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Original Article

Effects of work demands on physical therapists in the KSA

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الملخص

أهداف البحث: كثيراً مايرتبط الضغط الوظيفي بضعف المخرجات. نتيجة لطبيعة مهنتهم فقد سجل ممارسي العلاج الطبيعي مستويات مرتفعة من الضغط الوظيفي والاضطرابات في الجهاز العضلي الهيكلي. أُجريت هذه الدراسة لمعرفة مدى تأثير الضغوط البدنية والنفسية على ممارسي مهنة العلاج الطبيعي العاملين في المملكة العربية السعودية.

طرق البحث: وُزعت استبانة محققة على ٨٥٠ معالجا طبيعيا لتقييم متطلبات العمل البدنية والنفسية، التي قد تؤدي إلى اضطرابات في الجهاز العضلي الهيكلي. تم تحليل البيانات إحصائيا باستخدام برنامج الحزمة الإحصائية للعلوم الاجتماعية.

النتائج: سُجلت نسبة استجابة ٦٤،٧٪ (٥٤،٠٪ ذكور و٤٦،٠٪ إناث). كانت الخبرة السريرية لغالبية المشاركين ١٢.٥ ± ٦.٥ سنة. وكانت القيم المتوسطة لمتطلبات العمل البدنية والنفسية ٣٧،٨ ± ٨،١ و١٨،٦ ± ٥،١ على التوالي. كما كان هناك ارتباطات ذوات قيم إحصائية بين كل من المتطلبات البدنية وإعدادات العمل، ومؤشر كتلة الجسم، وجنس المعالج الطبيعي ($p < ٠،٠٥$). وكانت القيم المتوسطة لكل من القدرة على اتخاذ القرار وتقدير المهارة والمساندة بين العاملين ودعم المشرف ٣٦،٠١ ± ٣،٦ و ٢١،٢ ± ٢،٣ و ٢٤،٣ ± ٢،٥ و٢٤،٦ ± ٢،٠ على التوالي.

الاستنتاجات: أحس المعالِجون الطبيعيون في هذه الدراسة بأن بيئة عملهم إيجابية جدا. لديهم متطلبات عمل بدنية ونفسية متوسطة ودرجات من التحكم الوظيفي من متوسطة إلى عالية. قد يحتاجون إلى درجات قصوى من التحكم للقيام بوظائفهم بشكل تام ومُرضي. كما أبرزت هذه الدراسة الحاجة إلى إضافة تدابير سلامة واستراتيجيات خاصة لمنع أو التقليل من متطلبات العمل الزائدة المصاحبة ولتحسين جودة العناية بالمرضى.

الكلمات المفتاحية: متطلبات العمل؛ عيادة العلاج الطبيعي؛ سلامة المرضى؛ العمل البدني؛ العمل النفسي

Abstract

Objectives: Job stress has been associated with poor outcomes. Physical therapists have reported high levels of job stress and musculoskeletal disorders as a result of the nature of their profession. This study was conducted to evaluate the effects of physical and psychological stress on physical therapists working in the KSA.

Methods: A validated questionnaire was distributed to 850 physical therapists for the assessment of physical and psychological work demands that could possibly lead to musculoskeletal disorders. The data were statistically analysed using the SPSS statistical package.

Results: A response rate of 64.7% (54.0% males and 46.0% females) was recorded. The clinical experience of the majority of participants was 12.5 ± 6.5 years. The mean values of physical and psychological work demands were 37.8 ± 8.1 and 18.6 ± 5.1, respectively. There were significant correlations between physical demands, work setting, BMI and gender ($p < 0.05$). The mean values for decision authority, skill discretion, co-worker support and supervisor support were 36.01 ± 3.6, 21.2 ± 2.3, 24.3 ± 2.5, and 24.6 ± 2.0, respectively.

Conclusions: Physical therapists have moderate physical and psychological work demands and moderate to high levels of job control. They think that their work situations are very positive and they may require exerting maximal levels of control to perform their jobs properly and adequately. Therefore health organizations should save the different strategies, facilities and ergonomic measures for physical therapists to avoid or minimize excessive stresses and work demands.

