REVIEW ARTICLE

ASSOCIATION BETWEEN PSYCHOSOCIAL FACTORS WITH UPPER EXTREMITY MUSCULOSKELETAL DISORDERS: AN ACADEMIC REVIEW

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ABSTRACT

Work-related upper-extremity disorders (WRUEDs) are frequently occurring among workers in general. Various researches support the empirical results of the Autogenic factors related to such problems of health and safety. Research shows the association of different aspects of work organization strengthen the possibilities of work-related stress and other psychosocial factors, which may lead towards adverse health conditions. To review the previous work done for finding the association between psychosocial factors and upper extremity disorders. Findings from different studies have been reviewed to examine the psychosocial factors association in developing WRUEDs. Published studies, which were primarily focused on WRUEDs and psychosocial factors association, were reviewed. Various studies have shown the relationship between psychosocial factors and UEDs. Due to the different nature of epidemiology of the disorder and variable differences, findings from different studies contradicts. Finally, this review presents the limitations in existing studies, and further research has been proposed for future.
Keywords: *upper extremity disorders, psychosocial factors, work-related*

INTRODUCTION

Preventing musculoskeletal disorders (MSDs) is one of the priorities for ensuring the workplace health and safety. The work-related upper extremity disorders (WRUEDs) affecting organizations and workers, due to the diverse set of psychological, physical, legal, financial and social challenges they are experiencing. From the past few decades' comprehensive investigations have found that physical, psychosocial, medical and ergonomic factors are correlated with the predictors of these disorders[1]. The recent reviews on WRUEDs show strong associations of psychosocial work factors (job control, job satisfaction, work demand) in developing MSDs at the workplace to the employees[1-3]. World Health Organization characterized WRUEDs as complex or multi-factored to assess that various risk factors (psychosocial, individual, physical characteristics, socio-cultural and work organization) contributed to these ailments. Additionally, WRUEDs are a major cause of disability in the working population[4].

Whilst various studies conducted few years back shows the evidence of psychosocial association in developing MSDs [2, 3, 5], in contrast with physical factors, psychosocial stress lasts more which makes it difficult for the affected person to "take rest" and to relax the muscles at instant[6-8].
Consequently, psychosocial factors are likely to prevent the muscle rest during work. Work-related stress due to low job contentment, job losing threats, and unfriendly/conflicted condition is affecting the individuals continuously. Whereas the psychosocial factors are likely preventive for the muscle rest while work. The psychosocial factors contribute an unfavorable work rest equilibrium is of keen importance in workplace health and safety.

Work-related upper-extremity disorders are frequently occurring in workers in general. Various researches support the empirical results of the autogenic factors related to such problems of health and safety[9, 10].

This issue found that high job demand and higher levels of stress related to job were the most frequently identified as having an association with WRUEDs. A similar review of the epidemiological literature[10] Indicated that there is evidence that perception of heavy workload, monotonous work and low support from supervisor all plays a role in developing work-related upper extremity disorders. The study concluded that, after physical demands are taken into account; psychosocial factors contribute to such disorders either partially or completely independent of physical characters[11, 12]. Various epidemiological reviews have indicated an integrated relation of psychosocial risk factors at work in the development of WRUEDs[12, 13].

A study conducted in UK investigates that is there possibilities of more risk due to the association of physical and psychosocial work-related risk factors[12]. Research elaborated that high exposure to multiple factors like psychosocial factors, low mental demands; high job demands, low job control and poor social support had an effect on WRUEDs. Such an influence of psychosocial factors has a crucial implication for preventive actions[14].
Problems such as neck/shoulder, some prospective epidemiological studies have shown a positive relationship between symptoms of stress/psychological strain[15, 16]. Anxiety and depression have also been shown to develop WRUEDs[17].
This situation is the starting point of the current review. The review focuses on the studies that examine the influence of psychosocial workplace

factors on upper extremities/ limb/ musculoskeletal complaints in study populations. Specifically, it addresses the question whether psychosocial workplace factors have an independent, incremental effect on the development of neck and/or shoulder complaints, as described in selected studies.

WORK RELATED UPPER EXTREMITY DISORDER:

Work related upper extremity disorders (WRUEDs) are frequently occurring in workers in general. Various researches support the empirical results of the autogenic factors related to such problems of health and safety[12]. There is evidence, which shows the association of different aspects of work organization that strengthen the possibilities of work-related stress which may lead towards adverse health conditions. Numerous review papers show the possibilities that such factors may contribute in the development of WRUEDs[18].

