

# Correlates of Injury-forced Work Reduction for Massage Therapists and Bodywork Practitioners<sup>†</sup>

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**Background:** Injury-forced work reduction (IFWR) has been acknowledged as an all-too-common occurrence for massage therapists and bodywork practitioners (M & Bs). However, little prior research has specifically investigated demographic, work attitude, and perceptual correlates of IFWR among M & Bs.

**Purpose:** To test two hypotheses, H1 and H2. H1 is that the accumulated cost variables set (e.g., accumulated costs, continuing education costs) will account for a significant amount of IFWR variance beyond control/demographic (e.g., social desirability response bias, gender, years in practice, highest education level) and work attitude/perception variables (e.g., job satisfaction, affective occupation commitment, occupation identification, limited occupation alternatives) sets. H2 is that the two exhaustion variables (i.e., physical exhaustion, work exhaustion) set will account for significant IFWR variance beyond control/demographic, work attitude/perception, and accumulated cost variables sets.

**Research Design and Participants:** An online survey sample of 2,079 complete-data M & Bs was collected. Stepwise regression analysis was used to test the study hypotheses. The research design first controlled for control/demographic (Step 1) and work attitude/perception variables sets (Step 2), before then testing for the successive incremental impact of two variable sets, accumulated costs (Step 3) and exhaustion variables (Step 4) for explaining IFWR.

**Results:** Results supported both study hypotheses: accumulated cost variables set (H1) and exhaustion variables set (H2) each significantly explained IFWR after the control/demographic and work attitude/perception variables sets. The most important correlate for explaining IFWR was

higher physical exhaustion, but work exhaustion was also significant. It is not just physical “wear and tear”, but also “mental fatigue”, that can lead to IFWR for M & Bs. Being female, having more years in practice, and having higher continuing education costs were also significant correlates of IFWR.

**Conclusions:** Lower overall levels of work exhaustion, physical exhaustion, and IFWR were found in the present sample. However, since both types of exhaustion significantly and positively impact IFWR, taking sufficient time between massages and, if possible, varying one’s massage technique to replenish one’s physical and mental energy seem important. Failure to take required continuing education units, due to high costs, also increases risk for IFWR. Study limitations and future research issues are discussed.

KEY WORDS: work exhaustion; physical exhaustion; occupational work injury

## INTRODUCTION

Approximately 6,500 job-related deaths from injury and 13.2 million nonfatal injuries, including transportation-related, fall-related, exposure to harmful substances, and sprains, strains, and tears, are estimated to occur annually in the civilian American workforce, with such injuries estimated to cost \$145 billion.<sup>(1)</sup> As noted in the Bureau of Labor Statistics,<sup>(2)</sup> Massage Therapists and Bodywork Practitioners (M & Bs) can succumb to various repetitive motion and fatigue work-related injuries due to the physically demanding nature of giving massages, including carpal tunnel syndrome and lower back pain. In her book, Tappan<sup>(3)</sup> indicated that 80 percent of the people who start out in bodywork drop out after the first two years, “due, among other factors, to their hands giving out and not possessing the physical stamina to do their work”. Research has shown that massage

<sup>†</sup> The lead author was given access to this second survey component dataset for academic research purposes only.

practitioners are at high risk for various work-related musculoskeletal disorders including: finger or thumb, shoulder, wrist, neck, arm or elbow, and back.<sup>(4)</sup>

Despite this higher risk of injury, little prior research has specifically investigated demographic, work attitude, and perceptual correlates of injury-forced work reduction (IFWR) among M & Bs. By focusing on M & B work attitudes and perceptions, this study falls within the “what takes place within the therapist during massage therapy?” as an acknowledged area for needed research.<sup>(5)</sup> IFWR is defined here as “work-related injury adversely affecting the hours worked or number of clients treated”. A prior study of M & Bs<sup>(6)</sup> found the following variables to be significantly related to the perception of being forced to stay in the M & B occupation: gender (females higher), lower education level, greater physical exhaustion and work exhaustion, lower job satisfaction, higher affective occupational commitment, higher occupational identification, and perceived limited occupational alternatives. An individual can perceive they must remain in their occupation (occupational entrenchment<sup>(7)</sup>) for various reasons including a strong identification with one’s work and limited other occupational alternatives.