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Keywords: Patient safety; Physical therapy practice; Physical work; Psychological work; Work demands

Introduction

The nature of the work in the physical therapy practice is physically demanding, as it involves repetitive tasks, various manual techniques and awkward positioning of joints during certain prolonged constrained postures. It usually places great demands on the public health system.[1] The most common outcomes are work-related musculoskeletal disorders (WRMDs) and physical disability. These work demands decrease work performance and increase absenteeism.[2]

Assessment of accompanied stresses in the workplace allows employers to determine the degree of excessive demands such as emotional, behavioural and physical symptoms.[2] It can also help physical therapists to identify the causes of different demands, work risks and how to overcome or to reduce any consequent adverse reactions and outcomes.[1–3] The most common sources of work stresses for physical therapists[4] are excessive workloads, administrative issues and clinical tasks.[5–8] A variety of adverse outcomes has been associated with work demands, e.g., burnout and reduced quality of patient care.[1,2,9] Work stress among hospital staff in Saudi is high due to insufficient technical facilities, absence of appreciation and long working hours.[2]

Job demands are defined as the need to work quickly, while job control is the ability to use skills on the job.[10] Job control has direct and indirect effects on health status over time.[11] Excessive work demands can be problematic but only when accompanied by a person's lack of control over his or her work situations. High demands coupled with high control translate to active jobs, while low demands coupled with low control translate to passive jobs.[9–12] Physical exertion is the balance between work demands and the capacity to perform this work.[13–15] Psychosocial work environments are the range of opportunities given to an individual to meet his or her need for well-being.[8,16,17] Thus, it is important to evaluate physical and psychosocial aspects simultaneously, as they are likely to interact with each other in the work environment.[18] Physical therapists have reported high levels of job demands,[5] moderate level of burnout[19] and WRMDs,[1,2] which are severe enough to require sick leave and medical consultation.[5,19] Work demands were well studied among Saudi nurses in both primary and secondary health care, with a prevalence rate of 45.5% and 46.2%, respectively.[1,20] The prevalence of WRMDs among Saudi dentists is high enough to affect their daily activities.[21] There is a paucity of information, and few studies have been conducted on the extent of the efficacy of physical therapy.[1,5,19] Therefore, further studies for the assessment of physical and psychological work demands in the physical therapy practice are needed, particularly with larger samples.[4,6,9]

Objectives of the study

To determine physical and psychological work demands in addition to job control on the physical therapists working in the KSA.

Materials and Methods

Subjects

Eight hundred fifty physical therapists (males and females) were randomly selected from different governmental and private hospitals from various areas in the KSA (Al Dammam, Al Khobar, Qattif, Al Riyadh, Mecca, Medina, and Jeddah) to participate in this study. Inclusion criteria: Physical therapists of all nationalities working in public or private practice in different specialties of work settings, e.g., neurology, orthopaedic, geriatric, paediatric, and so on, but they should have spent at least one year in their current work settings. *Exclusion criteria*: Physical therapists who did not deliver patient care at least one day per week or who suffered from musculoskeletal disorders as a result of any previous surgery or trauma "not related to his or her work" were excluded.[22] Each participant signed a consent form that was approved by the Ethical Review Board of the University of Dammam. All participants were informed that collected data would be submitted for publication.

Materials

The demographic data, work demands and control were evaluated by questions based on the QPS Nordic general questionnaire for psychological and social factors at work, which is reliable and valid.[23,24] The general health and subjective health complaints scale was also used to evaluate health conditions.[22] It consists of five parts, the first and second of which include a set of questions about demographic information, areas of specialty and years of experience. The third set of 20 questions concerned various physical tasks such as squatting and extreme bending. Each question had four possible responses (never, sometimes, often and always) and were coded respectively as 1, 2, 3, 4.[4,15,25–27] In the fourth set of questions, participants were asked about the psychological risk factors associated with regular work in 45 questions. The fifth part consisted of a set of 24 questions regarding subjective health complaints.

