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Occupational Stress and Increased Risk for Type 2-Diabetes: A Narrative Review

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Abstract

Diabetes is a significant health problem in the United States. There is a large body of research that explains the biological and patho-etiological cause(s) of this increasingly prevalent disease. There is also an increasing body of research that explores the psychosocial causes of diabetes mellitus type 2. The association between stressful work organization and diabetes has been established as a significant precursor and causative agent of diabetes mellitus - type 2. The objective of this narrative review is to discuss the impact of work stress as it applies to the rising incidence of diabetes - type 2, and to propose the significance of implementing complementary and alternative therapies as a preventative strategy.

Keywords: Occupational stress; Psychological stress

Introduction

Diabetes is a chronic disease that develops when your body does not make enough insulin or is unable to efficiently utilize the insulin it makes. The two main types of diabetes are type 1 (DMI), insulin dependent, accounting for about 5% of cases and type 2 (DMII), non-insulin dependent, accounting for about 90-95% of cases. Other causes of diabetes include pregnancy (gestational diabetes), medications, surgeries, malnutrition, genetic syndromes, infections and other illnesses, which may account for about 1-5% of cases [1]. In the United States, diabetes accounts for 29.1 million (9.3%) of the population with 21 million diagnosed and 8.1 million undiagnosed, while the unadjusted incidence rate of diabetes is estimated to be 7.8 per 1,000 people [2]. The prevalence data highlight the notion that diabetes is a significant threat to public health requiring immediate prevention strategies with a focus on preventable causes of diabetes.

There has a cohort of researchers [3-10] that have explored the potential relationship between occupational stress, psychological stress and the development of DMII. According to the American Diabetes Association (ADA) (2015), stress can be defined as a physical and mental reaction to perceived danger and conditions that are uncontrollable or require emotional and behavioral change are perceived as a threat [11]. Stress can have a significant impact on blood glucose by causing a rise in the levels, although in rare cases the levels may decrease. As a direct response to stress, blood glucose can be altered by two main mechanisms. First, stress hormones may directly affect the levels and secondly, glucose levels may change as a result of unhealthy behaviors, which are promoted by stress [12].

DMII and Metabolic syndrome has been found to be a product of stressful work. The purpose of this narrative review is to discuss the impact of work stress as it applies to the rising incidence of diabetes – DMII, and to propose the significance of implementing complementary and alternative therapies as a preventative strategy. This narrative review is grounded in the ERI Model (Effort-Reward Imbalance)and suggests that given the high level of occupational stress and job burnout across many professions, an increased focus and demand for complementary and alternative (CAM) prevention and treatment strategies - has reached near alarming levels.

Literature Review

Since the 17th century, the development of diabetes was linked to "prolonged sorrow." A number of research studies [13] attempted to explore and explain the association between diabetes and various psychosocial stressors (i.e. workplace stress and loss of family members. The relationship between diabetes and stress (including work-related stress) has its credibility

based on biologic phenomena. One such mechanism is where psychological reactions to stressors lead to the activation of the hypothalmo-pituitary-adrenal (HPA) axis resulting in endocrine abnormalities, such as an increase in cortisol [13]. Cortisol (the fight or flight hormone) stimulates glucose production in the liver and causes insulin resistance within the peripheral tissues. An individual with elevated levels of cortisol will therefore have elevated glucose levels. People who are under stress, such as an adverse psychosocial work environment with low control and high demand jobs have an increased risk of secreting higher levels of cortisol [3].

Work Stress and Diabetes

A large body of research supports the notion that diabetes is related to stressful work organization (although occupations differ in their levels of stress), whether it is physical, mental or emotional. It is also known that stress, especially work related stress, is associated with metabolic syndrome as has been demonstrated in many studies [14-17]. Metabolic syndrome is a cluster of risk factors that raises the risk of heart disease and diabetes [14]. It can be characterized by the presence of three of the following in an individual: abdominal obesity, low high-density lipoprotein (HDL) cholesterol, high triglycerides, high blood glucose, and high blood pressure [16].

