Work and Health
CHS M278/EHS M270
Spring 2014

April 2, 2014 – June 4, 2014
School of Public Health, SPH Rm 51-279
Wednesday 9:00 a.m. – 11:50 a.m.

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Course Description:

This course is meant to increase the student's understanding of how the work environment impacts the health of workers. We know that the organization of work can create exposures, both physical and psychosocial, that increase the risk of chronic diseases such as obesity, diabetes, musculoskeletal ailments and cardiovascular disease including hypertension and coronary artery disease. Work related psychosocial risk factors arise from the nature of the work activity and how it is organized, e.g., output demands placed on the employee, number of work hours, individual control over work tasks, schedules and security, etc. Noxious environments -- what we call "unhealthy work" -- are often the consequence of efforts to maximize productivity.

The course takes a historical and global perspective of the origin of modern workplaces and the impact of globalization on work organization (e.g. rise of industrialization in China). Theoretical models of recently recognized psychosocial exposures are presented and empirical evidence relating these exposures to health outcomes are examined. This evidenced based approach is balanced with practical exercises for measuring and assessing psychosocial work stressors and conducting workplace surveillance of noxious exposures and health outcomes. We will also examine the inevitable consequences to work productivity that result from psychosocial risk factors that increase absenteeism, lower productivity and raise business costs, thus providing both an economic and social rationale for a healthy workplace. Finally, the course explores how work stressors can be ameliorated through reorganizing work processes to support a healthier workplace. The class will have 10 three-hour sessions and will meet weekly.

Readings:

Schnall PL, Dobson M, Rosskam E, Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009.

Additional required readings are available as downloadable pdfs on our website: http://unhealthywork.org

Grading:

Class Participation (discussion): 5%
Participant Observation Exercise: 10%
Blog Assignment: 15%
Practice Questionnaire Packet: 15%
Midterm: 25%
Final Exam covering lecture materials and readings: 30%

Overview of Sessions:

Week	Date	Description
1	4/02	Globalization, work and health
2	4/09	Introduction to psychosocial factors in the workplace
3	4/16	Conceptual and theoretical models: operationalization, measurement, and assessment of psychosocial factors – *Dr. Marnie Dobson*
4	4/23	Physiological mechanisms leading to adverse physical and mental health outcomes
5	4/30	Assessing health outcomes with a focus on obesity – *Dr. BongKyoo Choi*
6	5/07	Assessing health outcomes with a focus on cardiovascular risk factors
7	5/14	Assessing health outcomes with a focus on psychological distress – *Dr. Marnie Dobson*
8	5/21	Programs and policies for regulation of workplace stressors, primary and secondary interventions: work organization redesign
9	5/28	Economic costs of stressful working conditions
10	6/04	Course wrap-up and conclusions

Description of Sessions:

I. Globalization, work and health (April 2)

The Global Epidemics we face in "advanced" industrialized countries as well as in rapidly industrializing countries are considered to be the "ordinary diseases of everyday life": hypertension, heart disease, stroke, diabetes and depression. In most parts of the world, these diseases have replaced infectious diseases as the major causes of chronic illness and death. They are growing public health concerns in many emerging market economies, including China, India, Turkey, and Central and East European countries. Medicine struggles to find technologies to cope with these chronic diseases, while prevention is neglected.

But what makes us healthy or sick in the first place? The single strongest predictor of one's health is social class position, usually measured by income, education or occupational status. Those at the lower rungs of the social class ladder get sicker and die younger than those at each higher rung. Income inequality and overall socio-economic insecurity are increasing worldwide; tax breaks for the rich, unregulated markets, the decline of trade unions, outsourcing, and cuts in social programs negatively impact working people, as well as families and communities.

One significant means through which social class transmits illness is through work and working conditions. While work can provide greater access to resources and well-being, it also has its detrimental side. Research shows that workers facing high demands at work combined with low control over the work

process and/or workplace decision-making or high efforts combined with low rewards are more likely to die of heart disease and suffer from mental health problems than workers without such job stressors. Such stressors help to explain why those lower in the social class hierarchy have higher risk of heart disease and mental health problems than corporate CEOs. The greater our exposure to insecure, low control, and low-paying jobs; punishing, harsh or inflexible supervisors; work-family conflicts; the less access we have to money, power and the ability to cope and gain control over those pressures, the higher the chance for chronic stress and chronic illness to result.