Study procedure

A cross-sectional study was conducted on a random sample of approximately 850 physical therapists. The copies of the assessment questionnaire were distributed electronically through SurveyMonkey©, and hard copies were manually distributed by direct supervisor physical therapists in some areas of the KSA. It was accompanied by a cover letter outlining inclusion and exclusion criteria for

participation in addition to contact numbers of the investigators. The completed copies of the questionnaire were revised to be included in the statistical analysis.

Statistical analyses

A summated index was used to calculate values of the mean, standard deviation, median and association between measured variables using SPSS (version 19.0). A *T-test* was used to compare male and female participants regarding work demands and job control sub-items. A Pearson Chi-square analysis was used to determine the association between years of clinical work experience, work status and area of specialty. Statistical significance was determined at a p-value < 0.05 at a confidence interval of 0.95.

Results

Descriptive data

Of the 850 questionnaires completed, only 550 copies were statistically analysed. The response rate was 64.7% (54.0% males and 46.0% females). Mean values of age and body mass index were (41.1 ± 12.1) years old and (26.7 ± 5.7) Kg/m^2. The clinical experience of participants was (12.5 ± 6.5) years. The most common areas of specialty were general practitioner (47.5%), orthopaedic (15.5%), paediatric (14.2%), neurology (12.9%) and geriatric (6.2%) (Figure 1).

The professional ranks were junior (15.0%), senior (10.0%) specialist 27.5% and general practitioner (47.5%), whereas the primary job of most of the questionnaire participants was staff at 13.1% and clinicians at 86.9% (Figure 2). The nationality of participants was 28% Saudi, 36% Egyptian, 12% Jordanian, and 24% other. Sixty-eight percent of the participants practiced exercise training, 74.5% trained for at least 1–2 days per week, and 24.5% performed exercise training for 3 h per week. The working days per week were (5.0 ± 0.7) days, and the percentage of physical therapists working the morning shift was 90.4%.

Physical and psychological work demands

Job demands were evaluated with a set of proper questions. A job demands scale with higher scores represents higher demands.[12,27] An *independent t-test* showed non-significant differences between those whose primary jobs were clinicians and staff members ($p > 0.05$). There were significant associations between work setting and physical demands ($\chi^2 = 293.3$, $p < 0.05$). Mean values of physical, psychological and perceived workload of males and females were (37.5 ± 8.8, 38.1 ± 7.4), (18.8 ± 5.2, 18.5 ± 5.0) and (13.2 ± 1.6, 13.5 ± 2.2), respectively.

There were significant associations between physical demands, BMI and gender ($p < 0.05$). Mean values of physical demands according to work setting were (32.8 ± 8.4) in specialty hospitals, (40.3 ± 8.8) in private clinics, (39.9 ± 7.6) in private hospitals, (39.5 ± 7.2) in general hospitals, and (38.4 ± 6.9) in rehabilitative hospitals and centres (Figure 3). Physical work demands were higher in all work settings, particularly in private clinics. Physical work demands ranged from 19 to 68 out of 76 with mean values of (37.8 ± 8.1), which is less than the median value of 38. The majority of physical risk factors in the current study were performed by slightly more or less than 50% (Table 1). The perceived workload ranged from 4 to 19, with mean values of (13.3 ± 1.9), and there were significant associations between perceived workload, BMI, area of specialty, gender, professional rank, days, hours and years of work ($p < 0.05$).

The psychological work demands ranged from 11 to 44 out of 44 with mean values of (18.6 ± 5.1), which is less than the median value of 19. The majority of psychological risk factors affecting participants were 60% (sometimes), e.g.,

