	63	31.75 43.00 50.00
Years with current employer	89	1	9.62 (9.24)	34	3.00 6.00 14.50
				n	%
Gender (n=88):			Male	11	12.5
			Female	77	87.5
Working status (n=86):			Full-time	75	87.2
			Part-time	11	12.8
Employment status (n=86):			Permanent	85	98.8
			Temporary	1	1.2
Job Group (n=89):			Office/Clerical	12	13.5
			Official/Manager	6	6.7
			Professional	61	68.5
			Service Worker	9	10.1
			Technician	1	1.1
History of any MSD while working at UPMC (n=88):			Yes	37	42.0
			No	51	58.0
History of an occupational MSD while working at UPMC (n=89):			Yes	19	21.3
			No	70	78.7
History of a non-occupational MSD while working at UPMC (n=87):			Yes	29	33.3
			No	58	66.7
History of recurrent MSD at UPMC:			Occupational (n=19)	7	36.8
			Non-occupational (n=27)	9	33.3
Job change because of MSD at UPMC:			Occupational (n=19)	0	-
			Non-occupational (n=28)	0	-
History of MSD at UPMC (n=87)‡:			Occupational only	7	8.1
			Non-occupational only	18	20.7
			Both	11	12.6
			Neither	51	58.6

‡ Two subjects failed to respond to the question: Have you ever had a non-occupationally-related musculoskeletal injury at UPMC?

The minimum number of weeks unable to work ranged from 0 to 12 for the individuals reporting occupational MSD, with the maximum also ranging from 0 to 12. Non-occupational

MSD caused employees to remain off at a minimum 0 to 36 weeks, and a maximum of 0 to 36 weeks. Over half (57.9%) of participants with occupational MSD reported only one injury, with seven being the maximum recorded by one participant. Subjects with non-occupational MSD reported similar rates, with 53.6% reporting only one injury and 25.0% reporting two. The greatest number of non-occupational MSD reported is 10, by one participant.

Table 4 (continued).

	n	Min	Mean (Std Dev)	Max	Percentiles (25, 50, 75)
Minimum number of weeks unable to work:					
Occupational MSD	18	0	1.44 (3.09)	12	0.00 0.00 1.00
Non-occupational MSD	27	0	2.59 (8.16)	36	0.00 0.00 1.00
Maximum number of weeks unable to work:					
Occupational MSD	18	0	2.28 (4.01)	12	0.00 0.00 3.00
Non-occupational MSD	27	0	3.78 (9.43)	36	0.00 0.00 1.00
Number of weeks most recent MSD:					
Occupational	15	8	189.60 (224.38)	832	48.00 104.00 260.00
Non-occupational	24	1	121.08 (313.21)	1560	17.00 35.00 103.00
Total number of MSD while working at UPMC:					
Occupational	19	1	1.74 (1.41)	7	1.00 1.00 2.00
Non-occupational	28	1	2.04 (1.92)	10	1.00 1.00 2.00
Occupational MSD attribution:					
Personal fault	18	1	2.61 (1.20)	4	1.00 3.00 4.00
Co-worker(s) fault	18	1	1.78 (1.35)	5	1.00 1.00 2.25
Employer practices	18	1	1.94 (1.06)	4	1.00 2.00 3.00
Patient(s) or customer(s) fault	18	1	2.83 (1.51)	5	1.00 3.00 4.00
Unavoidable accident	18	1	3.28 (1.36)	5	2.00 4.00 4.00
Bad luck	18	1	3.00 (1.28)	5	1.75 3.00 4.00
Pain:					
Occupational MSD	9	1	2.33 (1.58)	5	1.00 2.00 4.00
Non-occupational MSD	19	1	3.47 (1.81)	8	2.00 3.00 4.00
Overall	48	1	2.77 (1.93)	8	1.00 2.00 4.00

Eighteen of the 19 individuals reporting an occupational MSD responded to the questions regarding injury attribution. Out of this group, it was most felt that the injury was an accident. Secondly, respondents attributed the MSD to bad luck. Patient(s) or customer(s) were seen to be at fault next with personal fault closely behind. Least seen to be the cause were co-worker(s) and employer practices.

Of the occupational MSD employees still experiencing pain because of their injury, pain scale scores ranged from 1 to 5, with a mode of 1 and median of 2. The non-occupational MSD subjects reported a slightly higher index of continued pain from their injury, ranging from 1 to 8, with a mode of 2 and a median of 3. Lastly, of the 48 individuals who responded to the overall pain experienced on average during the previous week, pain reported ranged from 1 to 8, with a mode of 1 and a median of 2. All subjects were encouraged to answer the overall pain question.

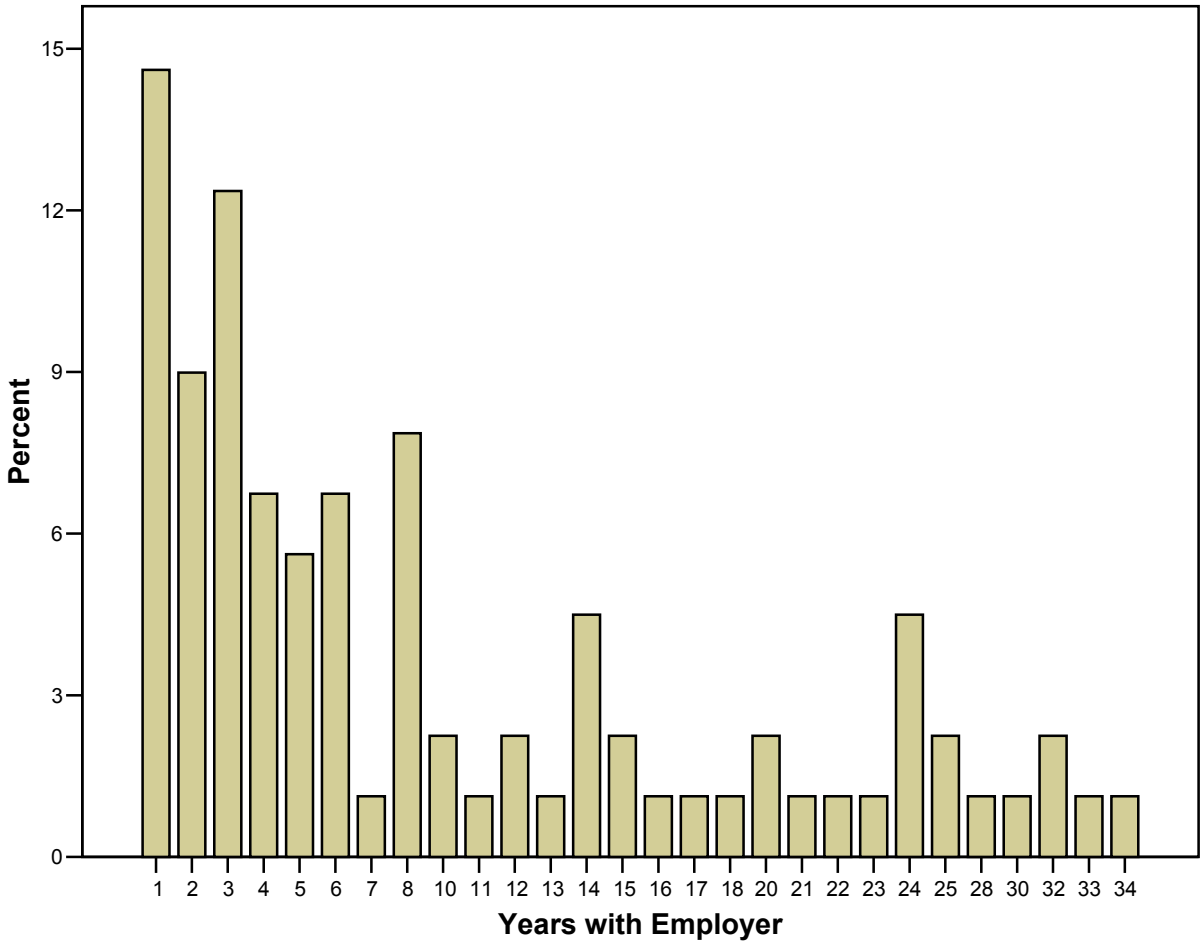

Figure 1: Distribution of years with employer in study sample.

