

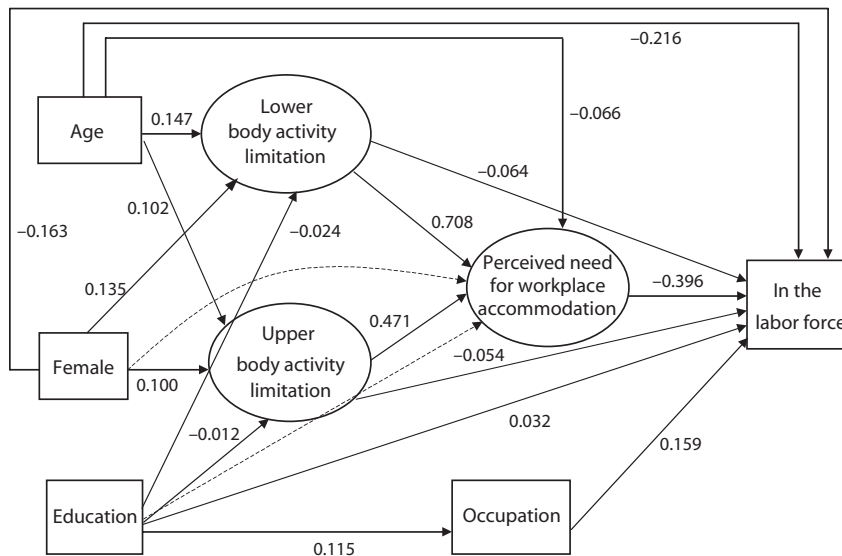
Perceived Need for Workplace Accommodation and Labor-Force Participation in Canadian Adults With Activity Limitations

Peizhong Peter Wang, DPhil, Elizabeth M. Badley, DPhil, and Monique A. Gignac, DPhil

We examined how perceived need for workplace accommodation affects labor-force participation in people with disabilities. We analyzed a Canadian survey with structural equation modeling to test a model incorporating activity limitations and perceived need for workplace accommodations. The results suggested that the effect of upper- and lower-body activity limitation on labor-force participation was mediated by perceived need for workplace accommodations. Thus, the provision of adequate workplace accommodations could enhance labor-force participation in people with disabilities. (*Am J Public Health*. 2004;94:1515–1518)

Research suggests that work-related disabilities often reflect a mismatch between an individual's capacities and the physical or mental demands of the job.^{1–3} Yet, little is known about how people with disabilities perceive workplace accommodations in relation to their labor-force participation. The role of workplace accommodation in affecting the employment of people with disabilities (activity limitation) can be conceptualized in terms of the *International Classification of Functioning, Disability and Health*,⁴ in which self-perceived need for workplace accommodation is hypothesized to have a mediating role between activity limitation (the difficulties an individual may have in performing a task or an action) and restriction in employment.

The objective of our study was to examine this hypothesis in the Canadian working-age



Note. Numbers are path coefficients; all path coefficients shown are statistically significant ($P < .01$). Dotted lines represent nonsignificant paths. Education and occupation were coded from low to high. The presented model was based on people with valid occupation codes only; the model with a full sample size that excluded the occupation variable yielded similar results for the other variables.

FIGURE 1—Conceptual model illustrating the relations among activity limitation, perceived need for workplace accommodation, and labor-force participation.

population. Figure 1 shows our conceptual model and specifies the relations among physical activity limitation, labor-force participation, perceived need for workplace accommodation, and sociodemographic factors.

METHODS

We analyzed the 1991 Canadian Health and Activity Limitation Survey, a national postcensus survey of people with disabilities.^{5–10} The analytic population comprised people aged 25 to 64 years, with a sample size of 18 384.

