

Job strain associated with musculoskeletal disorders (MSDs) in hospital nurses: A mediation analysis of work-related fatigue and burnout

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Background and objective

Based on a comprehensive review (Davis & Kotowski, 2015), the majority of the studies indicated that prevalence of MSD pain for nurses was highest in the lower back, followed by shoulders and neck in hospitals. Since musculoskeletal disorders (MSDs) frequently result from high workload and prolonged worktime in nurses, the direct and indirect effects of psychological factors, work-related fatigue (WRF), and burnout on MSDs is still inconclusive.

This study has two aims: (1) to examine MSDs associated with job strain index (JSI), work-fatigue and burnout; (2) to assess the mediating roles of WRF and burnout on the relationship between job strain and MSDs in hospital nurses.

Methods/intervention



The mediation roles of WRF and burnout on the association between JSI and burnout were assessed by Hayes models 7.

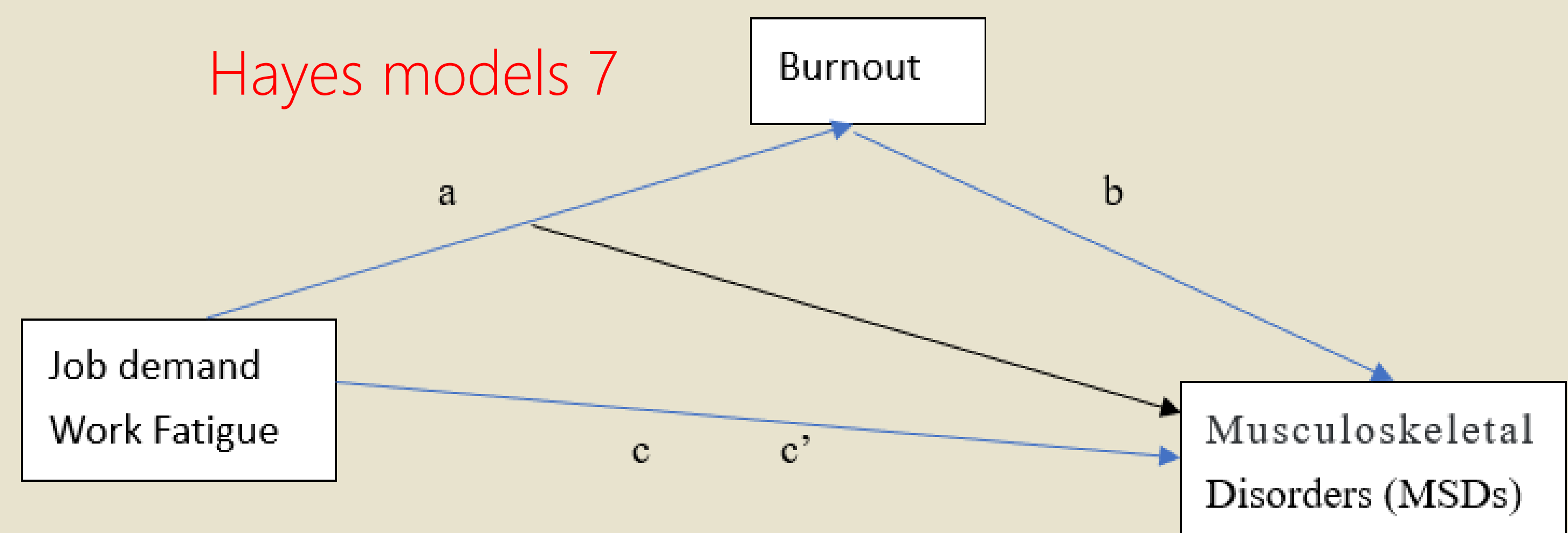
Results

Interaction effect of burnout and job demand on MSDS using logistic regression model adjusted for age, sex, education, marital status and job title

		Crude model	Adjusted model
Burnout	Job demand	OR(95%CI)	OR(95%CI)
Low	Low	1.0	1.0
Low	High	1.72**(1.22-2.44)	2.34**(1.53-3.29)
High	Low	2.01*(1.12-3.60)	2.49**(1.32-4.68)
High	High	2.39**(1.66-3.45)	3.53**(2.35-5.31)

Interaction effect of burnout and work fatigue on work dissatisfaction using logistic regression model adjusted for age, sex, education, marital status and job title

		Crude model	Adjusted model
Burnout	work fatigue	OR(95%CI)	OR(95%CI)
Low	Low	1.0	1.0
Low	High	4.10**(1.79-9.39)	4.21**(1.79-9.90)
High	Low	1.10(0.51-2.35)	1.08(0.49-2.36)
High	High	7.45**(4.77-11.63)	7.33**(4.60-11.68)



Mediation analysis of burnout on the effect job demand and work fatigue on musculoskeletal disorders (MSDs) adjusted for age, sex, education, marital status and job title

	a	b	c	c'	Indirect Effect (%)
Job demand	1.804** (0.187)	0.869** (0.179)	0.784** (0.152)	0.516** (0.163)	81.0%
Work Fatigue	3.214** (0.223)	0.869** (0.179)	1.127** (0.159)	0.823** (0.196)	93.1%

Conclusions/lessons learned

Since burnout was the main contributing factor to occurrence of MSDs in nurses, empowerment for modification is implemented in nursing departments to reduce WRF and burnout as a priority guideline for MSDs prevention programs for nurses. Therefore, to keep up with the growing illnesses and injuries of MSDs.