Based on the National Health and Nutrition Examination Survey (NHANES), it was found that the prevalence of metabolic syndrome rose from 24%, between 1988 and 1994 to 34% between 2003 and 2006 [16]. A study conducted by Edwards et al. (2012), showed that when compared to people with low job strain, men and women with high job strain had adjusted hazards ratios of 2.7 and 2.2 for metabolic syndrome, respectively, both statistically significant. This suggested that job strain might be a modifiable risk factor for metabolic syndrome [16]. Similarly, a prospective cohort study conducted by Chandola et al. (2006), found a dose-response relationship between work stressors and metabolic syndrome, over a 14 year period [14]. Another prospective cohort study also found statistically significant associations between metabolic syndrome and shift work. The risk of developing metabolic syndrome gradually increased independently with years of shift work, when compared to those who worked day-shifts with an odds ratio of 1.77 [15]. Shift-work is a type of job stress that combines both physical stress (disruption of circadian rhythms) and a psychosocial stress (working when other people are sleeping, impact on family and social life).

A 1:4 matched case-control study [17] conducted in Tianjin, China among policemen, found a significant relationship between job-related functions and metabolic syndrome. Population attributable risk factors analysis showed that the control of work intensity and occupational stressful events - which is rather controversial and unclear - could decrease the risk of metabolic syndrome to 56.8% and 8.9% respectively [17]. In addition to work-related stress, stressful life events such as financial difficulties (related to income) may also contribute to poor metabolic health [18]. This data combined can be examined under the ERI model which offers a conceptual framework that there is an imbalance between (high) efforts and (low) rewards leads to (sustained) strain reactions.

Established correlates and associations

A cross sectional study done in Germany by Li et al. (2013) found a positive link between pre-diabetes, diabetes and work stress. A final sample of 2,674 participants was recruited of which 77% were males and 23% females. The average ages were 43 and 36.8 years old for men and women, respectively. Work-stress was assessed using the validated ERI scale, which looked at effort, reward and over-commitment. The Cronbach alphas obtained for these scales were 0.77, 0.82 and 0.83 respectively. Effort-reward ratio was calculated to look at the mismatch between high cost and low gain. Tertiles were also created to categorize the severity into low, intermediate and high work stress. Diabetes and pre-diabetes were defined using standardized guidelines specified by the American Diabetes Association and the European Association for the Study of Diabetes (2015).

Women were noted to have lower employment rates while men were noted to have higher employment rates and engaged in more risky health behavior such as tobacco and alcohol use. Over 40% of the men were found to have abdominal obesity, high triglycerides or being hypertensive, meeting the criteria for metabolic syndrome. Although women had similar rates of obesity, they had much lower rates of high triglycerides or being hypertensive. Analysis revealed that the prevalence rates of diabetes were 3.5%, while that of pre-diabetes were 42.2%. After controlling for potential confounding factors, it was found that high ERI was associated with Diabetes, (OR = 1.27 with 95% CI=1.02-1.58) and pre-diabetes, (OR = 1.26 with 95% CI=1.01-1.58) only in men. Interestingly, no statistically significant results were found for women. One possible explanation for this difference in results may be due to the decreased sample size of women compared to men, which reduces the statistical power. In addition, five other reports showed mixed results between genders [9].

Another study, conducted by Eriksson and colleagues [4], exploring work stress and DMII, found an association only among women. This was a prospective cohort study involving 3,205 women and 2,227 men between the ages of 35-56 years old in Sweden. All had normal baseline glucose and were not classified as pre-diabetics or diabetics. They were followed up 8-10 years later, of which 76.2% men and 69.1% women from the original sample participated. The Swedish version of the well-established scale, the JDC-S model (job demands, job control and work social support) was used in the assessment of work stress. After analysis, it was found that women with low decision latitude showed an increased risk of DM 2 with OR = 2.4 (95% CI = 1.1-5.2). When combined with high demands (job strain) and after controlling for all available confounders, the risk of