A separate decision from staying in one’s occupation involves the individual’s behavioral level of commitment or withdrawal.<sup>(7)</sup> Behavioral examples of occupational withdrawal can include decreased performance and less time spent working.<sup>(8)</sup> An occupational injury, such as carpal tunnel syndrome for M & Bs, can reduce the time spent working.<sup>(9)</sup> This study expanded on earlier research<sup>(6)</sup> by controlling for prior variables before testing the impact of a new variables set, accumulated costs, on IFWR. Accumulated costs measures factors one has invested in the occupation, including time, personal effort, education, and training.<sup>(7)</sup> This study also tested for the incremental impact of an exhaustion variable (i.e., physical exhaustion, work exhaustion) set on IFWR after controlling for all prior variables. Physical exhaustion measures perceived body fatigue, low energy, and tiredness, while work exhaustion measures levels of mental frustration, feeling overwhelmed, and being emotionally drained.<sup>(6)</sup> To summarize two hypotheses are proposed: 1) H1—the accumulated costs variable set will account for a significant amount of IFWR variance beyond control/demographic and work attitude/perception variables sets; and 2) H2—the exhaustion variables set will account for significant amount of IFWR variance beyond control/demographic, work attitude/perception, and accumulated costs variables sets.

## METHODS

### Subjects and Procedure

In the fall, 2006 the Federation of State Massage Therapy Board (FSMTB), a regulatory body, collected

online survey data from its practitioner-based membership licensed in jurisdictions whose boards are members of the FSTMB, or members of the Associated Bodywork & Massage Professionals (ABMP) or the American Massage Therapy Association (AMTA). The survey contained two distinct components: a Job Task Analysis (JTA) portion, followed by a Career Patterns (CP) portion. This study is based on data from the CP survey portion. The purpose was to ask M & Bs about their perceptions and attitudes towards their occupation. Through electronic mailing and conference announcements, M & Bs were asked to participate. It is estimated that approximately 75,000 M & Bs in the United States were informed of the survey. Both the M & B national associations, the ABMP and AMTA, sent emails to their members with a survey link. Of the 75,000 M & Bs, approximately 10% or 7,500 responded to the survey. From these, 80% completed the first JTA portion of the online survey and 45% of the JTA completion section group went onto finish the CP survey (2,698 respondents). Since the JTA portion of the survey took approximate 45 minutes to complete, this may have affected the response rate for the subsequent CP survey portion, which took approximately 15 minutes to complete. The complete data sample size for all this study’s variables was 2,079 M & Bs (3% of the estimated contacted population). For these complete data respondents, the two highest primary work settings were private office (31%) and home (17%). The main employment classifications were management/owner practitioner of a staffed facility (35%) and sole practitioner (26%). In terms of racial background, the sample was comprised of 3% Hispanic, 2% African American, 87% Caucasian, 1% Asian, 1% American Indian, and 6% other. The two highest age categories were: 45–54 (32%) and 35–44 (25%). Respondents were provided with a general introduction that the survey was measuring their attitudes and perceptions about the massage therapy occupation and were reassured that all individual responses were confidential. All measured items below were approved by the FSMTB and the authors’ University Institutional Review Board.