Protecting workers from harm at work must be accompanied by initiatives addressing social and economic inequality in general, making work more conducive to health, increasing worker autonomy and participation in workplace decision-making, collective representation through trade unions, healthy job redesign, living wage jobs, paid sick and family leave, paid vacation time, universal access to health care, and pensions. Approaches focused on changing individual behaviors have not substantially altered overall population health indicators. Such approaches keep the discussion focused on individual responsibility for health without addressing the underlying causes of ill health and systemic change that is needed to reduce and prevent the burden of chronic illness plaguing the US and many other countries.

Readings for Session 1:

The Changing Nature of Work. In Schnall PL, Dobson M, Rosskam E, Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp 17-20.

Suggested Reading:

Economic Globalization and Its Effects on Labor. (Chapter 2) Moutsatsos, C. In Schnall PL, Dobson M, Rosskam E, Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009.

II. Introduction to psychosocial factors in the workplace (April 9)

Working people develop a wide variety of illnesses during their working lives, manifested in time lost from work, disability, physical incapacity, psychological distress and ultimately morbidity and mortality. How/whether these manifestations are connected to work is a critically important issue for those in the fields of medicine, occupational and public health. We will introduce the social epidemiologic approach, in which the workplace is viewed as a key determinant of a wide variety of behavioral and health outcomes. In other words, we focus upon the workplace as a relatively distal cause of these outcomes and view personality and individual factors as more proximal. Through viewing of a segment of Charlie Chaplin in the film *Modern Times*, we present two approaches to occupational health psychology, one of which focuses on individual coping and the other on the impact of the workplace on the individual. We present a brief overview of the field of stress research, and then examine in depth the historical origins of theoretical models of workplace psychosocial stressors.

Participant Observation Exercise distributed and reviewed in class. Due Session 3.

Readings for Session 2:

Beyond the Individual: Connecting Work Environment and Health. (Chapter 1) Gordon, D, Schnall, P., In Schnall PL, Dobson M, Rosskam E, Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009.

Health, Productivity and Work Life in Karasek RA, Theorell T. Healthy Work: Stress, productivity and the reconstruction of working life. New York. Basic Books, Inc., 1990. pp 1-31.

Measurement of psychosocial workplace exposure variables. In: Schnall PL, Belkic K, Landsbergis PA, Baker D (eds.) Occupational Medicine: State of the Art Review. The Workplace and Cardiovascular Disease. 2000; 15(1): 163-184.

III. Conceptual and theoretical models: operationalization, measurement, and assessment of psychosocial factors (April 16) – *Dr. Marnie Dobson*

Several theoretical models of workplace psychosocial stressors have been empirically validated, including the Demand Control Support, or job strain, model and the Effort-Reward Imbalance (ERI) model. Karasek's job strain model states that the greatest risk to physical and mental health from stress occurs to workers facing high psychological workload demands or pressures combined with low control or decision latitude in meeting those demands and low social support from others. The JCQ is one of the most popular instruments for assessing psychosocial working conditions. The lecture will address general features of the JCQ including psychometric information about the core scales – job control, job demands, and social support at work. In addition, recent international efforts for developing a new version of the JCQ (i.e., JCQ 2.0) will be presented, along with some intellectual inquiries on job demands and cultural adaptation of the JCQ (e.g., differential item functioning) in non-US countries.

Johannes Siegrist's broader ERI model defines stressful job conditions as a "mismatch between high workload (high demand) and low control over long term rewards". In comparison to the DCS model with its emphasis on moment to moment control over the work process (i.e., decision latitude), the ERI model provides an expanded concept, emphasizing macro level, long term control vis-à-vis rewards such as career opportunities, job security, esteem and income. The ERI model also integrates the exigencies and rewards of the job with the individual's input and coping style.