3.2. MINNESOTA SATISFACTION QUESTIONNAIRE

Computations of the 21 subscales of the MSQ for the entire sample (Table 5) showed that this group of employees is most satisfied with Social Service, Moral Values, and Activity, consecutively.

Table 5: MSQ 21 subscale results, entire study sample.

	n	Min	Mean (Std Dev)	Max	Percentiles (25, 50, 75)
Ability utilization	89	6	16.69 (4.23)	25	14.00 17.00 20.00
Achievement	89	6	17.03 (4.06)	25	15.00 17.00 20.00
Activity	89	10	17.45 (3.61)	25	15.00 17.00 20.00
Advancement	89	5	13.26 (4.51)	23	10.00 14.00 16.00
Authority	89	5	15.60 (3.73)	25	14.00 15.00 17.00
Company policies and practices	89	5	13.09 (4.63)	25	10.00 14.00 17.00
Compensation	89	5	12.84 (4.59)	25	10.00 13.00 15.00
Co-workers	89	5	15.72 (4.27)	25	13.00 15.00 18.50
Creativity	89	5	15.28 (4.43)	25	12.00 15.00 19.00
Independence	88*	7	17.23 (4.07)	25	15.00 16.00 20.00
Moral values	89	11	18.03 (3.77)	25	15.00 17.00 20.50
Recognition	89	5	14.09 (4.78)	25	10.00 15.00 18.00
Responsibility	89	9	16.65 (3.59)	25	15.00 16.00 20.00
Security	89	5	17.01 (4.19)	25	15.00 16.00 19.00
Social service	88*	9	18.17 (4.17)	25	15.00 18.00 20.75
Social status	88*	5	14.38 (3.94)	25	12.00 15.00 16.00
Supervision-human relations	88*	5	14.24 (5.45)	25	10.00 14.00 18.00
Supervision-technical	89	5	14.94 (4.92)	25	11.00 15.00 18.00
Variety	89	7	16.21 (4.19)	25	13.00 16.00 19.50
Working conditions	89	5	15.53 (3.83)	24	13.00 15.00 18.50
General satisfaction	88*	38	63.11 (12.08)	93	54.00 61.50 72.75

* One subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

The attributes of Moral Values and Activity have minimum scores of 11 and 10, respectively, meaning no subjects rated any of the statements pertaining to these two categories as "not satisfied." The three reinforcers seen as least satisfying aspects of these employee's occupations were Compensation, Company Policies and Practices, and Advancement, all reporting minimum scores of five. All attributes had maximum response totals of 25, except Advancement and Working Conditions, which were 23 and 24, respectively. General

Satisfaction ranged from a low score of 38 to, an almost completely satisfied score of 93. The mean was 63.11, showing that the average response for the 20 questions used to calculate general satisfaction was three, "satisfied."

Table 6: MSQ 21 subscale results, history of MSD versus no history.

	History of MSD while working at UPMC (n=37)	**No** History of MSD while working at UPMC (n=51)	t-test
	Mean (Std Dev)	Mean (Std Dev)	p-value
Ability utilization	17.19 (4.12)	16.31 (4.36)	0.34
Achievement	17.11 (4.13)	17.00 (4.08)	0.90
Activity	17.16 (3.44)	17.67 (3.78)	0.52
Advancement	13.62 (4.64)	12.98 (4.49)	0.52
Authority	16.11 (3.46)	15.22 (3.93)	0.27
Company policies and practices	12.65 (4.84)	13.39 (4.54)	0.46
Compensation	13.27 (5.08)	12.59 (4.26)	0.50
Co-workers	15.22 (4.12)	16.00 (4.38)	0.40
Creativity	15.14 (4.66)	15.35 (4.34)	0.82
Independence	17.05 (4.26)	17.44 (3.96)*	0.66
Moral values	18.57 (3.71)	17.71 (3.82)	0.29
Recognition	13.49 (5.34)	14.43 (4.34)	0.36
Responsibility	16.81 (3.84)	16.59 (3.45)	0.78
Security	17.51 (4.89)	16.69 (3.65)	0.37
Social service	18.05 (4.30)	18.28 (4.16)*	0.81
Social status	13.73 (4.34)	14.84 (3.63)*	0.20
Supervision-human relations	13.95 (5.95)	14.50 (5.15)*	0.64
Supervision-technical	14.97 (5.48)	15.00 (4.55)	0.98
Variety	16.05 (4.03)	16.35 (4.37)	0.75
Working conditions	15.11 (4.04)	15.84 (3.71)	0.38
General satisfaction	63.06 (12.90)†	63.20 (11.72)	0.96

* n=50, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† n=36, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Subscale scores, when compared between participants reporting any type of MSD versus no history of MSD, did not show any statistically significant differences between these two groups (Table 6). Both groups, however, did have their highest satisfaction scores for the Moral Values and Social Service attributes, with Moral Values ranking first for individuals with a history of MSD and Social Service first for individuals with no history. Compensation had low satisfaction for both groups, and was the lowest attribute for the subjects with no history of MSD, second lowest for employees with a history of MSD with Company Policies and Practices

being the least satisfied reinforcer for this group. General Satisfaction for these two groups was nearly identical, and both mirror the average General Satisfaction score for the entire sample. Of note, only 88 individuals were used in this analysis because one subject failed to answer the question asking them to report history of occupational MSD.

Comparing subscale scores between participants reporting a history of occupational MSD versus no history of occupational MSD (Table 7) showed a significant difference, with a p-value of 0.05, for the attribute of Security (Figure 2). Individuals with a history of occupational MSD reported lower scores for this category. The small and unbalanced groups used for this analysis, however, limit the statistical power of this finding.

Table 7: MSQ 21 subscale results, history of occupational MSD versus no history.

	History of Occupational MSD while working at UPMC (n=19)	**No** History of Occupational MSD while working at UPMC (n=70)	t-test p-value
	Mean (Std Dev)	Mean (Std Dev)	
Ability utilization	17.00 (4.56)	16.60 (4.17)	0.12
Achievement	16.89 (4.50)	17.07 (3.97)	0.40
Activity	17.95 (3.31)	17.31 (3.70)	0.92
Advancement	14.26 (4.09)	12.99 (4.61)	0.58
Authority	16.95 (3.94)	15.23 (3.61)	0.15
Company policies and practices	11.42 (4.17)	13.54 (4.67)	0.70
Compensation	13.68 (5.70)	12.61 (4.26)	0.21
Co-workers	15.26 (4.56)	15.84 (4.21)	0.25
Creativity	16.11 (5.15)	15.06 (4.23)	0.65
Independence	17.16 (4.68)	17.25 (3.92)*	0.60
Moral values	18.74 (3.75)	17.84 (3.78)	0.13
Recognition	13.11 (4.98)	14.36 (4.73)	0.73
Responsibility	16.79 (4.10)	16.61 (3.47)	0.18
Security	16.84 (5.76)	17.06 (3.70)	0.05
Social service	18.32 (4.06)	18.13 (4.23)*	0.97
Social status	13.58 (4.73)	14.59 (3.70)*	0.84
Supervision-human relations	12.84 (5.77)	14.62 (5.34)*	0.62
Supervision-technical	13.79 (5.30)	15.26 (4.81)	0.35
Variety	16.84 (4.11)	16.04 (4.22)	0.94
Working conditions	14.95 (3.55)	15.69 (3.91)	0.80
General satisfaction	64.17 (11.76)†	62.84 (12.23)	0.49