WRUEDs affecting organizations and workers, due to the diverse set of psychological, physical, legal, financial and social challenges they are experiencing. From the past few decades' comprehensive investigations have found that physical, psychosocial, medical and ergonomic factors are correlated with the predictors of these disorders[12].

WRMSDs are affecting Malaysian workers at large. Report by The social security organization of Malaysia involving MSDs is almost 10,000 cases per year[19]. Moreover, past research indicates a strong association between musculoskeletal symptoms related to the psychosocial work factors and the resulting poor health effects at work[20, 21].

The recent reviews on WRUEDs show strong associations of psychosocial work factors (job control, job satisfaction, work demand) in developing MSDs at workplace to the employees[8, 22].

WRUELDs can notably disturb or create discomfort in activities of the important body region's performance because upper extremities such as shoulder, neck, hand and arm are vital parts of the body. WHO characterized WRUELDs as complex or multi-factored to asses that various risk factors (psychosocial, individual, physical characteristics, socio-cultural and work organization) contributed to these ailments (World Health Organization, 1985). Additionally, WRUEDs are major cause of disability in the working population. Health consequences due to work-related stress have a great concern in ensuring health and safety because the resulting health consequences from work-related stress effecting employees at large. Musculoskeletal pain has strong association with psychosocial factors. Factors like decision-making, decision latitude, work demands, perceived stress and psychological distress. Monotonous work, high-perceived workload and unsatisfactory job contribute to WRUEDs.

Table 1- Psychosocial factors have shown association with WRUEDs.

FACTOR	Study/ Reference
Demand control Monotonous work low control More responsibilities Lack of social support from colleagues & supervisor	23
Work, environment Fear of losing job Conflicts at work place (with colleagues/supervisor) Role ambiguity Multiple tasks	24

Therefore, it is important to study the issues regarding work related upper extremity disorders and its association with psychosocial factors in order to achieve more close view of the symptoms of this health and safety problem.

METHOD

As the study was mainly concerned with the psychosocial factors association with the occurrence of WRUEMSDs, it was aimed to investigate the published research and studies to find in depth the relationship of psychosocial factors and UEMDs.

Empirical studies were sought from online data bases (science direct, PubMed, Researchgate, Elevsier) which were focusing on the study questions discussed above. Further, the reference sections were searched and information about sample size, psychosocial factors association, key findings were extracted and gathered. search was done through using key words like, musculoskeletal disorders, psychosocial factors, upper extremity disorders this search strategy was used to gather most relevant information from the online databases used. After refining the paper list, which were primarily focusing on the psychosocial factors and musculoskeletal disorders than key findings, were extracted.

Selected papers were reviewed in order to find the association of psychosocial factors specifically in upper extremities to achieve the objective of this study. Citations were exported to the EndNote (reference program) and all duplicates were deleted.

The approach used was assume to gather more information on psychosocial factors and their effects on upper extremity disorders, studies which were not reflecting the association for upper extremities were excluded. Reliable findings were assumed to an extent where the study identifies 70% to 75% of the positive-nes of the factors searched.

DISCUSSION

Several studies identified the association of psychosocial factors in the, occurrence of MSDs work related psychosocial factors seem to have association with MSDs factors like monotonous work, job satisfaction, social support and high or low job demands leads towards MSDs risk,[18].

Neck, shoulder, pain might be associated with the factors like high or low job demands[21]. It was further concluded by[5] that job insecurity, low social support and high job demands are the risk factors of neck pain. Several reviews supported psychosocial factors such as low supervisor supports, high individual distress, monotonous work, high and low job demands considered as major risk factors for the occurrence of upper extremity disorders[25].

Several epidemiological studies stated the association of work-related stress and WRUEDs[9, 12]. This issue found that high job demand and higher levels of stress related to job were the most frequently identified as having an association with WRUEDs. [26]Indicated that there is evidence that perception of heavy workload, monotonous work and low support from supervisor all plays role in developing work-related upper extremity disorders. Further, the study concluded that, after physical demands are taken into account, psychosocial factors contribute on such disorders either partially or completely independent of physical characters[26].

Problems such as neck/shoulder, some prospective epidemiological studies have shown a positive relationship between symptoms of stress/psychological strain[15].