A binary outcome variable was created to reflect labor-force participation status: 0 = not in the labor force, and 1 = in the labor force (working and looking for work). Physical activity limitations were measured by 12 variables and were represented by 2 latent constructs—lower- and upper-body activity limitations (lower- and upper-body activity limitations should be interpreted as lower-body-dominant and upper-body-dominant activity limitations, respectively)—

derived from confirmatory factor analyses. This categorization was consistent with previous research.¹¹ The sociodemographic variables in this study included age (an ordered variable with 10-year intervals), sex, education, and occupation. For the purposes of this study, various occupations were grouped into 3 categories approximately reflecting the physical demand of work: “nonprofessionals,” “semiprofessionals,” and “professionals.” This categorization was consistent with our previous studies.^{12–14}

The perceived need for workplace accommodation variable was derived from participants’ answers to 8 workplace accommodation questions regarding the availability of (1) handrails, (2) accessible parking, (3) elevators, (4) accessible workstations, (5) accessible washrooms, (6) transportation, (7) job redesign, and (8) flexible work hours. For employed participants, these questions referred to the current work environment, and they were asked about the need for particular accommodations that were not available to them. For those who were unemployed and

not in the labor force, these questions were based on the participants’ perceptions of the need for these accommodations if they would have been offered a job (only those with valid job titles were included in the structural equation modeling analysis). All these items were coded as binary variables: 1 = needed but not available, and 0 = all others. Structural equation modeling analyses were conducted with Mplus.¹⁵ Path coefficients in structural equation modeling can be viewed as regression coefficients derived from a set of multiple regression models. Because all path coefficients have been standardized, they can be compared across variables.

RESULTS

Table 1 shows labor-force status by selected sociodemographic characteristics and activity limitation variables. The results for the final structural modeling analyses (Figure 1) suggest that lower- and upper-body activity limitations affected labor-force participation both directly and indirectly through perceived need for workplace accommodation. However, the perceived need for workplace accommodation mediated most of the effects of lower- and upper-body activity limitations on labor-force participation. With severe activity limitations, a person was more likely to perceive the need for workplace accommodation, which discouraged him or her from being in the labor force. The indirect effects of lower- and upper-body activity limitations on labor-force participation that were mediated by the perceived need for workplace accommodation were -0.280 (0.708×-0.396) and -0.187 (0.471×-0.396), respectively, and were higher than the direct effects. Lower-body activity limitation affected labor-force participation more than did upper-body activity limitation, with corresponding total effects of -0.344 and -0.241 .

As expected, older people and women were less likely to be in the labor force, with overall effects of -0.266 and -0.163 , respectively. Older people also were slightly less likely to report the need for workplace accommodation (path coefficient = -0.066). Higher education was significantly associated with increased labor-force participation. The protective effect of education on labor-

TABLE 1—Labor-Force Participation Status, by Selected Characteristics: Results From the Canadian Working-Age (25–64 Years) Population

	Percentage in the Labor Force
Overall	48.28
Age, y	
25–34	64.23
35–44	59.04
45–54	48.74
55–64	23.75
Gender	
Male	54.01
Female	42.35
Education	
Primary or lower	20.02
Secondary	45.23
Postsecondary	50.60
Occupation ^a	
Nonprofessional	61.21
Semiprofessional	71.41
Professional	73.42
Lower-body activity limitations? ^b	
Walking 350 m	
No	60.47
Yes	31.14
Walking up or down a flight of stairs	
No	59.18
Yes	34.36
Carrying 10 lbs	
No	57.12
Yes	33.24
Moving from one room to another	
No	51.05
Yes	29.87
Standing for more than 20 min	
No	57.90
Yes	35.89
Bending down and picking up an object	
No	55.94
Yes	36.91
Upper-body activity limitations? ^b	
Dressing and undressing	
No	51.53
Yes	32.85
Getting into and out of bed	
No	42.70
Yes	36.47

Continued

TABLE 1—Continued

Cutting toenails	
No	54.85
Yes	31.67
Grasping	
No	51.72
Yes	35.80
Reaching in any direction	
No	53.18
Yes	53.18
Cutting food	
No	50.06
Yes	28.61

^aFor those with valid information only.^bYes = disability or unable to do.

force participation was partially mediated by occupation—people with higher education were more likely to have professional jobs, which enhanced labor-force participation.