* n=69, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† n=18, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

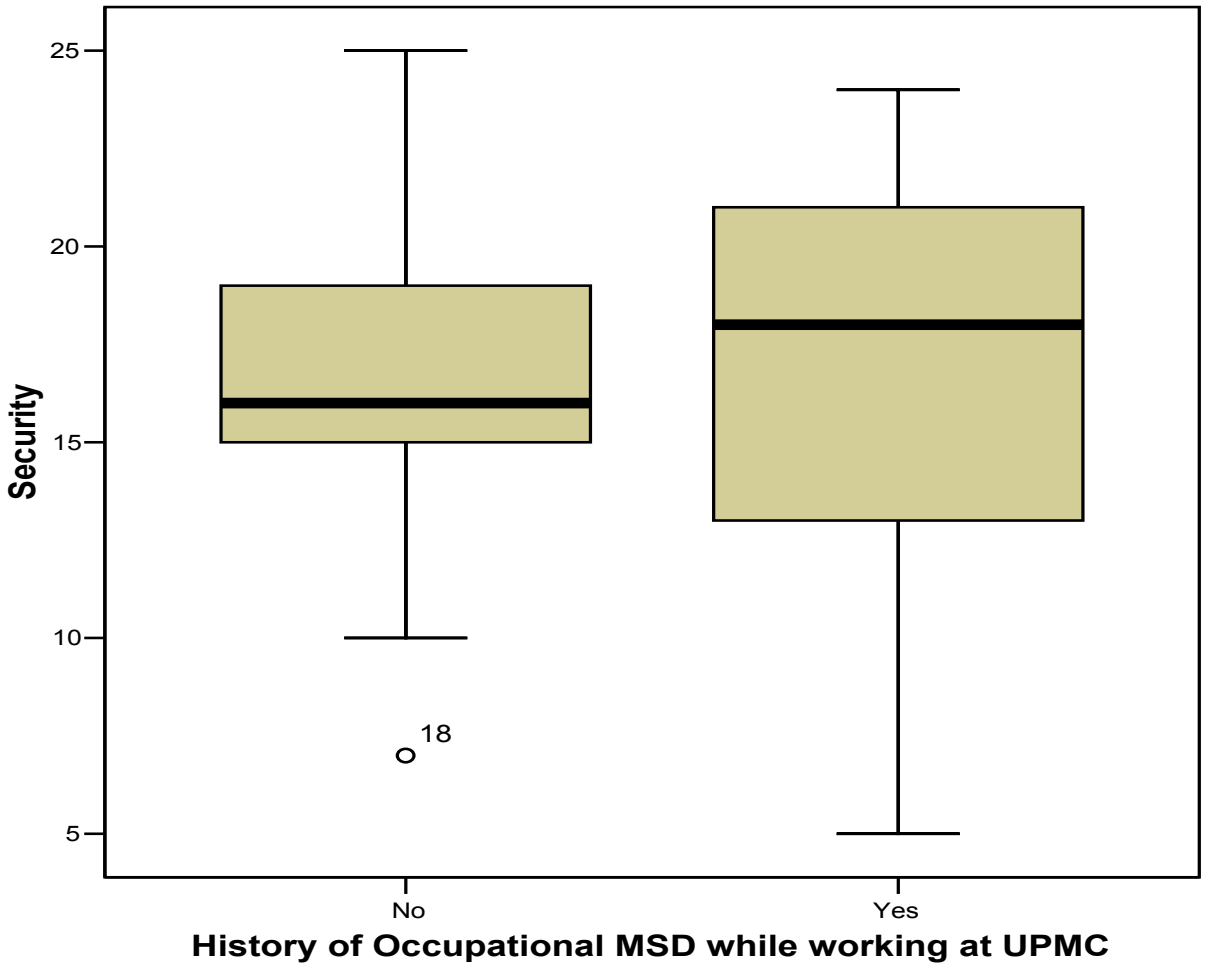

Figure 2: Security subscale score distributions by history of occupational MSD.

The attribute employees with a history of occupational MSD found most unsatisfying was Company Policies and Procedures, while Compensation was ranked lowest for individuals with no history of occupational MSD. The two highest ranking categories, for both groups, were Moral Values and Social Service. General Satisfaction scores for each of the groups are very similar, with the mean for the subjects with a history of occupational MSD being slightly more than the other group, but both reflect what was measured for the entire sample.

Subjects with a history of non-occupational MSD were next examined compared to individuals reporting no history of non-occupational MSD (Table 8). No statistically significant differences were found between these two groups' subscale scores.

Table 8: MSQ 21 subscale results, history of non-occupational MSD versus no history.

	History of Non-occupational MSD while working at UPMC (n=29)	**No** History of Non-occupational MSD while working at UPMC (n=58)	t-test p-value
	Mean (Std Dev)	Mean (Std Dev)	
Ability utilization	17.76 (4.20)	16.24 (4.20)	0.72
Achievement	17.62 (4.24)	16.83 (4.01)	0.87
Activity	17.41 (3.79)	17.50 (3.63)	0.50
Advancement	13.66 (4.94)	13.07 (4.39)	0.28
Authority	16.48 (3.55)	15.28 (3.70)	0.07
Company policies and practices	13.45 (4.91)	13.03 (4.47)	0.08
Compensation	13.83 (5.17)	12.53 (4.19)	0.37
Co-workers	14.90 (3.97)	16.02 (4.42)	0.60
Creativity	15.62 (4.95)	15.16 (4.22)	0.36
Independence	17.66 (4.43)	17.16 (3.90)*	0.93
Moral values	18.97 (3.99)	17.64 (3.65)	0.36
Recognition	14.38 (5.28)	14.00 (4.47)	0.31
Responsibility	17.48 (3.74)	16.41 (3.39)	0.85
Security	18.38 (3.82)	16.57 (4.02)	0.88
Social service	18.21 (4.43)	18.18 (4.15)*	0.87
Social status	14.59 (4.10)	14.40 (3.80)*	0.32
Supervision-human relations	14.76 (5.65)	14.14 (5.39)*	0.21
Supervision-technical	15.72 (5.22)	14.66 (4.83)	0.25
Variety	16.21 (4.40)	16.28 (4.18)	0.46
Working conditions	15.38 (4.26)	15.60 (3.69)	0.46
General satisfaction	64.24 (13.69)	62.59 (11.39)	0.65

* n=57, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Both groups found Advancement, Company Policies and Practices, and Compensation as the three least satisfying attributes of their occupation. Both also saw Moral Values and Social Service as satisfying, along with Security, for individuals with a history of non-occupational MSD, and Activity, for individuals with no history of non-occupational MSD. General Satisfaction scores for each group are very similar, with the mean for the subjects with a history of non-occupational MSD being slightly higher than the other group, but both reflect what was measured for the entire sample. Of note, only 87 individuals were used in this analysis because two subjects failed to answer the question asking them to report history of non-occupational MSD.

Table 9: MSQ 21 subscale results, four classes of MSD history.