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DMII significantly increased to an OR = 4.2 (95% CI = 2.0-8.7). However, for males, analysis showed that those with high work demand and high job strain had a decreased risk of developing DM 2, OR = 0.5 (95% CI = 0.3-0.9)! Similarly, those who engage in an active job (high demands and high decision latitude), also had a decreased risk of developing DMII, OR = 0.4 (95% CI = 0.2-0.9). The conclusion of this study was that work stress might contribute to the development of DMII in females, but not in males. Although these results are consistent with two other studies, there is no clear explanation for discrepancies in other studies [4]. Possible contributing factors could be that males had a smaller sample size and the fact that they were engaged in physically active jobs, which increases glucose consumption.

Consistent with results obtained from the study by Eriksson and colleagues [4], Heraclides et al. [5] also found that psychosocial work stress was an independent predictor of DMII in women. They assessed the evidence from the British Whitehall II (a prospective cohort) study between 1991 and 2004 consisting of 5,895 participants (4,166 men and 1,729 women), all of who were free of diabetes or pre-diabetes. To assess work stress, the job strain questionnaire (JDC-S model) was used and found to have a Cronbach's alpha of 0.67 for demands, 0.84 for decision latitude and 0.79 for work social support. After a 15-year follow-up, the incidence rate of DMII was 4.82 (95% CI = 4.31-5.39). Among the women, job strain (high demand/low control) was associated with a 60% increased risk of DMII while iso-strain was associated with an almost two-fold increased risk (HR = 1.94 [95% CI = 1.17-3.21]). No association between job strain, iso-strain (or any of their components) and DMII was noted among men. An interaction test was performed to confirm the gender differences with a p value for interaction = 0.019 [5].

A study conducted in Tel Aviv, Israel, by Toker et al. [19], attempted to look at the relationship between DMII and support at work. They enrolled 11,734 healthy participants with a 92% response rate, of which 64% were men, from the Tel Aviv Sourasky Medical Center at the time of their annual physical. All of the participants were asked to return in 1-2 years for a follow-up visit, of which only 59% returned and after exclusion, a final sample of 5,843 participants were used. A validated scale, the JDC-S model (job demands, job control and work social support) was utilized in the assessment. Logistic regression was used to control for age, gender and diabetes risk factors. Results revealed that there were 182 (3.11%) new cases of diabetes at the follow-up (average 41 months). Although diagnosis of diabetes was made by both objective and subjective determinations, the self-reported new cases were later verified objectively as being true cases. Among the findings, work social support was found to have inversely associated with diabetes, OR = 0.78 and 95% CI = 0.62-0.99. This indicated that the lower the level of workplace social support, the higher the risk of diabetes [19].

Another publication by Huth and colleagues [6] analyzed data collected from three independent prospective cohort studies in Southern Germany, as part of the World Health Organization Monitoring of trends and determinants in Cardiovascular disease (MONICA). These surveys were done during the years of 1984/1985, 1989/1990 and 1994/1995. Data from a total of 13,427 individuals was collected and after exclusion criteria, a final sample of 5,337 was obtained from both men and women between the ages of 29 and 66. They were followed up for a median of 12.7 years (1.1 to 18.2 years) and during this time 291 new cases of diabetes developed. Job strain was assessed using the validated job-demand control model, which was adapted from the Job Content Questionnaire (JCQ). Analysis showed that among the 5,337 participants, 18.6% were found to be in high job strain while 26.6% and 28.3% were found to be in active and passive low job strain respectively. Those with high job strain at baseline had a 45% increased risk of developing DMII (HR = 1.45, 95% CI = 1.00-2.1, p = 0.048). When job strain underwent sensitivity analysis on a continuous scale, more severe job strain in the magnitude of 1 standard deviation corresponded to a 12% increased risk of DMII after full adjustments (HR = 1.12, 95% CI = 1.00-1.25, p = 0.045). In essence, those who experience high job strain are at an increased risk of developing DMII when compared to those who are exposed to traditional risk factors [6].