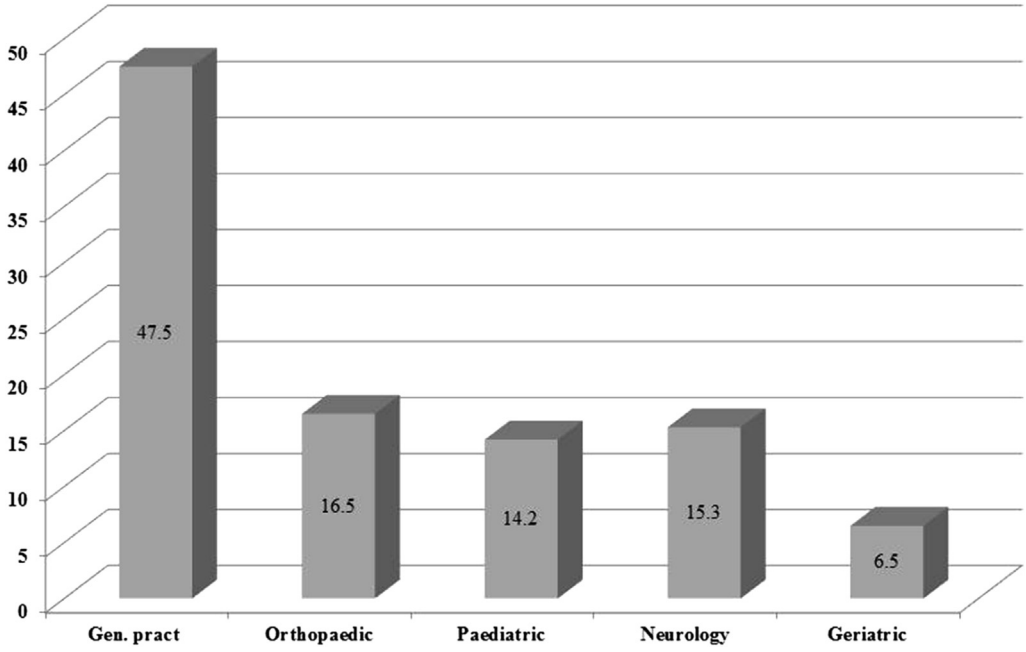

Figure 1: The most common specialty areas of physical therapy.

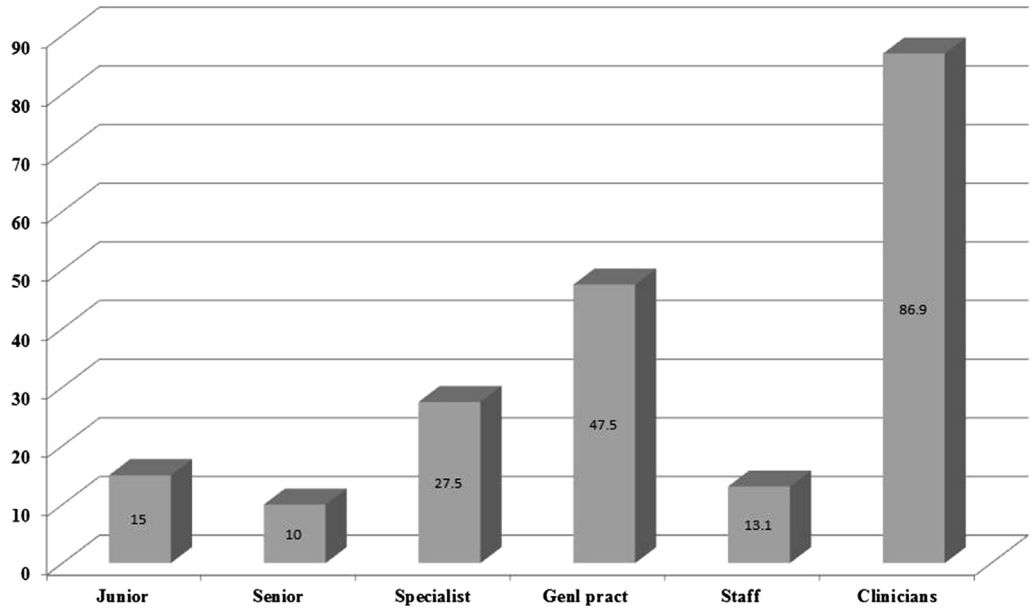

Figure 2: The most common ranks and primary jobs (staff or clinician) of participated physical therapists. gen pract: general practitioner.

working extra hard to finish something and interrupting his or her works if needed (Table 1). Therefore, physical and psychological work demands can be considered moderate job demands for physical therapists, as the higher the score, the higher the work demands (Table 1). There were significant associations between psychological demands, BMI, area of specialty, professional rank, work setting and years of work ($p < 0.05$).