	History of Occupational MSD **Only** while working at UPMC (n=7)	History of Non-occupational MSD **Only** while working at UPMC (n=18)	History of Occupational **and** Non-occupational MSD while working at UPMC (n=11)	**No** History of MSD while working at UPMC (n=51)
	Mean (Std Dev)	Mean (Std Dev)	Mean (Std Dev)	Mean (Std Dev)
Ability utilization	15.71 (3.04)	17.39 (3.73)	18.36 (5.01)	16.31 (4.36)
Achievement	15.57 (3.41)	17.33 (3.82)	18.09 (5.01)	17.00 (4.08)
Activity	16.29 (1.60)	16.33 (3.48)	19.18 (3.76)	17.67 (3.78)
Advancement	13.71 (3.86)	12.94 (5.19)	14.82 (4.49)	12.98 (4.49)
Authority	15.71 (1.11)	15.22 (2.71)	18.55 (3.91)	15.22 (3.93)
Company policies and practices	10.43 (3.10)	13.94 (5.27)	12.64 (4.37)	13.39 (4.54)
Compensation	12.14 (3.93)	12.83 (4.45)	15.46 (6.04)	12.59 (4.26)
Co-workers	16.14 (5.05)	15.17 (3.73)	14.45 (4.48)	16.00 (4.38)
Creativity	13.71 (3.15)	14.11 (3.97)	18.09 (5.56)	15.35 (4.34)
Independence	15.14 (2.91)	16.94 (3.90)	18.82 (5.17)	17.44 (3.96)*
Moral values	17.14 (2.19)	18.39 (3.76)	19.91 (4.35)	17.71 (3.82)
Recognition	10.86 (4.45)	13.89 (5.82)	15.18 (4.40)	14.43 (4.34)
Responsibility	15.14 (2.73)	16.83 (3.65)	18.55 (3.80)	16.59 (3.45)
Security	15.71 (6.45)	18.22 (3.80)	18.64 (4.03)	16.69 (3.65)
Social service	17.43 (4.35)	17.78 (4.65)	18.91 (4.16)	18.28 (4.16)*
Social status	11.29 (3.77)	13.89 (4.03)	15.73 (4.15)	14.84 (3.63)*
Supervision-human relations	11.57 (6.78)	15.11 (6.09)	14.18 (5.08)	14.50 (5.15)*
Supervision-technical	12.14 (6.36)	16.22 (5.54)	14.91 (4.78)	15.00 (4.55)
Variety	15.71 (2.50)	15.22 (3.89)	17.82 (4.90)	16.35 (4.37)
Working conditions	13.86 (3.29)	15.28 (4.60)	15.55 (3.86)	15.84 (3.71)
General satisfaction	58.14 (7.82)	61.49 (14.21)	68.00 (12.52)	63.20 (11.72)

* n=50, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Differences between the four injury groups (history of occupational MSD only, history of non-occupational MSD only, history of both occupational and non-occupational MSD, and no history of MSD) were next examined (Table 9). An ANOVA analysis was performed and a significant difference between groups was present for the Authority subscale, with a p-value of 0.05, but the small and unbalanced groups used for this analysis limit the statistical power of these findings. Means and standard deviations for each injury group were calculated for each of the 21 subscales of the MSQ. Attributes with the lowest satisfaction scores include: Company Policies and Practices, for the history of occupational MSD only and history of both occupational

and non-occupational MSD groups; Compensation for individuals with a history of non-occupational MSD only; and Advancement for employees with no history of MSD.

High scoring attributes include Moral Values, for the subjects with a history of non-occupational MSD only and history of both occupational and non-occupational MSD, and Social Service for the remaining two groups. General Satisfaction scores do differ between the group with a history of occupational MSD only and that of the group with a history of occupational and non-occupational MSD, but this difference is not statistically significant. The remaining two groups' scores resemble what was measured for the entire sample. Of note, only 87 individuals were used in this analysis because two subjects failed to answer the question asking them to report history of non-occupational MSD.

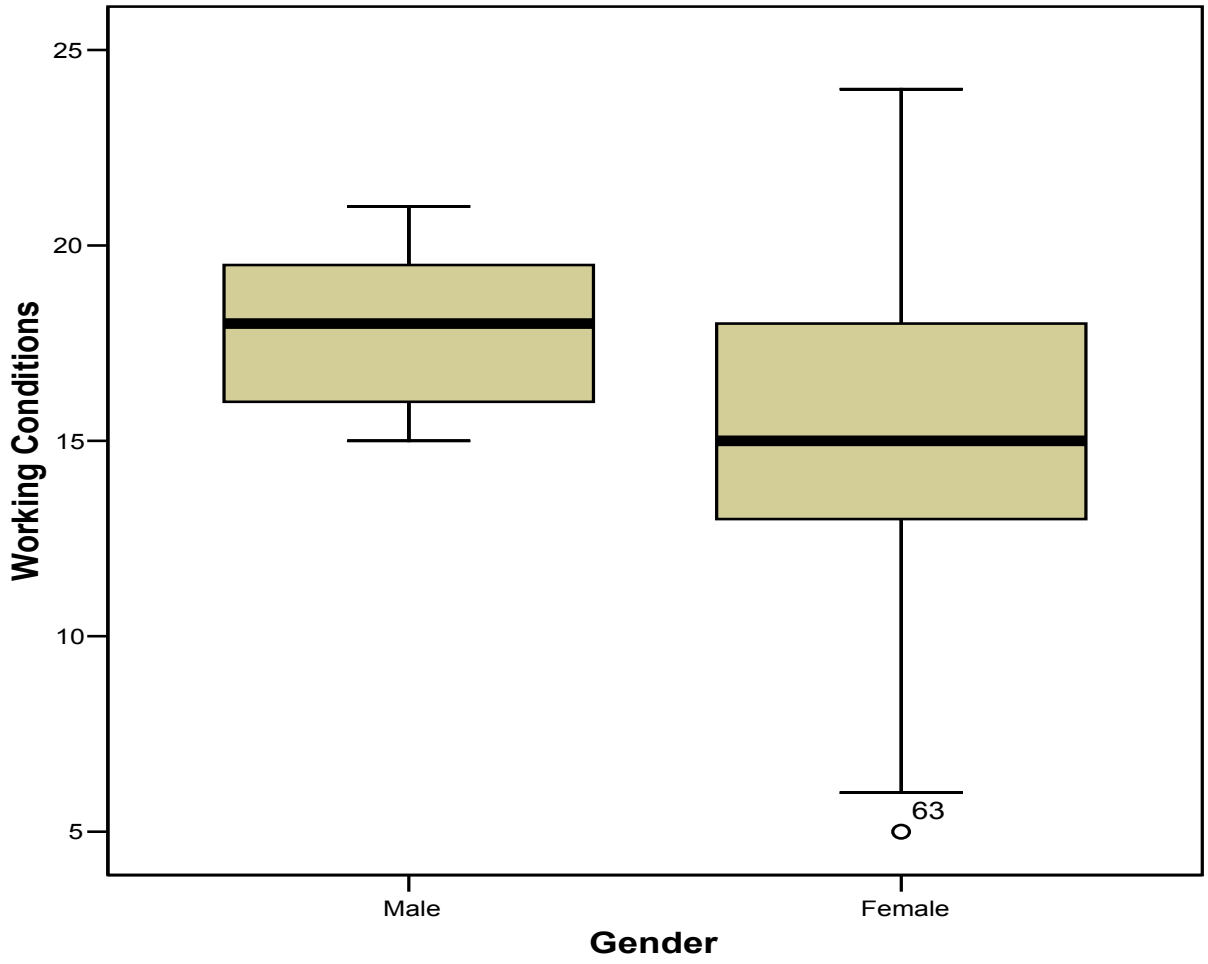

Figure 3: Working Conditions subscale score distributions by gender.