In a meta-analysis conducted by Kivimaki and colleagues [7], long working hours were assessed to determine if they have any role in the development of DMII. Four published studies were used, along with unpublished individual level data from 19 cohort studies obtained from the Individual-Participant-Data -Meta analysis in Working Populations Consortium and International open-access data archives. A sample size of 222,120 was obtained with the population originating from the USA, Europe, Japan and Australia. Analysis showed that the incidence rate of diabetes was 29 per 10,000 people. After minimal adjustments, those working long hours (>55 hours per week) showed no statistically significant increased risk of developing DMII when compared to those working 35-40 hours per week. However, when the analysis was stratified by socioeconomic status (SES), those in the low SES group had a 29% increased risk (RR = 1.29, 95% CI = 1.06-1.57) of developing DMII when compared to those with high SES status (RR = 1.00, 95% CI = 0.80-1.25). This finding remained statistically significant even after adjustments were made for age, sex, obesity, physical activity and shift-working. The conclusion of this study is that long working hours is only linked to diabetes for those with low SES status [7].

Similar to the analysis by Kivimaki and colleagues [7], a pooled analysis was conducted by Nyberg et al [10]. looking at the relationship between DMII and job strain. Data was obtained from 13 cohort studies across the world including Finland, France, Denmark, Sweden and the United Kingdom. After exclusion, a total of 124, 808 diabetes-free participants were qualified to take part in the study. Job strain was evaluated using the JCQ scale at baseline. Age, sex, SES, working hours, body mass index, leisure-time physical activities, smoking and alcohol

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consumption were all used as covariates that could contribute as either confounders or mediators. The mean follow-up time was 10.3 years at which point there were 3,703 new diabetes cases. After adjustment for age, sex and SES, a 15% increased risk of diabetes was assessed for those facing job-strain versus those who do not (HR = 1.15, 95% CI = 1.06-1.25); no differences was found between males and females. When stratified analysis was performed to evaluate the impact of lifestyle risk factors, it was found that regardless of their exposure of these risk factors, there was an increased risk of developing DMII, although obesity proved to have stronger associations. In addition, using a multivariate model and adjusting for age, sex, SES and lifestyle habits, there was an 11% risk of developing DMII (HR = 1.11, 95% CI = 1.00-1.23). Sensitivity analysis did not show any association between job strain and diabetes as it relates to working hours. Based on this meta-analysis, we can say with confidence that job strain is a risk factor for the development of DMII, for both men and women, regardless of their lifestyle behaviors [10].

Other than work-related stress, other stressful factors have been found to be associated with diabetes. For example, one study showed that men working in lower employment positions, had a 190% increased risk of developing diabetes (OR = 2.9, 95% CI = 1.94-4.4), while women had a 70% increased risk, although not statistically significant (OR = 1.7, 95% CI = 0.8-3.7). Men also had 70% increased risk for those who were subjected to effort-reward imbalance [8]. Another study was able to link diabetes with stressful events from multiple sources, ranging from febrile disease, accidents, pregnancy, family problems, work problems and stress from no specific event [20]. A study by Sipetic and colleagues (2007) found positive relationships between DMI and different types of stress, such as family or work issues, (OR = 11.5, 95% CI = 1.6-81.8); severe life events (OR = 68.5, 95% CI = 13.5-349); minor life events (OR = 32.7, 95% CI = 6.3-169.6); and learning problems (OR = 17.5, 95% CI = 4.3-71.6). All of these results support the hypothesis that stressful life events and psychological factors are associated with DMI [21].

This narrative literature review attempted to outline statistical evidence supports the negative association between occupational stress and its influence on DMII, but also demonstrated that it is a large problem across the globe. Much needs to be done about this significant public health issue in an effort to preserve the health and well-being of the human race.