## Measures

### Control/demographic variables set

There were four variables in this set: Social Desirability Response Bias, Gender, Years in Practice, and Highest Education Level. Social Desirability Response Bias (SDRB) was measured as a control variable to assess the “honesty” of online respondent answers. SDRB was measured using a six-item measure based partially on items from the Impression Management scale by Paulhus.<sup>(10)</sup> A sample item is: “When I hear people talking privately, I avoid listening”. These items, and all items in the measures listed below (except as noted), were measured using the following continuous six-point balanced,

forced-choice Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree. Multi-item scales had their total score divided by the number of items, so that scale means were based on this six-point response scale. Gender (percentage in category) was measured as 1 = female (79%) and 2 = male (21%). Years in Practice was measured as 1 = less than one year (10%), 2 = 1–2 years (18%), 3 = 3–5 years (25%), 4 = 6–10 years (23%), 5 = 11–15 years (12%), 6 = 16–20 years (6%), and 7 = over 20 years (6%). Highest Education Level was measured as 1 = high school (8%), 2 = associate's degree (34%), 3 = some college (16%), 4 = bachelor's degree (29%), 5 = master's degree (11%), and 6 = doctorate (2%).

### **Work attitude/perception variables set**

There were four variables in this set: Job Satisfaction, Affective Occupational Commitment, Occupation Identification, and Limited Occupational Alternatives. Job Satisfaction was measured using a three-item measure based on Cammann et al.<sup>(11)</sup> A sample item is: “In general, I like my job”. Affective Occupation commitment was measured using a six-item scale adapted from Meyer et al.<sup>(12)</sup> A sample item is: “I strongly identify with the massage/bodywork/somatic therapy occupation”. Occupation Identification was measured using a six-item measure adapted from Mael and Ashforth.<sup>(13)</sup> A sample item is “This occupation's successes are my successes”. Limited Occupation Alternatives were measured using a four-item scale based on Carson et al.<sup>(14)</sup> A sample item is: “I would have many options if I decided to change occupations” (reverse-scored).

### **Accumulated cost variables set**

There were two variables in this set: Accumulated Costs and Continuing Education Costs. The six-item Accumulated Cost scale by Carson and colleagues was adapted, and a sample item is “I have too much time invested in massage therapy to change occupations”. A second (two-item) study specific scale, Continuing Education Costs, was measured and a sample item is: “It costs too much for me to take required continuing education”.

### **Exhaustion variables set**

Two variables comprised this set: Physical Exhaustion and Work Exhaustion. Physical Exhaustion was measured using four study-specific items. One example would be, “By the end of a typical work day, I am physically exhausted”. Work Exhaustion was measured using a five-item scale previously used by Blau et al.<sup>(15)</sup> and a sample item is: “I often feel like giving up at my job”.

### **Injury-forced Work Reduction (IFWR)**

IFWR was measured using two study-specific items: “I can no longer work the hours I previously

worked due to occupational injury”, and “I can no longer treat as many clients per day due to work injury (e.g., carpal tunnel syndrome, lower back pain)”. Pilot testing of these items confirmed their face and content validity.<sup>(16)</sup>

### **Discriminant validity of IFWR from Forced To Stay in Occupation**

Prior research<sup>(6)</sup> measured being forced to stay in the M & B occupation (FTSO). A sample FTSO item was: “Even though I am in physical pain, I am too loyal to leave the massage field”. The IFWR-FTSO correlation of  $r = .43$  indicates that with an 18%  $(.43)^2$  overlap, IFWR is a distinct variable from FTSO.<sup>(16)</sup>