Working Conditions (Figure 3) was the only subscale found to be statistically different between the male and female groups, with a p-value of 0.04. The statistical strength of this analysis is limited by the small and unbalanced groups. The men reported higher levels of satisfaction for this category (Table 10). Also, seen as favorable by the men were Social Service, Security, and Moral Values. The women reported high levels of satisfaction for Social Service, Moral Values and Activity; low-level scores were seen in Company Policies and Practices, Compensation, and Advancement for this group. Compensation and Advancement were also seen as less satisfying by the men, along with Social Status. General Satisfaction scores for each group are very similar, with the mean for the male subjects being slightly than the females. Of note, only 88 individuals were used in this analysis because one subject failed to answer the question asking them to report their gender.

Table 10: MSQ 21 subscale results, male versus female.

	Male (n=11)	Female (n=77)	t-test
	Mean (Std Dev)	Mean (Std Dev)	p-value
Ability utilization	17.09 (4.13)	16.71 (4.23)	0.78
Achievement	17.73 (3.20)	17.00 (4.16)	0.58
Activity	17.09 (4.04)	17.53 (3.59)	0.71
Advancement	14.36 (3.80)	13.14 (4.62)	0.41
Authority	15.18 (4.19)	15.73 (3.65)	0.65
Company policies and practices	15.09 (4.06)	12.79 (4.69)	0.13
Compensation	13.55 (4.70)	12.79 (4.61)	0.61
Co-workers	16.73 (2.87)	15.55 (4.44)	0.40
Creativity	15.73 (3.13)	15.29 (4.59)	0.76
Independence	17.64 (4.15)	17.24 (4.07)*	0.76
Moral values	18.55 (3.17)	18.03 (3.84)	0.67
Recognition	16.36 (4.20)	13.77 (4.83)	0.09
Responsibility	17.09 (3.59)	16.65 (3.59)	0.70
Security	19.00 (3.85)	16.75 (4.20)	0.10
Social service	19.73 (3.82)	18.07 (4.09)*	0.21
Social status	14.64 (3.41)	14.39 (4.02)*	0.85
Supervision-human relations	16.27 (4.27)	13.91 (5.59)*	0.18
Supervision-technical	17.45 (3.48)	14.58 (5.04)	0.07
Variety	16.09 (4.06)	16.31 (4.20)	0.87
Working conditions	17.82 (2.23)	15.26 (3.90)	0.04
General satisfaction	67.09 (11.65)	62.70 (12.12)*	0.26

* n=76, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Full-time and part-time employees do not have any subscale scores with statistically significant differences between their means (Table 11). Both groups report Moral Values, Social Service, and Activity as the three highest areas of satisfaction for their occupations. They also both feel Compensation and Company Policies and Practices are least satisfying. Full-time employees also reported Advancement with low satisfaction scores, while part-time employees reported Responsibility with low scores. General Satisfaction scores for each group are very similar, with the mean for the part-time subjects being slightly more than the full-time employees. Of note, only 86 individuals were used in this analysis because three subjects failed to answer the question asking them to report their working status.

Table 11: MSQ 21 subscale results, full-time versus part-time working status.

	Full-time (n=75)	Part-time (n=11)	t-test
	Mean (Std Dev)	Mean (Std Dev)	p-value
Ability utilization	16.75 (4.29)	17.36 (3.50)	0.65
Achievement	16.92 (3.88)	18.45 (4.32)	0.23
Activity	17.29 (3.76)	18.45 (2.73)	0.33
Advancement	12.96 (4.53)	15.18 (4.47)	0.13
Authority	15.65 (3.83)	14.91 (3.56)	0.55
Company policies and practices	13.08 (4.77)	13.91 (3.18)	0.58
Compensation	12.92 (4.60)	13.00 (4.78)	0.96
Co-workers	15.40 (4.35)	17.82 (3.55)	0.08
Creativity	15.33 (4.53)	15.46 (4.18)	0.93
Independence	17.08 (4.05)	17.82 (4.12)	0.58
Moral values	17.91 (3.71)	19.82 (3.74)	0.12
Recognition	14.28 (4.75)	14.00 (4.22)	0.85
Responsibility	16.51 (3.61)	17.91 (3.30)	0.23
Security	16.95 (4.02)	18.00 (4.71)	0.43
Social service	17.86 (3.95)*	19.82 (4.90)	0.14
Social status	14.35 (3.95)	14.80 (4.24)†	0.74
Supervision-human relations	14.45 (5.22)*	14.45 (6.64)	1.00
Supervision-technical	14.89 (4.68)	16.36 (6.23)	0.35
Variety	16.01 (4.24)	17.27 (3.95)	0.36
Working conditions	15.47 (3.88)	16.27 (3.10)	0.51
General satisfaction	62.64 (12.25)*	67.82 (9.90)	0.23

* n=74, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† n=10, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Means and standards deviations for each of the 21 subscales of the MSQ were calculated for the five job groups present in the sample. An ANOVA analysis was performed (excluding

the Technician group) which showed a statistically significant difference for the Social Service subscale, but the statistical power of this finding is weakened due to the small and unbalanced groups. Service Workers and Professionals both felt Social Service was the most satisfying attribute of their job. Office/Clerical personnel cited Independence as giving them the most satisfaction, while Official/Manager participants demonstrated that Activity was the area they saw as most satisfying. Moral Values was the second highest category for every group.

Table 12: MSQ 21 subscale results, five job groups present in study sample.

	Office/ Clerical (n=12)	Official/ Manager (n=6)	Professional (n=61)	Service Worker (n=9)	Technician (n=1)
	Mean (Std Dev)	Mean (Std Dev)	Mean (Std Dev)	Mean (Std Dev)	Mean (Std Dev)
Ability utilization	15.75 (4.35)	18.17 (5.78)	16.57 (4.10)	17.44 (4.45)	19.00 (-)
Achievement	16.25 (3.08)	17.67 (6.19)	16.77 (3.96)	19.67 (4.03)	15.00 (-)
Activity	17.08 (2.78)	20.17 (5.00)	16.93 (3.54)	19.33 (3.24)	20.00 (-)
Advancement	12.17 (3.51)	12.67 (4.84)	13.10 (4.42)	17.11 (4.26)	5.00 (-)
Authority	14.75 (2.80)	18.50 (5.39)	15.70 (3.38)	15.22 (4.02)	5.00 (-)
Company policies and practices	11.83 (4.80)	14.17 (6.46)	13.21 (4.30)	14.00 (5.34)	6.00 (-)
Compensation	11.25 (3.14)	15.17 (5.71)	13.05 (4.68)	12.33 (4.90)	10.00 (-)
Co-workers	15.92 (4.64)	14.50 (7.56)	15.36 (3.80)	17.67 (3.08)	25.00 (-)
Creativity	14.50 (3.18)	18.83 (5.38)	14.90 (4.45)	17.22 (3.83)	9.00 (-)
Independence	18.08 (4.21)	18.83 (4.75)	17.12 (4.12)▲	16.00 (3.32)	15.00 (-)
Moral values	17.33 (3.14)	19.83 (5.67)	17.67 (3.66)	19.89 (3.59)	21.00 (-)
Recognition	15.00 (5.38)	15.50 (3.89)	13.89 (4.77)	13.67 (5.24)	11.00 (-)
Responsibility	16.17 (2.76)	19.17 (5.71)	16.43 (3.33)	17.67 (4.30)	12.00 (-)
Security	15.75 (2.90)	16.17 (3.87)	17.62 (3.74)	16.22 (6.92)	7.00 (-)
Social service	16.00 (4.05)*	18.17 (4.71)	17.98 (4.02)	22.11 (3.10)	18.00 (-)
Social status	13.27 (2.76)*	16.17 (4.88)	14.48 (3.65)	14.89 (5.40)	5.00 (-)
Supervision-human relations	14.91 (6.30)*	14.83 (5.23)	14.46 (5.24)	12.00 (6.42)	10.00 (-)
Supervision-technical	15.67 (5.45)	14.83 (4.54)	15.07 (4.83)	13.89 (5.58)	9.00 (-)
Variety	15.25 (5.23)	19.17 (5.38)	15.90 (3.84)	18.22 (3.19)	11.00 (-)
Working conditions	14.58 (4.27)	16.67 (5.47)	15.43 (3.60)	16.78 (3.96)	15.00 (-)
General satisfaction	61.33 (11.77)	67.50 (16.36)	62.43 (11.95)	69.38 (9.30)†	50.00 (-)