A recent study identified that there are different perceptions and beliefs about the causes and consequences of psychosocial factors, which subsequently predict psychological well-being and improved performance. Personality factors and individual psychological differences have not been widely research for adequate results[26]. Social support has been researched as a coping resource in the response towards stress[27]. According to[27] low social support from superior may increase the risk of MSDs and social support also work as an independent variable in the preventive measures for WRUEDS. karasek's job demand control model[28] also influences the occupational health and safety research. Demand and control latitudes are significantly defined in the model. Specifically job demand control model depicts that high job demands and the lower control over these demands responsible for the adverse health effects like WRUEDs.

Various studies have shown positive link of monotonous work and WRUED. [29]In a study found that monotonous work was highly associated with neck pain. [30]Found that monotonous work was associated with neck/shoulder pain. Studies[31] revealed that absence due to fatigue and shoulder pain is associated with (low quality work and boredom at work).Monotonous work seems to have strong association with neck/shoulder pain[17]. Despite a significant body of research documenting the association between psychosocial risk factors and WRUEDs among operational workers of gas processing, there is limited research with regards to the operational workers population in Malaysia. Hence, this study aims to explore the association of psychosocial risk factors in developing WRUEDs and to investigate the relationship between psychosocial risk factors in the workplace and sustaining WRUEDs prevention among workers in general.

Table 2(a): Descriptive characteristics of included studies.

Study	Worker group (particip.rate)	Design	Psychosocial Factor assessment	Job/ task dissat.	Int. Wrkld.	Mono work	Low Job Cont	Low Social Sup.
Bergsten 2014	Flight baggage handlers	Cross sectional	Structured interview		+	+		
Alipour et al 2008	14384 car manufacturing company's employees	Cross sectional	Self-reported questionnaire	+		+		
Theorell et al.1991	207 workers from diff.ocupations	Cross sectional	Self-report questionnaire		+/-		+	-

1=Significant association, 0=No significant association found.
1/0= Both (Some factors significantly associated; some factors not significantly associated).

Table 2(b): Descriptive characteristics of included studies.

Study	Worker group (particip.rate)	Design	Psychosocial Factor assessment	Job/ task dissat.	Int. Wrkld.	Mono work	Low Job Cont	Low Social Sup.
Feveile2002	3990 employees in Denmark	Longitudinal	Self-report questionnaire	+		+		
.Zakerian et al.2009	30 office Computer users	Cross sectional	Self-report questionnaire			+	+	
Conway et al.1999	505VDT operators	Cross sectional	Self-report questionnaire	+		+		+/-
Bernard et al.1993	1,050 newspaper workers (93%)	Cross sectional	Self-report questionnaire with job stress scales	_	+		+	
Karasek et al 1987	8,700 white collar labor union members (87%)	Cross sectional	Self-report Questionnaire		+		+	+
Linton 1990	22,200 workers—general population	Cross sectional	Self-report work environment questionnaire and habits of living questionnaire			+		
Pot et al. 1987	222 VDT operators	Cross sectional	Structured interview questionnaire		+/-		-	
Ryan etal.1988	143 data processors	Cross sectional	Self-reported questionnaire		+	+	+	+
Sauter et al. 1983	248 VDT users and 85 nonusers (90%)	Cross sectional	Self-reported questionnaire		+		+	+
Hales et al.1994	553 telecm. workers	Cross-sectional	Self-report questionnaire		+		+	+
Hopkins 1990	291 keyboard operators and other clerical groups	Cross sectional	Self-report questionnaire—items from habits of living questionnaire	+		+	+	+
Toomingas et al.1997	358 workers from diff.occupations	Cross-sectional	Self-report questionnaire & medical examination	-	+		+	
Deverux et al .2001	891 works from 6 diff.occupations	Cross sectional	Self-report	+	+		+	+
Widanar ko et al.2014	3003 workers from diff.occuaptions	Cross sectional	Self-report		+		+	
Gerr et al.2014	386 manufacturing workers	Cross sectional	Self-report	+		+	+	

1=Significant association, 0=No significant association found.
1/0= Both (Some factors significantly associated; some factors not significantly associated).

CONCLUSION

According to the findings in this review, there is a subsequent evidence of psychosocial factors association with the occurrence of WRUEDs. Still seems to be contradiction in studies in relate to strong association of the psychosocial factors in developing WRUEDs. It is necessary to be aware that researchers have not used the both the work/nonwork characteristics which may lead towards the biased end results. Moreover, conceptual and operational variables were not been collectively measured/ investigated. Based on literature findings, it is observed that future research which more towards the analysis of symptoms development and prevalence should be considered. However, such studies may provide a better insight to the stakeholders in identifying the severity of the disorder and to formulate the new and more effective policies towards better psychosocial health of workforce.

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