### **Data Analysis**

SPSS-PC version 19<sup>(17)</sup> was used to analyze the data. Given the large sample size, stepwise regression was used to test both hypotheses (H1 and H2) and only variables meeting at least a  $p < .01$  threshold (99% probability of statistical significance) were considered statistically significant. Based on the hypotheses, variables were entered as variable sets in the following steps to the regression model: Step 1 (control/demographic)—SDRB, gender, years in practice, and highest education level; Step 2 (work attitude/perception)—job satisfaction, affective occupation commitment, occupation identification, and limited occupation alternatives; Step 3 (accumulated cost)—accumulated costs and continuing education costs; and Step 4 (exhaustion)—physical exhaustion and work exhaustion. Steps 1 and 2 allow comparability to prior work, while Step 3 tests H1 and Step 4 tests H2. By entering these variable sets in ordered steps, regression analysis allows for controlling the impact of a prior step (variable set) for explaining IFWR. Thus the incremental variance or change in  $R^2$  when a variable set is added is tested for statistical significance for H1 (Step 3—accumulated costs) and H2 (Step 4—exhaustion variables). It was also determined that the two assumptions of no multicollinearity and regression model errors being normally distributed were met.<sup>(18)</sup> Meeting these two assumptions gives more confidence in the regression model findings.

## **RESULTS**

### **General**

Study variable means, standard deviations, reliabilities, and correlations are reported in Table 1. Such statistics provide useful background information prior to hypotheses-testing. To highlight particular results, scale means show high levels of job satisfaction (5.47/6) and affective occupation commitment (5.44/6); low levels of accumulated

TABLE 1. Means, Standard Deviations, Reliabilities, and Correlations for the Complete Data Sample<sup>a</sup>

Variable Name	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. Social desirability response bias	4.75	.64	(.71) <sup>b</sup>											
2. Years in practice <sup>c</sup>	4.37	1.60	-.08	(NA)										
3. Highest education level <sup>d</sup>	3.08	1.25	-.13	.12	(NA)									
4. Job satisfaction	5.47	.66	.27	.10	-.06	(.89)								
5. Affective occupation commitment	5.44	.58	.22	-.02	-.15	.55	(.82)							
6. Occupation identification	4.41	.81	.13	-.07	-.08	.17	.34	(.74)						
7. Limited occupation alternatives	2.69	1.13	-.07	.01	-.23	-.05	.03	.08	(.88)					
8. Accumulated costs	2.76	1.00	.03	-.03	-.25	.05	.21	.30	.38	(.89)				
9. Continuing education costs	2.77	1.20	-.06	-.14	-.15	-.20	-.09	.06	.14	.19	(.78)			
10. Physical exhaustion	2.46	1.01	-.17	-.05	-.05	-.29	-.19	.07	.14	.17	.26	(.84)		
11. Work exhaustion	1.75	.76	-.23	-.05	-.03	-.60	-.42	-.03	.11	.10	.30	.55	(.86)	
12. Injury-forced work reduction	1.84	1.07	-.14	.14	.01	-.25	-.20	-.03	.06	.08	.18	.53	.39	(.94)

<sup>a</sup>*N* = 2,079;  $r > .04$  ( $p < .05$ );  $r > .07$  ( $p < .01$ ), both two-tailed; all study variables presented in this table measured on a six-point response scale, where 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = slightly agree, 5 = agree, and 6 = strongly agree, except as noted

<sup>b</sup>Scale reliability (coefficient alpha)

<sup>c</sup>Years in practice, 1 = less than one year, 2 = 1–2 years, 3 = 3–5 years, 4 = 6–10 years, 5 = 11–15 years, 6 = 16–20 years, 7 = more than 20 years

<sup>d</sup>Highest education level, 1 = high school, 2 = associate's degree, 3 = some college, 4 = bachelor's degree, 5 = master's degree, 6 = doctorate

NA = not applicable

costs (2.76/6), continuing education costs (2.77/6), and physical exhaustion (2.46/6); and very low levels of work exhaustion (1.75/6) and IFWR (1.84/6). The standard deviation for these variables indicates sufficient response variation. Scale reliabilities are shown in parentheses in the diagonal of Table 1. All exceed the recommended level of .70,<sup>(16)</sup> and the internal consistency (reliability) of the IFWR measure was .94. Higher reliability indicates that the measure contains less error.<sup>(16)</sup> As shown in Table 1, the correlation between the work exhaustion and physical exhaustion scales is .55, which indicates a 30% overlap (.55)<sup>2</sup>. As expected, these two exhaustion measures are correlated, but they are sufficiently independent to be used as distinct scales.<sup>(19)</sup> Other correlations presented in Table 1 indicate sufficient measure independence. The strongest correlation is -.60 between job satisfaction and work exhaustion, which indicates a 36% overlap (-.60)<sup>2</sup>. This result is consistent with prior research.<sup>(19)</sup> Overall, these general results in Table 1 support moving to testing the study hypotheses.