It was reported that the median is the common choice for the classification of job demand thresholds.[28,29] Therapists with job demands above the median score were classified as having high demands. Therapists with job control scores below the median score were classified as having low control.[27,30]

Job control

Job control can be evaluated through the measurement of decision authority (ability to make decisions) and skill discretion (how varied and skilled the position is) in addition to co-worker and supervisor support.[25] Decision authority and skill discretion together comprise job control. Higher

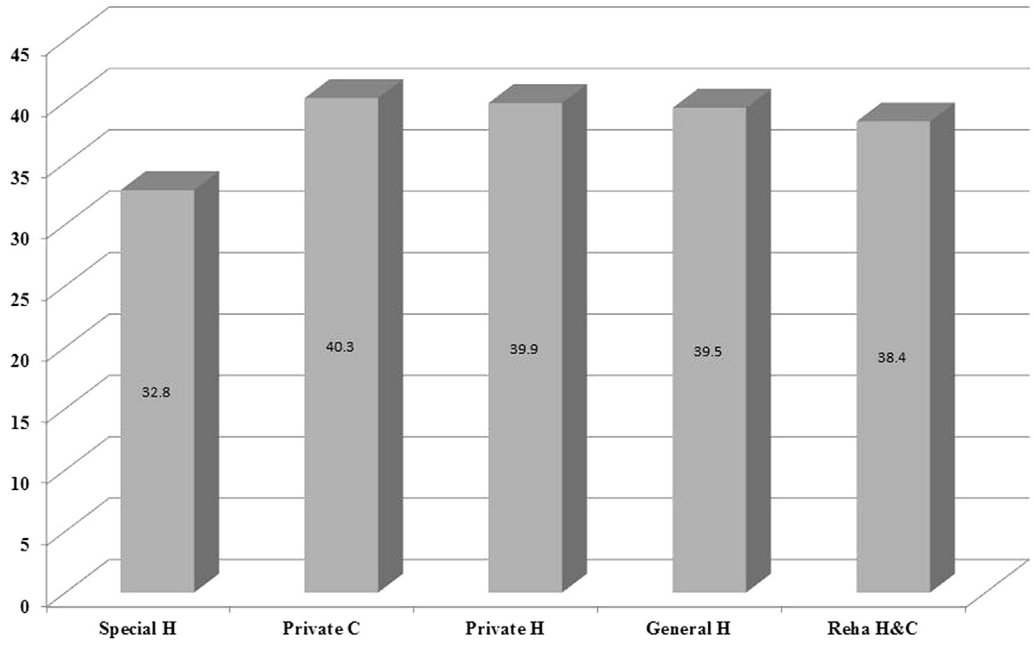

Figure 3: The mean values of physical demands according to work setting of participants. Special H: Special hospitals, Private C: Private clinics, Private H: Private hospitals, General H: General hospitals, Reha H&C: Rehabilitation hospitals & clinics.

Table 1: The mean values of physical and psychological work demands.

Physical work demands	Never	Sometimes	Often	Always
1- Standing for long periods	26.3	53.1	15.0	5.6
2-Working while squatting/ kneeling	27.7	59.4	6.2	6.7
3- Pushing or pulling loads (over 5 Kg)	27.2	59.2	5.2	8.4
4- Regularly applying force with hands	27.0	61.5	5.7	5.8
5- Working in awkward postures	15.5	53.6	26.8	4.1
6- Repeating the same movement of arms	29.4	58.1	5.9	6.6
Psychological work demands	**Never**	**Sometimes**	**Often**	**Always**
1- Do you have to work very fast?	49.0	46.4	2.1	2.5
2- Do you have to work extra hard?	14.4	44.6	28.1	12.9
3- Can you briefly interrupt your work?	28.9	45.8	20.1	5.2
4- Do you have problems with the work?	42.7	42.3	8.1	6.9
5- Would you like to work at a gentler pace?	38.2	46.8	2.5	2.5

Table 2: Job control associated with physical therapy.