* n=11, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† n=8, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

▲ n=60, one subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Low areas of satisfaction for the Office/Clerical, Official/Manager, and Professional groups were Advancement and Company Policies and Practices. Compensation was also seen as less satisfying for the Office/Clerical, Professional, and Service Worker groups. Official/Manager employees saw Co-workers as an additional area of low satisfaction, while Service Workers had low scores for Recognition and Supervision-Human Relations attributes. General Satisfaction is highest for Service Workers with a mean of 69.38. Official/Manager personnel have the second highest General Satisfaction mean, followed by the Professional group, and Office/Clerical personnel have the lowest, with a mean of 61.33. None of these differences are statistically significant.

Table 13: Distribution of injury among the five job groups present in study sample.

	n	Office/ Clerical (n=12)	Official/ Manager (n=6)‡	Professional (n=61)	Service Worker (n=9)	Technician (n=1)
		n (% job grp)	n (% job grp)	n (% job grp)	n (% job grp)	n (% job grp)
History of Occupational MSD while working at UPMC:	19	-	1 16.66	15 24.59	3 33.33	-
History of Non-occupational MSD while working at UPMC:	29	3 25.00	1 16.66	24 39.34	1 11.11	-

‡ Two subjects failed to respond to the question: Have you ever had a non-occupationally-related musculoskeletal injury at UPMC?

The distribution of occupational and non-occupational MSD across job groups was examined (Table 13). It was found that Service Workers have the highest percentage of occupational MSD in this sample (33.33%), while the Office/Clerical and Technician groups have no occupational MSD reported. Professional employees rate of occupational MSD is 24.59%, the second highest of the study sample. Reporting of non-occupational MSD is heavily concentrated in the Professional group, where 39.34% of the sample reported a history of such injury. Twenty-five percent of Office/Clerical personnel reported a history of non-occupational MSD, while 16.66% of Official/Manager employees and 11.11% of Service Workers reported a

history of this type of injury. The Technician group did not report any history of non-occupational MSD.

Results from the correlation analysis, examining if years with current employer is correlated with any of the 21 subscales of the MSQ, did not show any statistically significant relationships (Table 14). Age, on the other hand, was shown to be correlated with the Co-workers (p=0.05) and Security attributes (p=0.03). Both of these correlations are negative, so as age increases satisfaction ratings for these scales decrease. Of note, 86 individuals were used in the correlation analysis for age because three subjects failed to answer the question asking them to report their age, while the entire sample of 89 was able to be used to investigate years with employer.

Table 14: Correlation of age and years with current employer with 21 MSQ subscales.

	Age			Years with Current Employer		
	n	Pearson Correlation	p-value	n	Spearman Correlation	p-value
Ability utilization	86	-0.095	0.385	89	-0.043	0.69
Achievement	86	-0.189	0.082	89	-0.121	0.26
Activity	86	-0.031	0.775	89	-0.035	0.75
Advancement	86	-0.190	0.080	89	-0.126	0.24
Authority	86	0.072	0.511	89	0.004	0.97
Company policies and practices	86	-0.083	0.446	89	-0.109	0.31
Compensation	86	0.113	0.299	89	0.065	0.55
Co-workers	86	-0.215	0.046	89	-0.170	0.11
Creativity	86	-0.113	0.299	89	0.014	0.90
Independence	85*	-0.046	0.674	88*	0.042	0.70
Moral values	86	-0.083	0.448	89	-0.052	0.63
Recognition	86	-0.031	0.774	89	-0.116	0.28
Responsibility	86	-0.094	0.390	89	-0.129	0.23
Security	86	-0.238	0.028	89	-0.134	0.21
Social service	85*	-0.156	0.154	88*	-0.142	0.19
Social status	85*	-0.102	0.351	88*	-0.051	0.64
Supervision-human relations	85*	0.088	0.424	88*	0.007	0.95
Supervision-technical	86	0.048	0.658	89	-0.005	0.96
Variety	86	-0.102	0.348	89	0.092	0.39
Working conditions	86	-0.101	0.356	89	-0.083	0.44
General satisfaction	85*	-0.110	0.317	88*	-0.053	0.62

* One subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

Chi-squared analysis did not reveal any statistically significant results on any of the three trials. This analysis was performed to isolate the dissatisfied employees for each subscale of the MSQ, by the history of any MSD and no history of MSD groups, to determine if history of MSD indicated a higher degree of dissatisfaction. Trial one, where scores were split into three groupings, low satisfaction versus average satisfaction versus high satisfaction, showed that the majority of individuals fell into the average satisfaction category (Table 15).

Table 15: Trial 1 of chi-squared analysis, comparison of low, average and high satisfaction scores among injury groups.

		Low Satisfaction		Average Satisfaction		High Satisfaction		
	n	History of any MSD	No History of MSD	History of any MSD	No History of MSD	History of any MSD	No History of MSD	p-value
Ability utilization	88	1	3	35	21	15	13	0.33†
Achievement	88	1	2	24	35	12	14	0.85†
Activity	88	0	0	25	33	12	18	0.78
Advancement	88	5	13	28	36	4	2	0.21†
Authority	88	1	4	40	29	7	7	0.61†
Company policies and practices	88	9	11	24	36	4	4	0.83†
Compensation	88	8	13	35	23	6	3	0.32†
Co-workers	88	3	4	36	29	11	5	0.58†
Creativity	88	3	3	39	25	9	9	0.65†
Independence	87*	3	0	35	23	15	12	0.30†
Moral values	88	0	0	20	35	16	17	0.16
Recognition	88	11	8	19	31	7	12	0.29
Responsibility	88	1	0	23	39	13	12	0.19†
Security	88	2	1	24	40	10	11	0.34†
Social service	87*	0	1	23	29	20	14	0.90†
Social status	87*	5	4	27	41	5	4	0.46†
Supervision-human relations	87*	9	8	20	32	8	10	0.57
Supervision-technical	88	7	8	22	35	8	8	0.66
Variety	88	3	2	25	36	13	9	0.81†
Working conditions	88	3	2	27	39	7	10	0.79†
General satisfaction	87*	1	0	33	45	2	6	0.35†

* One subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† Fisher's exact test results

Trial 2, which compared low satisfaction to average/high satisfaction, had 13 subscales with cells that had expected counts less than five (Table 16). Chi-squared analysis could actually

not be carried out for two attributes, Activity and Moral Values, in this trial because the expected counts for the low satisfaction cells were zero for both individuals with and without a history of MSD, therefore the third trial of chi-squared analysis was performed.