### Test of Hypotheses

Table 2 shows the final stepwise regression model results for testing the study hypotheses. Variables were entered in four steps as noted above. For Step 1, looking in the  $R^2$  column, 5% (.05) of the variance in IFWR was collectively explained ( $p < .01$ ) by the control/demographic variables set, and looking at the regression weight (b) column, two individual variables, gender (females,  $b = -.18$ ) and years in

practice ( $b = .12$ ) were each significant ( $p < .001$ ). For Step 2, looking at the change in  $R^2$  column (Chg  $R^2$ ), an additional 6% of the IFWR variance was collectively explained ( $p < .01$ ) by the work attitude/perceptual variables set, but looking at column b, none of the individual variables were significant. For Step 3, looking at the Chg  $R^2$  column, an additional 3% of the variance in IFWR was explained ( $p < .01$ ) by the accumulated cost variables set which provides support for H1. Within this variable set, looking at column b, continuing education costs ( $b = .05$ ) were significant ( $p < .01$ ). For Step 4, looking at the Chg  $R^2$  column, an additional 20% of the IFWR variance was explained ( $p < .01$ ) by the exhaustion variables set which provides support for H2. Within this variable set, looking at column b, both physical exhaustion ( $b = .48$ ) and work exhaustion ( $b = .13$ ) were significant ( $p < .01$ ). Looking in the  $R^2$  column in the bottom row, overall 34% (out of 100%) of the variance in IFWR was accounted for or explained by all variables in the model.

### DISCUSSION

The projected new job employment from 2010 to 2020 for M & Bs is expected to grow over 20% in the United States as the population ages and demand for massage therapy increases.<sup>(2)</sup> A meta-analysis on the benefits of massage therapy to clients indicated that reduction of anxiety and depression was the largest perceived beneficial effect.<sup>(20)</sup> In addition to this benefit, a recent study also suggested the following

TABLE 2. Final Stepwise Regression Model Testing for Accumulated Costs/Investments and Exhaustion Incrementally Impacting to Explain IFWR Beyond Controlled-for Variables<sup>a</sup>

Independent Variable	Injury-forced Work Reduction (IFWR)			
	<i>b</i>	Standard Error	<i>R</i> <sup>2</sup>	Chg <i>R</i> <sup>2</sup>
Step 1: Enter Control/Demographic Variables				
Social desirability response bias	-.01	.03		
Gender <sup>b</sup>	-.18 <sup>d</sup>	.05		
Years in practice	.12 <sup>d</sup>	.01		
Highest education level	.01	.02		
			.05 <sup>c</sup>	
Step 2: Enter Work Attitude/Perception Variables				
Job satisfaction	-.08	.04		
Affective occupation commitment	-.05	.04		
Occupation identification	-.04	.03		
Limited occupation alternatives	-.03	.02		
			.11 <sup>c</sup>	.06 <sup>c</sup>
Step 3: Enter Accumulated Cost Variables				
Accumulated costs	.02	.02		
Continuing education costs	.05 <sup>c</sup>	.02		
			.14 <sup>c</sup>	.03 <sup>c</sup>
Step 4: Enter Exhaustion Variables				
Physical exhaustion	.48 <sup>d</sup>	.02		
Work Exhaustion	.13 <sup>c</sup>	.04		
			.34 <sup>c</sup>	.20 <sup>c</sup>