CAM therapies: prevention & mediation

Prevention strategies should be executed with a wholestic/holistic approach - focusing on all levels in the hierarchy including individual, organizational and policy levels. However, despite the overwhelming data, clinicians, administrators and policy makers are yet to understand how to bring individuals, workplace and legislative policies together to recognize the adverse effects of stressful work organization and its association with the development of chronic diseases, especially diabetes, and how to collaboratively work towards a solution.

Diabetes poses a significant threat to our nation and especially individuals undergoing stress at their workplace. Some factors such as genetics cannot be controlled, but there are effective evidence-based practices than have been shown to effectively reduce the incidence of diabetes via stressful events. At an individual level, stress management is very important. Although it is difficult to identify the actual source of stress, workers should learn how to control and prevent negative responses to stress. Using stress scales to identify levels of stress, visiting a specialist to discuss your stress and come up with preventative strategies and using self-help books are all measures to cope with stress. Stress producing situations can be changed by utilizing time management, improving organization skills and learning-problem solving skills. To change the physiologic response to stress workers can use the stop, breathe, reflect, choose, then act model [13].

Stop: say "stop" out loud or to yourself to interrupt a negative thought or anger.

Breathe: take several deep breaths and exhale slowly.

Reflect: think about everything that could happen and the negative consequences to follow.

Choose: based on your reflection, decide how to proceed.

Then Act: your actions are now based on rational thought rather than anger.

In addition, workers can be trained to engage in relaxation techniques (deep muscles, head-to-toe, with/without tapes), breathing exercises, yoga, meditation, hot baths and positive visualization techniques. Stress can also be de-emphasized using distractions, such as hobbies and attending pleasant activities such as movies and concerts.

At an organizational level, healthcare professionals should monitor/recognize the source of stress in their patients and implement specific techniques to be effective. Workplace organizational restructuring that is conducive to the health and well-being of the employee is very important. Employers can provide sufficient rest breaks, means of social support, supervisor support and ways to anonymously report unfair treatment without repercussions, gym memberships and confidential counseling sessions. Having a union representation may also provide an effective way to help prevent stressful job situations, although such representation is not possible in non-union jobs.

From a policy or governmental perspective, change can occur by implementing policies or laws to regulate how employees are being treated. For example, there is a law that provides time and a half pay for work-hours longer than 40 hours per week, as one way to provide an incentive to employers to limit work hours. However, depending on the need of the employee, this may not be an ideal change, although suggest that it would

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make the most sense to decrease the onset of diabetes and other chronic diseases. Governmental agencies can also send periodic questionnaires to employees to answer questions regarding their work and use this information to grade employers (i.e. government surveillance surveys); those who obtain a certain grade will be subjected to a penalty including decreased governmental funding, increased premium for services and fines for deficient areas. For example, OSHA inspectors in Denmark have checklists to identify stressful work situations, and they can fine an employer if they are violating the regulations. This in and of itself may provide motivation for employers to treat their employees fairly and with respect.

Moving forward

It is without question that we still need to learn and understand how to make employers understand the importance of reducing stress in the workplace; how they can help by the incorporation of preventative measures and the benefits they would reap. In addition, we are yet to understand how to bring individuals, workplace and legislative policies together to recognize the adverse effects of stressful work organization and its association with the development of chronic diseases, especially diabetes, and how to collaboratively work towards a solution.

Conclusion

The purpose of this narrative review was to discuss the influence and impact of work stress as it applies to the rising incidence of DMII, and to offer the significance of implementing complementary and alternative therapies as a preventative strategy. Based on the evidence reviewed, it is clear that stressful work organization has an influence directly on the DMII epidemic. Despite hurdles and challenges that exist in addressing such a complicated public health crisis introducing innovative CAM therapies combined with increased advocacy and awareness can influence a paradigm shift in addressing this major public health concern.

Competing Interest

The authors declare that they have no competing interests.

Authors' Contribution

HP was the sole-principle investigator of study. SW performed editorial guidance and research methodology analysis and was responsible for submitting the manuscript.