Table 16: Trial 2 of chi-squared analysis, comparison of low and average/high satisfaction scores among injury groups.

	n	Low Satisfaction		Average – High Satisfaction		p-value
		History of any MSD	No History of MSD	History of any MSD	No History of MSD	
Ability utilization	88	1	3	36	48	0.64†
Achievement	88	1	2	36	49	1.00†
Activity	88	0	0	37	51	-
Advancement	88	5	13	32	38	0.17
Authority	88	1	4	36	47	0.39†
Company policies and practices	88	9	11	28	40	0.80
Compensation	88	8	13	38	29	0.67
Co-workers	88	3	4	34	47	1.00†
Creativity	88	3	3	48	34	0.69†
Independence	87*	2	0	35	50	1.00†
Moral values	88	0	0	37	51	-
Recognition	88	11	8	43	26	0.11
Responsibility	88	1	0	36	51	0.42†
Security	88	2	1	35	50	0.57†
Social service	87*	0	1	37	49	1.00†
Social status	87*	5	4	32	46	0.49†
Supervision-human relations	87*	9	8	28	42	0.33
Supervision-technical	88	7	8	30	43	0.69
Variety	88	3	2	34	49	0.65†
Working conditions	88	3	2	34	49	0.65†
General satisfaction	87*	1	0	35	51	0.41†

* One subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† Fisher's exact test results

Comparisons of low/average satisfaction with high satisfaction in the final trial had only five subscales with expected cell counts less than five (Table 7). Of note, only 88 individuals were used in this analysis because one subject failed to answer the question asking them to report history of non-occupational MSD. Comparing the history of any MSD and no history of MSD groups across each satisfaction grouping, it was seen that the number of individuals from each injury group were very similar for each satisfaction level for all three trials.

Table 17: Trial 3 of chi-squared analysis, comparison of low/average and high satisfaction scores among injury groups.

	n	Low – Average Satisfaction		High Satisfaction		p-value
		History of any MSD	No History of MSD	History of any MSD	No History of MSD	
Ability utilization	88	22	38	15	13	0.14
Achievement	88	25	37	12	14	0.61
Activity	88	25	33	12	18	0.78
Advancement	88	33	49	4	2	0.21†
Authority	88	30	44	7	7	0.51
Company policies and practices	88	33	47	4	4	0.63†
Compensation	88	31	48	6	3	0.11†
Co-workers	88	32	40	11	5	0.33
Creativity	88	28	42	9	9	0.44
Independence	87*	25	35	12	15	0.81
Moral values	88	20	35	17	16	0.16
Recognition	88	30	39	12	7	0.60
Responsibility	88	24	39	13	12	0.23
Security	88	26	41	11	10	0.27
Social service	87*	23	30	14	20	0.84
Social status	87*	32	46	5	4	0.49†
Supervision-human relations	87*	29	40	8	10	0.85
Supervision-technical	88	29	43	8	8	0.48
Variety	88	28	38	9	13	0.90
Working conditions	88	30	41	7	10	0.94
General satisfaction	87*	1	0	35	51	0.41†

* One subject had two, or more, missing responses for this subscale therefore has been excluded from this analysis

† Fisher's exact test results

4. DISCUSSION

4.1. SUMMARY OF RESULTS

High levels of satisfaction with the attributes of Social Service and Moral Values were constant across nearly all groups. Activity was also very favorable for most groups. Such positive results in these three categories may be explained by the group surveyed since all individuals are involved in the helping profession of healthcare. Satisfaction with Moral Values may be a reflection of the support employees at this institution receive when trying to assist patients in making the best decision regarding medical care.

Dissatisfaction with certain attributes was also constant across groups. Compensation and Company Policies and Practices had low satisfaction scores for all groups, and Advancement was felt to be less than satisfying for several groups. One reason that occupationally-injured employees may see Company Policies and Procedures as unfavorable is the Return to Work Program, which promotes return to work in modified duty positions until release to full duty, rather than allowing employees to stay off work until they recover from their injury. Educational level of the employee may be affecting the Advancement subscale scores. Individuals with less education may feel that they are trapped in their current position.

General Satisfaction scores ranged from a mean as low as 58.14 for individuals with a history of occupational MSD only, to a mean of 69.38 for the Service Workers group, with most groups having a mean near 63.00. A score of 60 would place an individual directly in the middle of the scale, showing that the group is overall satisfied with their occupations.

Some differences were found between groups regarding specific attributes of satisfaction, but the statistical power of these results is diminished due to the small sample size recruited for the study, so the implications of these findings should be viewed with caution. Subjects with a history of occupational MSD were found to have lower satisfaction levels in regards to Security, defined as how a job provides an individual with steady employment, compared to participants with no history of occupational MSD. Possibly these individuals are afraid that their physical abilities are eventually going to be affected by their occupational MSD and that they are going to have physical restrictions and limitations which would preclude them from performing their current job. They may also feel that they are targeted for termination by the employer since they have a history of occupational injury.

The differences found in Authority, defined as the opportunity to tell others what to do, between employees with no history of MSD compared to individuals with a history of both occupational and non-occupational MSD are hard to explain. This attribute was seen to be more satisfying for subjects with a history of both occupational and non-occupational MSD. All but one of these subjects is classified as Professional, with the remaining subject classified as an Official/Manager. The ages for this group of individuals range from 26 to 63, with years of service ranging from as little as three years, to as many as 30 years. Possibly these individuals are in leadership roles at UPMC and therefore find the authoritative component of their job satisfying. Statistical chance may be the underlying reason for these findings.

Analysis of the male and female groups indicated that the men are more satisfied with their Working Conditions, however, the strength of this finding is weakened by the small sample size and unbalance groups. Possibly the men surveyed previously worked in non-climate controlled environments which influenced their satisfaction scores for this attribute. It could be, too, that the women were more dissatisfied with this attribute due to the nursing shortage that is currently happening. Two statements from the MSQ that contribute to this scale ask about the pleasantness and physical working conditions of the job. The pressure placed on all hospital

staff, specifically nurses, to meet the demands of the patient population they are servicing during times of understaffing may have affected these results.

Differences between job groups, contrary to what is in the literature (Weiss et al., 1967), showed that the Service Worker group had the highest level of General Satisfaction compared to their professional counterparts, though this was not statistically significant it is worth mentioning because there may be some clinical implications. Review of the frequency of occupational and non-occupational MSD across groups showed that Service Worker employees had the highest percentage of occupational MSD, while the Professional group had the highest percentage of non-occupational MSD. Higher rates of occupational MSD for Service Workers were projected because individuals in unskilled labor positions often have higher rates of injury due to the physical nature of their job duties.

The negative correlation found between age and Security may be explained by the increased chance an individual has for injury the older they become (Liberty Mutual, 2003). The fear older individuals sometimes possess that they will be replaced by their younger co-workers may explain the negative correlation of Co-worker satisfaction and age. These results may be applicable to the general population of healthcare workers since a sample size of 86 was used for this analysis.

Chi-squared analysis showed that very few employees responded with “not satisfied” for the 100 MSQ statements. The majority of responses to the MSQ statements were “satisfied” and “slightly satisfied,” displaying that on average participants were satisfied with the job attributes being measured by the survey. “Very satisfied” and “extremely satisfied” were the second largest set of responses. Individuals from the two injury groups were also similarly distributed across each satisfaction level for all three trials.

4.2. LIMITATIONS

4.2.1. Sample

The study sample obtained is probably the most limiting factor for this research study. The small size did not allow for the initial protocol analyses to be performed, which would have identified any specific differences among the job reinforcers for each of the four injury groups (occupational only, non-occupational only, occupational and non-occupational, and no history of MSD). The balance between groups in the sample is also a limitation and it cannot be determined how accurate the differences in the satisfaction attributes that were found in this research study.

How the sample was recruited for the study may be questionable. Since the study survey was recalled it must be asked why some individuals chose to still participate. Possibly, they did not receive the recall notice in time, or they may have completed the questionnaire to fulfill the facility's research participation requirement of all clinical staff. The initial distribution of the survey may have also been biased since the investigator relied on the UPMC contact, who then deferred to the UPMC Shadyside Unit Directors for the distribution of the materials. These factors may also have influenced the responses the subjects provided on the MSQ, where individuals may have felt obligated to complete the survey, which then in turn affected the truthfulness of their responses. Also, only employees with high levels of satisfaction may have chosen to complete the survey, causing the dissatisfied employees to be underrepresented in the sample.