Decision authority	Never	Sometimes	Often	Always
1- Do you have freedom in carrying out tasks?	5.0	10.5	50.7	33.8
2- Can you decide how you carry out your tasks?	10.2	3.4	58.6	27.8
3- Can you briefly interrupt your work if needed?	10.0	14.9	59.5	15.4
4- Can you decide the order in which you carry out tasks?	6.2	10.6	42.5	40.7
5- Do you solve day-to-day work problems?	9.5	15.5	34.2	40.8
6- Can you plan your own work?	11.0	9.4	43.1	36.5
Skill discretion	**Never**	**Sometimes**	**Often**	**Always**
1- Are you required to do the same things repeatedly?	10.0	1.6	38.7	49.7
2- Does your work require creativity?	1.1	1.8	37.6	59.5
3- Is your work varied?	2.2	5.8	36.8	50.2
4- Does your work make sufficient demands on your abilities?	10.0	6.1	36.7	47.2

scores on the job control scale represent higher control.[12,26,27] Therefore, it is essential for physical therapists to consider the psychosocial work environment before choosing an initial position or transferring to a new position.[12]

In the current study, job control included decision authority, ranging from 27 to 44 out of 44 with a mean value of (36.01 ± 3.6), which is more than the median value (35.0). Skill discretion ranged from 14 to 24 out of 36 with mean values of (21.2 ± 2.3), which is more than the median value of (21.0).

Additionally, co-worker support ranged from 18 to 36 out of 36 with mean values of (24.3 ± 2.5), which is more than the median value (24.0). Supervisor support ranged from 16 to 32 out of 32, with mean values of (24.6 ± 2.0), which is also more than the median value (24.0). Therefore, all job control sub-items can be considered as moderate to high job control due to their higher scores (Table 2).

In comparison, the mean values for decision authority and skill discretion were (35.9 ± 3.7 & 36.1 ± 3.6) in males and females, respectively, with non-significant differences between them ($p > 0.05$). The mean values for co-worker and supervisor support were (23.9 ± 2.2), (24.7 ± 2.7), and (24.4 ± 1.7), (24.8 ± 2.3) in males and females, respectively, with significant differences between them ($p < 0.05$).

The work demands of physical therapists regarding general health status ranged from 13 to 44 out of 44 with mean values of (19.4 ± 4.2), which was more than the median value (19.0) and can be considered a moderate work demand. For the Subjective Health Complaints scale, 71.34% of participants answered no, whereas 28.7% answered yes, with higher responses for muscle ache and backache (55.6%) and morning tiredness (36.4%).

In comparison, the independent t-test showed only significant differences between the male and female participants for physical risk factors, perceived workload (females had a greater workload than males) and co-worker support ($p < 0.05$), but there were non-significant differences between the male and female participants regarding exercise practice, educational qualifications, specialty, professional rank and working setting ($p > 0.05$).

Discussion

This study was conducted to evaluate the physical and psychological work demands in addition to job control on physical therapists working in the KSA. The response rate of participants was 64.6%, which is consistent with results of Campo et al.,[9] who had a response rate of 67.0%. The body mass index of the participants was (26.7 ± 5.7) Kg/m^2, which may suit the nature of their work. The level of BMI may be attributed to the current study's results regarding the sample of participants who are considered active subjects, as 60% of participants exercise, while 47.6% of physical therapy students are involved in daily physical exercise,[31] with 79.2% exercising at least 1−2 days per week. The current results reflected the common applied working system in the KSA in rehabilitative centres and hospitals; all of the participants work 5 days per week in morning shifts (90%).