This session describes three main approaches for measurement of job characteristics: self report questionnaires (e.g., Job Content Questionnaire to measure job strain, ERI questionnaire, Occupational Stress Index); imputation of job characteristics scores based on aggregate data (e.g. national job title averages); and external assessment (e.g. supervisor or coworker ratings, job analysis by expert observers). We review important research results, highlight advantages and limitations of each method and discuss some issues to be resolved through future research. We recommend multi-method strategies for convergent validation, using as many of these approaches as possible.

Participant Observation Exercise due. In-class discussion.
Practice Questionnaire Packet distributed and reviewed in class. Due Session 4.

Readings for Session 3:

Kasl, S. The Influence of the Work Environment on Cardiovascular Health: A Historical, Conceptual, and Metholodical Perspective. Journal of Occupational Health Psychology 1996; 1(1): 42-56.

Siegrist, J. Social Reciprocity and Health: New Scientific Evidence and Policy Implications. Psychoneuroendocrinology 2005; 30; 1033-1038

IV. Physiological mechanisms leading to adverse physical and mental health outcomes (April 23)

This session will draw from extensive research which reveals that a wide range of workplace conditions have been implicated as risk factors for a variety of health problems including cardiovascular disease (CVD), psychological distress and work-related musculoskeletal disorders. These workplace conditions include shift work, long work hours, and chemical, physical, and psychosocial conditions. The most consistent evidence is provided by sources of psychosocial stress at work. The deleterious physiological effects of different stressful work scenarios are reviewed, with a focus on cardiovascular hemodynamic changes leading to the development of essential hypertension. Mechanisms will be discussed by which long work hours and shift work as well as exacerbating physical stressors such as noise, glare, heavy lifting, vibration, cold and heat can impact upon physiologic systems. Occupational groups exposed to a large number of these stressors are found to be at high risk for hypertension, myocardial infarction, stroke, peptic ulcer disease, headache, musculoskeletal disorders, burnout, depression, anxiety and other undesirable outcomes. They may also be susceptible to mood and sleep disturbances and disrupted relationships with family and friends.

Practice Questionnaire Packet due.
Midterm distributed. Due Session 6 (via email).

Readings for Session 4:

Principles of allostasis: optimal design, predictive regulation, pathophysiology and rational therapeutics. Sterling, P. In Schulkin, J. Allostasis, Homeostasis, and the Costs of Adaptation, Cambridge University Press, 2004. pp 1-36.

The central nervous system: Bridge between the external milieu and the cardiovascular system. In: Schnall PL, Belkic K, Landsbergis PA, Baker D (eds.) Occupational Medicine: State of the Art Review. The Workplace and Cardiovascular Disease. 2000; 15(1): 107-115.

V. Assessing health outcomes with a focus on obesity (April 30) – *Dr. BongKyoo Choi*

Obesity, an excess of body fat, has been a serious public health issue in the United States (US) since 1980. Among US adult aged 20-74 years, the prevalence rate of obesity (defined as Body Mass Index > 30 kg/m^2) has increased dramatically from 15% in 1980 to 34.3% in 2005-2006 National Health and Nutrition Examination Data. It is agreed among experts that the recent increase of obesity prevalence rate arises from change in the environment rather than from changes in genes. However, the role of work stress has never been fully explored as a risk factor for obesity in US workers. A theoretical framework for the linkage between work stress and obesity and recent empirical findings from a large US working population data will be presented. Furthermore, worksite obesity intervention studies will be discussed.

Blog assignment directions distributed and reviewed. Due Session 8.

Readings for Session 5:

Schulte PA, Wagner GR, Downes A, Miller DB. A framework for the concurrent consideration of occupational hazards and obesity. Ann Occup Hyg. 2008 Oct;52(7):555-66. Epub 2008 Sep 2.

Verweij LM, Coffeng J, van Mechelen W, Proper KI. Meta-analyses of workplace physical activity and dietary behaviour interventions on weight outcomes. *Obes Rev*. 2011;12(6):406-29.

Suggested Readings:

Obesity in US workers: The National Health Interview Survey, 1986 to 2002. Caban AJ, Lee DJ, Fleming LE, Gómez-Marín O, LeBlanc W, Pitman T. Am J Public Health. 2005 Sep;95(9):1614-22. Epub 2005 Jul 28. pp 1-9.