4.2.2. Survey Instrument

Since the MSQ is self-administered, there is room for error in how a participant completes the questionnaire. Statements may not be read in their entirety, individuals may go back and change answers, and questions may be skipped. In addition, subjects may not take the time to read the directions and just begin answering questions, assuming they know what they are supposed to do. External factors, that may influence an individual's responses, also are not accounted for with a self-administered survey.

Over three decades have passed since the MSQ was first released to be used by individuals interested in measuring job satisfaction and reinforcers either in groups or on a client-by-client basis. The material in the survey may be outdated, meaning the attributes the authors identified as holding the most weight when measuring job satisfaction may not be applicable to today's workforce.

The five response selections the MSQ provides may also skew the data. In the test manual, it states that the original selections were "very dissatisfied," "dissatisfied," "neither (satisfied nor dissatisfied)," "satisfied," and "very satisfied" (Weiss et al., 1967). Preliminary data obtained using these response selections skewed the data far to the right, where most subjects were reporting high satisfaction across all of the attributes (Weiss et al., 1967). The switch to the current response selections was made to eliminate the ceiling effect researchers observed and to have responses resemble the normal curve (Weiss et al., 1967). Not providing a response set that includes an equal number of negative responses and positive ones does not allow the potential negative attributes to be gauged among each other. For instance, if an employer was using this survey to find out why their company has such high turnover rates, they would not be able to identify the categories that need their immediate attention from the ones that are not the underlying cause for the constant change in staff.

Overall, reliability of the questionnaire is adequate, but the test manual does advise that the reliability of some scales tends to vary across groups (Weiss et al., 1967), but it does not state which scales are affected. Since the construct validity for the MSQ was not assessed directly, rather via construct validation studies of the Minnesota Importance Questionnaire (MIQ), the true construct validity for the instrument is unknown. In addition, not all of the scales were even evaluated for the MIQ.

The demographic section of the survey instrument also has some limitations in the section that asks individuals to rate their pain. The instructions state: 0=No Pain, 10=Worst Pain Imaginable; but the rating scale for the occupational and non-occupational MSD pain start with one and go up to ten with "N/A" as an additional option, rather than zero. The pain rating scale for overall pain experienced during the past week on average starts with one and goes up to ten with no additional option of selecting "N/A."

4.2.3. Data Entry/Verification

The use of the Verity Teleform software for data entry and verification would have increased the chances of the final dataset being free of errors. Manual entry and verification increases the potential error rate. Without a way to perform double-entry verification for each data point collected, a dataset may be limited in its accuracy.

4.2.4. Control Variables

It was attempted to capture and measure several control variables that could have potentially affected the relationships seen between the job satisfaction attributes and the injury groups (occupational only, non-occupational only, occupational and non-occupational, and no history of MSD). Even though this study did not have the sample size necessary to investigate these relationships, this could have been a study limitation. There are many external factors, separate

from an individual's occupation, that could influence job satisfaction and one survey could not possibly take them all into consideration. One in particular that should be focused on is the program an employer, or employer's insurance company, implements to assist injured individuals return to work. Possibly, satisfaction with these services (or lack of) will sway an individual's job satisfaction once they have returned to full-duty status.

4.3. CONCLUSIONS

Even though this study was limited greatly by its small sample size, some information that it provided can be capitalized upon. Specifically the employer, UPMC Shadyside Hospital, can gain some useful knowledge about their employees and their company. If desired, the employer could explore further the attributes of Compensation, Company Policies and Procedure, and Advancement to see why these areas are in need of improvement across all groups of employees. The areas of Moral Values, Social Service, and Activity could also be investigated to determine what is being done to keep these categories highly satisfying.

The employer could also examine why their Service Workers reported a higher level of General Satisfaction compared to the other job groups surveyed, which in theory should have scored higher than the unskilled employees. If their professional staff is producing low satisfaction scores something very serious may be wrong within the organization, which may in turn cause a high rate of turn-over. The nursing shortage may play into this or staffing issues in general may be to blame.

The differences that were found in this study must be interpreted with caution. The lower levels of Security for individuals with a history of occupational MSD, the negative correlation between age and Security, the higher levels of Authority for employees with a history of

occupational and non-occupational MSD, the differences between subscale scores for Working Conditions between males and females, and the negative correlation between age and Co-workers may all exist in the general population, but the small sample size and subgroups limit the statistical power of these findings.

The fact that occupationally injured employees primarily felt the cause of their injury to be accidental was surprising. It was expected that the employer and patients/customers would be blamed initially. Even though only 18 subjects comprised this subgroup does have positive implications for the company. It would be interesting to see if this trend continued within the entire population of occupationally injured employees at UPMC.

The fact that a pool of dissatisfied employees could not be identified via responses of "not satisfied" to the questionnaire statements was unanticipated. It is unknown if this is a limitation of the sample size or a limitation of the survey itself. Further investigation to discover the reasoning for this outcome should be performed. It may suggest that the MSQ needs to be updated to measure more accurately the needs of today's employees.

Discovering how time unable to work because of an MSD, occupational or non-occupational, and the amount of pain experienced from an MSD, occupational or non-occupational, factors into satisfaction scores would be interesting. This study was unfortunately unable to apply these variables in this way. Time missed from work may be linked to an entitlement mentality that employees at times possess regarding workers' compensation, for their occupational injury, and short-term disability, for their non-occupational injury. For fiscal year 2005 the total lost work days for all types of workers' compensation claims at UPMC was 1,993, while the total lost work days for calendar year 2004 for all types of non-occupational claims was 125,992 (L Croushore, personal communication, August 2, 2005). How pain is gauged by occupationally and non-occupationally injured employees is something else that could be examined. Possibly non-occupationally injured employees are working with higher levels of constant pain compared to their occupationally injured counterparts because short-term disability is a time limited benefit.

The findings from this study could also be valuable to rehabilitation counselors who are working with individuals who have, or are interested in, careers in healthcare. The attributes of Social Service, Moral Values, and Activity were all seen as high satisfaction areas for the study sample, and this may carry over to the general population of healthcare workers. Information such as this could be used to give the counselor some insight into what their client values as important in a job. The attributes of Compensation, Company Policies and Practices, and Advancement could also be used in this way.

Even though the differences found between groups for specific attributes of satisfaction are not powerful enough statistically in this study, clinically they may be useful in alerting a counselor to focus more on these areas with certain individuals. For instance, the issue of job security should be addressed with older individuals and those with a history of occupational MSD.

The information gained from this study can also assist a rehabilitation counselor with the formulation, or modification, of an employee return to work program. The main goal of these programs is to have an individual rejoin the workforce, but there are several factors that contribute to achieving a successful job placement. Research has shown that rates of return to work are directly affected by job satisfaction (Ekbladh, Haglund, & Thorell, 2004; Fisher, 2003; Krause, Dasinger, Deegan, Rudolph, & Brand, 2001). If the counselor working with these individuals were to incorporate what the employees felt was most satisfying about a job into their return to work program, the chances for a successful return to work would increase. This would also pose the potential to maintain, or even increase, an employee's productivity once they return to work (Chandra et al., 2004) and decrease their chance for re-injury (Gice, 1995).

Subsequent research is needed to further the knowledge obtained from this study. The small sample size only allowed the investigator to scratch the surface of the underlying job satisfaction differences between groups of employees, specifically those with and without a history of MSD. Eventually, research for this topic should also include assessments of

experiences involving contributing external factors, such as a return to work program that an employer may be implementing with occupationally and non-occupationally injured employees. A program of this type may affect several attributes of an individual's satisfaction with their occupation.

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