The results of the current study showed that the physical and psychological work demands of physical therapists constitute moderate job demands, as the higher the score was, the higher the work demands were. Therapists with job demands above the median score were classified as having high demands. Therapists with job control below the median score were classified as having low control.[28,30] Both physical and psychological work demands in terms of uncomfortable working positions, pressure during work and working fast increased the prevalence of WRMDs among employees, which is reflected in their well-being and quality of patient care. Physical and psychological work demands for juniors and recently graduated physical therapists were higher than

consultants. It was supported by the fact that juniors and recent graduates experience long working hours, short breaks and depersonalisation.[28,30] In contrast, the older the employee and the more experience (i.e., as a consultant) he or she has, the less work stress is experienced.[2,9,23,28,30]

Clinicians were more clinically loaded than staff members, although the current results showed non-significant differences between the two. As clinicians, physical therapists usually perform different manual techniques, such as joint/soft tissue mobilisation and manual traction, that involve the application of relatively high levels of force.[6,18,32] Academic staff holders complaints of physical demands may be attributed to non-clinical duties, such as education, administrative tasks and complex medical cases.[5,6]

There were significant associations between work setting and physical demands, as these mainly depend upon the exerted workload in various work settings. This was supported with our results: physical risk factors affected participants with 60% (sometimes) and 20% (often), such as squatting/kneeling positions and pushing. Physical demands were higher in most working settings, particularly in private clinics and general hospitals, which may be due to an increase in the number of patients and hours of work in addition to the unavailability of some technical assistive facilities.[2]

Psychological demands in the current study are considered moderate work demands. This was supported with our findings, e.g., having to work rapidly and with pressure during work (Table 1). Thus, it is important that physical therapists are aware of various work settings to avoid multiple causes of musculoskeletal injuries.[32–34] Despite different physical and psychological work demands being within the level of moderate demands, the results of the current study showed that job control, including decision authority, skill discretion, co-work support and supervisor support, ranged from moderate to high job control.[4,9,35,36]

Our results showed non-significant differences between males and females regarding work demands. Campo et al.[9] reported that women had slightly higher demands and slightly lower control than males due to psychosocial work conditions and job strain. Our findings contradict those of De Bruin and Taylor,[37] who found higher levels of job strain in men than in women, and Blackmore et al.[38] found that job strain led to depression in men but not in women. This may be due to shorter working hours by women on average.[2,37,38] Our findings showed that participants have moderate to high levels of job control, supported by the possibility that physical therapists might require high levels of control to perform their jobs adequately.[12] Job stress in a physical therapy practice is commonly due to a lack of resources and an excessive workload.[2,36,37] Both physical and psychological risk factors may affect physical health.[9,15,29,39]

In comparison, the independent t-test proved that only physical risk factors were significantly different between the male and female participants, such as perceived work load (females had higher workloads than did males) and co-work support ($p < 0.05$). However, with regard to exercise practice, educational qualifications, area of specialty, professional ranks and work setting, there were non-significant differences ($p > 0.05$). The negative consequences of exposure to risk factors are a serious problem not only for the physical and psychological well-being of the medical staff but also for the quality of patient care.[34] It was stated that changes in psychosocial working conditions are associated with subsequent changes in health status.[11] Therefore, different strategies should be applied to minimise further work demands, such as avoiding excessive lifting, changing harmful working positions and decreasing the use of manual techniques.[39]

Conclusions

Physical therapists see their work situations as very positive and have moderate physical and psychological work demands and moderate to high levels of job control. Physical therapists may require the exertion of maximal levels of control to perform their jobs properly and adequately. Therefore, health organisations should consider different strategies, workplaces and ergonomic measures for physical therapists to avoid or minimise excessive stresses and work demands.

Implications

Levels of physical and psychological work demands generally appear to be higher in physical therapy than in other professions, whereas levels of self-reported job control ranged from moderate to high, which is also greater in physical therapy than in other professions. Therapists with lower job control are at risk for both turnover and WMSDs because of the necessity to perform the job adequately and properly. They referred to absences, sick leave, stress, burnout, and frustration.

Recommendations

Important considerations for physical therapists are to take training courses in safety measures and ergonomics before starting work to choose a proper workplace and setting. More studies are needed to describe and establish the characteristics and specific facilities of positive work environments.

Authors' contribution

The authors participated in the design of the study, acquisition of data, and the writing and revision of the manuscript.

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