Choi B, Schnall PL, Yang H, et al. Psychosocial Working Conditions and Active-Leisure-Time Physical Activity in Middle-Aged Workers. International Journal of Occupational Medicine and Environmental Health Volume 23, Number 3, 2010. pp 239-253.

Choi B, Schnall P, Yang H, et al. Sedentary Work, Low Physical Job Demand, and Obesity in US Workers. American Journal of Industrial Medicine Volume 53, Number 11, 2010. pp 1088-1101.

VI. Assessing health outcomes with a focus on cardiovascular risk factors (May 7)

Research studies reveal that a wide range of workplace conditions have been implicated as risk factors for a variety of health problems including cardiovascular disease (CVD), psychological distress and work related musculoskeletal disorders. These workplace conditions include shift work; long work hours, threat avoidant vigilant work and chemical, physical, and psychosocial conditions. We will review the strength of evidence for these outcomes and examine the role of potential confounders in evaluating the research results. We will present an overview of methods to assess health outcomes including medical exams, workplace injury records. Special emphasis will be given on workplace ambulatory blood pressure monitoring as an efficacious, non-invasive method for identifying work-related hypertension as well as the emerging public health epidemic of "hidden hypertension".

Practice Questionnaire Packet returned and reviewed.
Midterm due.

Readings for Session 6:

The Workplace and Cardiovascular Disease. (Chapter 6) Landsbergis, P., Schnall, P., Dobson, M., In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp. 89 – 101.

Landsbergis PA, Schnall PL, Dietz DK, Warren K, Pickering TG, Schwartz JE. Job strain and health behaviors: Results of a prospective study. American Journal of Health Promotion 1998; 12(4): 237-245.

Kivimäki M, Nyberg ST, Batty GD, et al. Job strain as a risk factor for coronary heart disease: a collaborative meta-analysis of individual participant data. Lancet 2012; 380: 1491–97.

VII. Assessing health outcomes with a focus on psychological distress (May 14) – *Dr. Marnie Dobson*

While work has many positive benefits for working people, work also has its negative effects on the mental health of working people. A broad field of research assesses the role of work in relationship to psychological health or mental illness. We will review the evidence from occupational epidemiology and occupational health psychology showing the relationship of work-related psychosocial factors, such as job strain and effort-reward imbalance, to psychological distress, burnout, anxiety and depression as well as discussing some of the possible mediators (especially gender, coping/support). We will discuss common measurement issues and the latest longitudinal evidence about reverse causality, e.g. that those who are depressed are more likely to report psychosocial work stress. Along with the traditional psychosocial stressors, such as job strain, we will address the associations between mental health and other "newly" identified work stressors including work-family conflict, workplace bullying, justice and fairness at work, and "emotional labor," an aspect of the working conditions of human service work.

With the growing precariousness of many jobs since the global economic recession, we will also evaluate a growing body of research showing a relationship between more macro forms of work organization, such as downsizing, contingent (part-time or short-term contract) work, and discuss these in relationship to work stressors and to mental health. We will briefly discuss, given the evidence, what is being done to improve work, and what more could be done to alleviate mental distress at work.

Readings for Session 7:

From Stress to Distress: The Impact of Work on Mental Health. (Chapter 7) Dobson, M., Schnall, P., In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp. 113 – 127.

Stansfeld SA, Shipley MJ, Head J, Fuhrer R. Repeated job strain and the risk of depression: longitudinal analyses from the Whitehall II study. Am J Public Health. 2012 Dec;102(12):2360-6. doi: 10.2105/AJPH.2011.300589. Epub 2012 Oct 18.

