Quiz 3: Solutions

First and last name (print clearly): _____

Student number (print clearly): _____

From: Weston G, Zilanawala A, Webb E, et al Long work hours, weekend working and depressive symptoms in men and women: findings from a UK population-based study J Epidemiol Community Health Published Online First: 25 February 2019.

Background Globalised and 24/7 business operations have fuelled demands for people to work long hours and weekends. Our objective was to examine the relationship between these work patterns and depressive symptoms in a large nationally representative sample of working men and women in the UK.

Method The current study analysed data from Understanding Society, the UK Household Longitudinal Study, of 11,215 men and 12,188 women in employment or self-employment at the time of the study. We summed the number of hours participants on average worked per week, worked as overtime in a normal week, and worked in any second jobs. Mindful of the lack of consensus in categorising work hours, we chose to adhere to a definition and reference group used in epidemiology studies in the UK: 35–40 hours (standard full-time; reference category), 41–54 hours (long hours), and 55 hours and over (extra-long hours). To this we added an additional category to account for part-time workers: fewer than 35 hours per week.

Results Relative to a standard of 35–40 hours/week, working 55 hours/week or more related to more depressive symptoms among women ($\beta = 0.75$, 95% CI 0.12 to 1.39), but not for men (β=0.24, 95% CI -0.10 to 0.58). Compared with not working weekends, working most or all weekends related to more depressive symptoms for both men (β=0.34, 95% CI 0.08 to 0.61) and women (β=0.50, 95% CI 0.20 to 0.79); however, working some weekends only related to more depressive symptoms for men (β=0.33, 95% CI 0.11 to 0.55), not women (β=0.17, 95% CI -0.09 to 0.42).

Question 1

What kind of a variable is the exposure in this study? (choose the best answer)

◯ Nominal

◯ Ordinal

◯ Continuous

◯ Discreet

Answer: This is an Ordinal variable, the values have been put in categories that have a natural order (normal work hours, extended work hours etc.)

Question 2

Which of the following describes the design of this study? (fill in the boxes for all that apply)

☐ Experimental

☐ Observational

☐ Cohort

☐ Case- Control

☐ Retrospective

☐ Cross-sectional

Answer: This was an observational study, the exposure (work hours) was not assigned by the study, it was a Cohort study - individuals were recruited into a longitudinal study based on geography (UK) and were selected for this study based on employment (employed or self employed). The data were collected in the overall cohort prospectively, however this study used a cross-section of the data - they are looking at current work status and current depressive symptoms.

Question 3

Based on these data is the probability of depressive symptoms independent of work hours during the week among men?

◯ Yes

◯ No

Answer: Yes, work hours during the week among men were not associated with depressive symptoms

Question 4

Based on these data is the probability of depressive symptoms independent of weekend work among women?

◯ Yes

◯ No

Answer: No - working most or all weekends was associated with depressive symptoms in women. Knowing about weekend work tells us something about depression thus they are NOT independent

Question 5

In lecture 13 we used probability notation to describe the marginal probabilities of births as follows:

- P(M = teen) = 0.09
- P(M = young adult) = 0.24
- P(M = older adult) = 0.67

Use this type of notation to write a probability statement that expresses the finding described in question 3.

Answer: We were looking for a statement of independence using probability notation such as the following P(Mental health= Depressive | Gender=Male and Work hours >55) = P(Mental Health = Depressive | Gender=Male)

Note: This was converted to an extra credit point