DISCUSSION

The findings presented in this study suggest that perceived need for workplace accommodation played an important mediating role in reducing labor-force participation in people with physical limitations. The provision of adequate workplace accommodations thus could contribute to enhancing labor-force participation in people with physical activity limitations. Future research efforts need to examine how the observed associations might be affected by other factors, including the cause of the activity limitation, availability of disability pensions, individual's perception of activity limitation, and economic cycle. Such research would be able to further estimate the stability and magnitude of the effect of unmet need for workplace accommodation on labor-force participation in people with disabilities. ■

About the Authors

Peizhong Peter Wang, Elizabeth M. Badley, and Monique A. Gignac are with The Arthritis Community Research and Evaluation Unit, University Health Network, Toronto Western Hospital Research Institute, Toronto, Ontario, and the Division of Outcomes and Population Health, Department of Public Health Sciences, University of Toronto.

Peizhong Peter Wang is also with Tianjin Cancer Research Institute, Tianjin Medical University, Tianjin, P.R. China.

Requests for reprints should be sent to Peizhong Peter Wang, DPhil, The Arthritis Community Research and Evaluation Unit, Toronto Western Hospital Research Institute, University Health Network, MP 10-327, 399 Bathurst St, Toronto, Ontario M5T 2S8, Canada (e-mail: wang@uhnres.utoronto.ca).

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Contributors

All 3 authors helped to formulate the hypotheses and participated in the writing of the brief. P.P. Wang conducted the analyses and prepared the first draft of the brief. E.M. Badley helped to conceptualize the overall study questions and wrote the introductory section. M.A. Gignac helped to revise the brief.

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Human Participant Protection

This study was based on secondary data analyses within a public accessible database, and no approval was required.

References

- Nagi S. *Some Conceptual Issues in Disability and Rehabilitation*. Washington, DC: American Sociological Association; 1965.
- Pope A, Tarlov A. *Disability in America. Towards a National Agenda for Prevention*. Washington, DC: National Academy Press; 1991.
- Krause N, Dasinger LK, Deegan LJ, Rudolph L, Brand RJ. Psychosocial job factors and return-to-work after compensated low back injury: a disability phase-specific analysis. *Am J Ind Med*. 2001;40:374–392.
- International Classification of Functioning, Disability and Health (ICF)*. Geneva, Switzerland: World Health Organization; 2001.
- Badley EM. The impact of disabling arthritis. *Arthritis Care Res*. 1995;8:221–228.
- The 1991 Health and Activity Limitation Survey Microdata File: Adults in Households, User's Guide*. Ottawa, Ontario: Statistics Canada; 1994.
- Badley EM, Ibanez D. Socioeconomic risk factors and musculoskeletal disability. *J Rheumatol*. 1994;21:515–522.
- Badley EM, Rothman LM, Wang PP. Modeling physical dependence in arthritis: the relative contribution of specific disabilities and environmental factors. *Arthritis Care Res*. 1998;11:335–345.
- Reynolds DL, Chambers LW, Badley EM, et al. Physical disability among Canadians reporting musculoskeletal diseases. *J Rheumatol*. 1992;19:1020–1030.
- Raina P, Dukeshire S, Lindsay J, Chambers LW. Chronic conditions and disabilities among seniors: an analysis of population-based health and activity limitation surveys. *Ann Epidemiol*. 1998;8:402–409.

11. Clark DO, Stump TE, Wolinsky FD. A race- and gender-specific replication of five dimensions of functional limitation and disability. *J Aging Health*. 1997;9:28–42.
12. Wang PP, Badley E, Gignac MA. Examining the mediating effect of coping-efficacy between activity limitation and loss of independence in people with arthritis. Paper presented at: Annual Meeting of the American Public Health Association; October 21–25, 2001; Atlanta, Ga.
13. Wang PP, Badley EM. Consistent low prevalence of arthritis in Quebec: findings from a provincial variation study in Canada based on several Canadian population health surveys. *J Rheumatol*. 2003;30:126–131.
14. Wang PP, Elsbett-Koeppen R, Geng G, Badley EM. Arthritis prevalence and place of birth: findings from the 1994 Canadian National Population Health Survey. *Am J Epidemiol*. 2000;152:442–445.
15. Muthen LK, Muthen BO. *Mplus User's Guide*. Los Angeles, Calif: Muthen & Muthen; 1998.