References

1. Center for Disease Control and Prevention (2015) Basics About Diabetes. CDC, USA.
2. Center for Disease Control and Prevention (2014) National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States. CDC, USA.
3. Brunner EJ, Kivimaki M (2013) Epidemiology: work-related stress and the risk of type 2 diabetes mellitus. Nat Rev Endocrinol 9(8): 449-450.
4. Eriksson AK, van den Donk M, Hilding A, Ostenson CG (2013) Work stress, sense of coherence, and risk of type 2 diabetes in a prospective study of middle-aged Swedish men and women. Diabetes Care 36(9): 2683-2689.
5. Heraclides A, Chandola T, Witte DR, Brunner EJ (2009) Psychosocial stress at work doubles the risk of type 2 diabetes in middle-aged women: evidence from the Whitehall II study. Diabetes Care 32(12): 2230-2235.
6. Huth C, Thorand B, Baumert J, Kruse J, Emeny RT, et al. (2014) Job strain as a risk factor for the onset of type 2 diabetes mellitus: findings from the Monica/Kora Augsburg cohort study. Psychosom Med 76(7): 562-568.
7. Kivimaki M, Virtanen M, Kawachi I, Nyberg ST, Alfredsson L, et al. (2015) Long working hours, socioeconomic status, and the risk of incident type 2 diabetes: a meta-analysis of published and unpublished data from 222 120 individuals. Lancet Diabetes Endocrinol 3(1): 27-34.
8. Kumari M, Head J, Marmot M (2004) Prospective study of social and other risk factors for incidence of type 2 diabetes in the Whitehall II study. Arch Intern Med 164(17): 1873-1880.
9. Li J, Jarczok MN, Loerbroks A, Schollgen I, Siegrist J, et al. (2013) Work stress is associated with diabetes and pre diabetes: cross-sectional results from the MIPH Industrial Cohort Studies. Int J Behav Med 20(4): 495-503.
10. Nyberg ST, Fransson EI, Heikkila K, Ahola K, Alfredsson L, et al. (2014) Job strain as a risk factor for type 2 diabetes: a pooled analysis of 124, 808 men and women. Diabetes Care 37(8): 2268-2275.
11. American Diabetes Association (2015) Managing Stress and Diabetes. ADA, USA.
12. American Diabetes Association (2015) Stress. ADA, USA.
13. Lloyd C, Smith J, Weinger K (2005) Stress and diabetes: a review of the links. Diabetes spectrum 18(2): 121-127.
14. Chandola T, Brunner E, Marmot M (2006) chronic stress at work and the metabolic syndrome: prospective study. BMJ 332(7540): 521-525.
15. De Bacquer D, Van Risseghem M, Clays E, Kittel F, De Backer G (2009) Rotating shift work and the metabolic syndrome: a prospective study. Int J Epidemiol 38(3): 848-854.
16. Edwards EM, Stuver SO, Heeren TC, Fredman L (2012) Job strain and incident metabolic syndrome over 5 years of follow-up: the coronary artery risk development in young adults study. J Occup Environ Med 54(12): 1447-1452.
17. Wang YS, Yu ZR, Yue S, Liu Q, Sun X, et al. (2011) A matched case-control study on the risk factors of metabolic syndrome among policemen. Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi 29(8): 567-571.
18. Pyykkonen AJ, Raikkonen K, Tuomi T, Eriksson JG, Groop L (2010) Stressful life events and the metabolic syndrome: the prevalence, prediction and prevention of diabetes (PPP)-Botnia Study. Diabetes Care 33(2): 378-384.
19. Toker S, Shirom A, Melamed S, Armon G (2012) Work characteristics as predictors of diabetes incidence among apparently healthy employees. J Occup Health Psychol 17(3): 259-267.
20. Kisch ES (1985) Stressful events and the onset of diabetes mellitus. Isr J Med Sci 21(4): 356-358.
21. Sipetic S, Vlajinac H, Marinkovi J, Kocev N, Milan B, et al. (2007) Stressful life events and psychological dysfunctions before the onset of type 1 diabetes mellitus. J Pediatr Endocrinol Metab 20(4): 527-534.

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