Suggested Reading:

Namie G. The Challenge of Workplace Bullying. Employment Relations Today Volume 34 (2) Summer 2007, p.43-51

VIII. Programs and policies for regulation of workplace stressors: secondary and primary intervention, work organization redesign (May 21)

This session will review the variety of legal and legislative measures that have been instituted to reduce employee exposure to workplace stressors. These include legislation (and accompanying regulations) and collective bargaining by labor unions and employers, both of which are designed to reduce exposure to workplace chemical, physical, ergonomic and psychosocial hazards. In addition, this session will examine how health educators, health psychologists, behavioral specialists and occupational health specialists have become increasingly aware of the workplace as a critical social environment that influences health behaviors. Two primary strategies (primary and secondary interventions, respectively) have been utilized to manage stress at work: organizational change approaches and stress management programs. Organizational change involves the identification of stressful aspects of work (e.g., excessive workload, low job control, work-family conflict) and the design of strategies to reduce or eliminate the identified stressors. In this session, primary prevention strategies, aimed at redesigning jobs, work organization and/or employer policies, will be considered using case studies as examples.

Stress management programs (secondary intervention) teach workers about the nature and sources of stress, the effects of stress on health, and personal skills to reduce stress. We will also discuss programs that are complementary to these efforts, such as individual stress management and health promotion. Examples will be provided of programs that integrate workplace health promotion and occupational health.

Review of Midterm.
Blog article due.

Readings for Session 8:

Interventions. In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp. 169-172

Interventions to reduce job stress and improve work organization and worker health. (Chapter 11) Landsbergis, P.A., In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009, pp. 193-209

IX. Economic costs of stressful working conditions (May 28)

While the costs of stressful working conditions are eventually experienced in the bodies of chronically stressed workers, these costs are not just an individual problem with individual solutions. While all workers exposed to unhealthy working conditions should have access to workers' compensation and health insurance to deal with the consequences of work-related injury or illness, employers and business must have a vested interest in preventing work from damaging the health and well-being of their employees. Businesses experience very real and extraordinarily high costs of work-related stressors and occupational injuries and illness. Employee illness and injury cost employers money and time. Besides the direct costs of health care and workers' compensation, more hidden costs include absenteeism, presenteeism or diminished productivity, and employee turnover all of which have a negative effect on the economic soundness of a work organization. The enormous costs of workers' compensation for work related disease may also provide an incentive to businesses to reduce workplace exposure to psychosocial stressors.

Readings for Session 9:

The Health and Economic Costs of "Unhealthy" Work, In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp. 87 - 88

Work, Psychosocial Stressors and the Bottom Line. (Chapter 9) Jauregui, M, Schnall P, In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp.153 – 165.

Stakeholder Perspectives on Work and Stress: Seeking Common Ground. (Chapter 10) Gordon, D, Jauregui, M, Schnall, P., In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009. pp. 173 – 190.

X. Course wrap-up and conclusions (June 4)

This session will allow for a discussion that reviews the major themes of the course. The empirical (epidemiologic), theoretical, and biological evidence presented in this course provides convergent

validation that the relationship between workplace stressors and a number of adverse health outcomes is causal. In other words, the empirical findings are consistent with and predicted by the theoretical models, while the linkage between the theoretical models and empirical evidence is demonstrated to be plausible by considering biological mechanisms and experimental research. Based upon these conclusions, new strategies are explored for enhanced prevention and clinical management, work place interventions, and social policy to reduce the impact of disease, psychological distress and unhealthy behaviors that result from stressful working conditions. These strategies acquire an urgent public health dimension, given the magnitude of the epidemic of stress-related diseases and widespread psychological/behavioral effects, and the current deterioration in conditions of working life. Creating a healthy work environment is a high priority, and would entail the full participation of working people in the decision-making processes surrounding the organization of work.

Final distributed. Due June 11th.

Readings for Session 10:

Curing Unhealthy Work. (Chapter 19) Schnall, PL, Dobson, M, Rosskam, E, Landsbergis, P., In Schnall PL, Dobson M, Rosskam E., Editors Unhealthy Work: Causes, Consequences, Cures. Baywood Publishing, 2009.

Gardell B. Worker participation and autonomy: a multilevel approach to democracy at the workplace. In: Johnson JV, Johansson G. (Eds.) The Psychosocial Work Environment: Work Organization, Democratization and Health. Essays in Memory of Bertil Gardell. Baywood Publishing Co., Inc., Amityville, 1991, pp. 193-223