<sup>a</sup>N = 2,079<sup>b</sup>gender: 1 female, 2 male<sup>c</sup>*p* < .01 (two-tailed)<sup>d</sup>*p* < .001 (two-tailed)*b* = unstandardized regression weight

physiological client benefits: reduced musculoskeletal pain, lower arthritic pain, and reduction of lymphedema.<sup>(5)</sup> Boulanger et al.<sup>(21)</sup> found that massage therapy clients had high expectations regarding the benefits of massage. Such high expectations can place great demands on M & Bs. Therefore, research is needed to understand the work-related attitudes and perceptions of M & Bs.<sup>(5)</sup> This study focused on investigating demographics, and work-related attitude and perception variables affecting injury-forced work reduction (IFWR) among M & Bs.

Prior M & B research<sup>(6)</sup> had looked at being forced to stay occupation (FTSO). None of the four work attitude and perception variables that each significantly impacted being forced to stay in occupation (i.e., job satisfaction, affective occupation commitment, occupation identification or limited occupation alternatives) had a significant impact on IFWR in this study. This finding, in conjunction with the earlier-noted finding of discriminant validity between the FTSO and IFWR measures, provides additional evidence for IFWR being a distinct variable from FTSO.

Although support was found for both study hypotheses, the strongest support was for H2 (the exhaustion variable set) accounting for significant IFWR variance. Of the two exhaustion variables, physical and mental, physical exhaustion or being body fatigued due to energy expenditure had the strongest relationship to IFWR. This finding is consistent with prior literature supporting the physically demanding nature of massage therapy and its occupational risks.<sup>(2,3)</sup> In addition, it is also important to note that work exhaustion had a significant independent positive impact on IFWR. Thus it is not just physical “wear and tear”, but also the “mental fatigue” of work exhaustion, that can increase injury risk for M & Bs. Such mental fatigue may be partially due to work factors, including: public misconceptions about the nature of massage therapy, general work setting isolation, and physical concerns, which Fortune and Gillespie<sup>(22)</sup> found to be anxiety-causing in their sample of interviewed M & Bs.

Although there was statistical support for H1, the results were not as strong as for H2. Only continuing education costs (and not accumulated costs) had

a significant impact on IFWR. Continuing education costs measured the general perception that it was too costly or expensive for M & Bs to take required continuing education courses to maintain their credentials. Higher agreement with this perception was positively related to injury-forced work reduction (IFWR). This suggests that when M & Bs do not take continuing education courses (due to cost), it may put them at greater risk for injury. Other significant correlates of IFWR included being female and having practiced M & B longer. A prior physiological study<sup>(23)</sup> suggests an innate gender difference such that men generally have larger and stronger muscles than women, and that these differences are greater in the upper limbs. As noted in the Introduction, massage practitioners are at high risk for various work-related upper limb musculoskeletal disorders, including finger or thumb, shoulder, wrist, neck, arm or elbow. The longer one practiced M & B, the greater the likelihood of reported IFWR. Measurement limitations are discussed below. The minimal impact of social desirability response bias<sup>(10)</sup> on study variables suggests that respondents gave honest survey answers.

### Limitations

There are various study limitations to acknowledge. First looking at the measures, although the two-item IFWR measure was reliable, it was also very general; it did not isolate different types of injuries in specific items. The continuing education costs measure was also very general (e.g., specific costs were not detailed). The item “years in practice” was measured using unequal yearly intervals, from a minimum of less than one year to a maximum of over twenty years. The cross-sectional research design used here necessitates caution in talking about correlates as antecedents of IFWR perceptions. For example, higher IFWR may lead to higher exhaustion. All study variables were self-reported, so method variance is an issue. However, the Harman one-factor test, suggested as a partial statistical remedy,<sup>(24)</sup> indicated that the first factor only accounted for 18% of the cumulative variance, so (self-report) method variance alone is not driving the results. The high reported means for job satisfaction and affective occupation commitment and lower reported means for physical exhaustion and work exhaustion collectively suggest that this was a “happy” sample.

Sample self-selection is clearly a methodological concern with online survey research<sup>(25)</sup> and can limit generalizability. To the authors’ knowledge, this was the first IFWR-focused work attitude and perception variables survey of M & Bs in the United States. The survey participation rate was very low, the dataset is six years old, and participating sample representativeness is limited to membership licensed in jurisdictions whose boards are members of the FSTMB or members of the ABMP or AMTA.

However, comparative demographics with a smaller sample of 517 (23% response rate) M & Bs collected by a subsidiary of the Educational Testing Service (The Chauncey Group) during 2001–2002<sup>(26)</sup> are consistent with the reported demographics for the present study. For example, in this earlier study 81% of the M & Bs were female; 87% were white; 81% had less than nine years in the M & B profession; 13% had an associate’s degree, 22% had some college, and 28% had a bachelor’s degree; and the two most common primary work settings were private office (23%) or home (22%). In addition, the top five primary therapeutic/massage/bodywork approaches used in this earlier study were: Swedish massage, deep connective tissue massage, myofascial release, neuromuscular therapy, and trigger point therapy. Although the percentage using each in the earlier study was not given, this order compares favorably with the top five approaches given by the present sample (percentage using): Swedish massage (33%); deep tissue (19%), trigger point therapy (8%), clinical/medical orthopedic massage (7%), and myofascial release (6%). In addition, the current study’s demographics are generally consistent with a more recent demographic study of American Massage Therapy Association (AMTA) members,<sup>(27)</sup> which included the following breakdown: predominantly female (85%); 38% having at least a bachelor’s degree; 12 years of average occupational service; 74% being a sole practitioner with their own business; and 50% of members between the ages of 35 and 54.

### Implications for Massage Therapists and Suggestions for Future Research

Positive study findings include lower overall levels of work exhaustion, physical exhaustion, and IFWR found in the study sample. However, since both types of exhaustion each positively impact IFWR, taking sufficient time between massages to replenish one’s physical and mental energy seems important. Physical and mental occupational stresses may increase because many M & Bs work alone without on-site supervisor or coworker support.<sup>(2,22)</sup> Work exhaustion could be reduced by massage therapists further enhancing their interpersonal skills (e.g., active listening, empathy, conflict resolution) to better deal with all types of client situations and demands.<sup>(28)</sup> Study results suggest that it may be more important for female M & Bs to strengthen their upper muscular limbs (e.g., shoulder, arms, neck) and for all M & Bs to continue these strengthening exercises as their years in practice increase in order to prevent IFWR.

Future research on IFWR ideally needs to isolate specific injuries in items, such as carpal tunnel syndrome, lower back pain, and specific musculoskeletal disorders (e.g., shoulder, wrist, neck). The continuing education costs measure should be more

specific, including information about cost and hourly credits required, which vary from state to state.<sup>(29)</sup> Unfortunately, this study did not measure M & Bs' varying their massage techniques and the time taken between client massages. These items have been previously acknowledged to be important in injury prevention,<sup>(28)</sup> and should be measured in future research. A measure of perceived pain from M & Bs while they were giving a massage was also not collected. Incorporating such additional measures would have increased the total amount of IFWR variance accounted for ( $R^2$ ) or explained in the regression analysis. Ideally, future research should also survey M & Bs who are not members of any professional organization to better capture the M & B population.

## CONCLUSION

Occupational injury which forces some type of work reduction can be an issue for massage therapists. Both types of exhaustion, physical and work, each significantly contribute to such injury-forced work reduction (IFWR). The two-item IFWR general scale used was a reliable initial measure of this construct. Additional research is needed to further test the impact of this variable as part of a broader research agenda to better understand the attitudes and perceptions of M & Bs and to promote their career satisfaction.<sup>(5)</sup>

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## CONFLICT OF INTEREST NOTIFICATION

The authors declare there are no conflicts of interest.

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