

Supplementary File 1 for: Firefighter occupational factors and the risk of preterm birth: results from a cohort of women firefighters in the United States

Alesia M Jung, PhD^{1,2}; Sara A Jahnke, PhD³; Leslie K Dennis, MS, PhD¹; Melanie L Bell, PhD¹;
Jefferey L Burgess, MS, MD, MPH²; Leslie V Farland, ScD^{1,4}

¹ Department of Epidemiology and Biostatistics, Mel and Enid Zuckerman College of Public Health, University of Arizona, Tucson, Arizona, US.

² Department of Community, Environment and Policy, Mel and Enid Zuckerman College of Public Health, University of Arizona, Tucson, Arizona, US.

³ Center for Fire, Rescue, & EMS Health Research, NDRI-USA, Leawood, Kansas, US.

⁴ Department of Obstetrics and Gynecology, College of Medicine-Tucson, University of Arizona, Tucson, Arizona, US.

Included in this file:
Table S1

Table of Contents

Table S1. Description of outcome, occupational factors, and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey.....	3
---	---

Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
<u>Outcome of interest</u>			
Preterm birth	Did your Xth pregnancy result in (select one)...	Livebirth; Miscarriage; Stillbirth; Pregnancy terminated; I am still pregnant	Only livebirth pregnancies were considered. Categorized as:
	Was your baby from pregnancy X born more than 3 weeks before his/her due date?	1= Yes 0= No 2= Don't know/don't remember	Yes (preterm): 1 No (full-term): 0 Missing: 2
<u>Individual-level occupational factors</u>			
Employment status	Are you primarily a career or volunteer firefighter?	1=Career; 2=Volunteer	Career: 1 Volunteer: 2
Wildland firefighter status	Are you a wildland firefighter?	1=Yes, wildland only; 2=Yes, I do wildland in addition to working for a career/volunteer department; 0=No	Structural: 0 Wildland/combination: 1, 2
Shift schedule	What is your shift schedule? (career firefighters only)	1= 24 hours on/24 hours off; 2= 24 hours on/48 hours off; 3= 24 hours on/72 hours off; 4= 48 hours on/96 hours off; 5=24 hours on/24 hours off/24 hours on/24 hours off/24 hours on/4 days off; 6=72 hours on/96 hours off; 7=10 hours on/14 hours off; 8=9 hours on/15 hours off; 9=12 hours on/12 hours off; 10=8 hours, 5 days a week; 0=Other	Less than 24 hours on shift: 0, 7-10 24 or more hours on shift: 1-6
<u>Pregnancy-specific occupational factors</u>			

Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
Working fire/rescue calls at pregnancy start	Were you actively running fire or rescue calls when you found out you were pregnant for your pregnancy?	1=Yes; 0=No; 2= Don't know/Don't remember	Yes: 1 No: 0 Missing: 2
Number of fires during pregnancy	Approximately how many working fires did you fight during your pregnancy?	Write in response (possible response range 0-100 fires)	Categories split at tertile values: 0 fires 1-4 fires > 4 fires
Was work restricted during pregnancy?	Were your duties restricted during your pregnancy?	1=Yes; 0=No; 2=Don't know/Don't remember	Yes: 1 No: 0 Missing: 2
Timing of start of work restriction	Approximately how many weeks into your pregnancy were you when your duties were restricted?	Write in response (possible response range 0-40 weeks)	Categories split at pregnancy trimester definitions: 1 st trimester: 0-12 weeks 2 nd trimester: 13-26 weeks None/3 rd trimester: 27+ weeks or report of no restrictions taken
<u>Other individual-level variables</u> Highest education completed at time of survey	What is the highest grade or year in school you completed?	1= Grades 9-11 (some high school); 2=Grades 12 or GED (high school graduate); 3=College 1 year to 3 years (some college or technical school); 4=College graduate (4-year degree); 5=Advanced degree (graduate or professional school)	Some college or less: 1, 2, 3 College and above: 4, 5

Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
Body mass index (BMI) at time of survey	What is your current weight in pounds? What is your height?	Write in response Feet: write in response Inches: write in response	Weight (pounds) converted to kilograms (kg) and height (total inches) converted to meters (m) $BMI = \text{weight (kg)} / (\text{height (m)})^2$. BMI was categorized: $\leq 24.9 \text{ kg/m}^2$ $25-29.9 \text{ kg/m}^2$ $\geq 30 \text{ kg/m}^2$
Smoking at time of survey	Have you ever smoked a cigarette, even just a puff? Have you smoked at least 100 cigarettes in your entire life (note: 5 packs = 100 cigarettes)? Have you smoked a cigarette, even just a puff, in the past 30 days?	Yes; No Yes; No Yes; No	Never smoker: (1) Have never smoked a cigarette, or (2) Have not smoked more than 100 lifetime cigarettes Former smoker: Smoked at least 100 lifetime cigarettes but have not smoked in the past 30 days Current smoker: Have smoked at least 100 lifetime cigarettes and have smoked in the past 30 days
Race	Which one of these groups would you say best represents your race?	1= White; 2= Black; 3= Asian; 4= Native Hawaiian or Pacific Islander; 5= American Indian or Alaska Native; 6= Other	White: 1 Other: 2, 3, 4, 5, 6
Ethnicity	Are you of Hispanic, Latina, or Spanish Origin?	1= Yes; 0= No	Hispanic, Latina, or Spanish: 1 Not Hispanic, Latina, or Spanish: 0
Married or in partnership	What is your current marital status?	1= Married; 2= In a registered domestic partnership or civil union; 3= Widowed; 4= Separated; 5= Divorced; 0= Never married;	Yes: 1, 2 No: 0, 3, 4, 5

Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
Household income	What is your annual household income from all sources?	1= Less than \$25,000; 2= \$25,000 to \$50,000; 3= \$50,001 to \$75,000; 4= \$75,001 to \$100,000; 5= More than \$100,000	> \$75,000: 4, 5 ≤ \$75,000: 1, 2, 3
Menopausal status	How would you describe your menstrual status?	1= Premenopause (before menopause, having regular periods); 2= Perimenopause (changes in periods, I have not gone 12 months in a row without a period); 3= Postmenopause (after menopause)	Premenopausal: 1 Perimenopausal: 2 Postmenopausal: 3
Current rank	What is your rank in your fire department?	1= Firefighter; 2= Firefighter/Paramedic; 3= Driver Operator; 4= Lieutenant; 5= Captain; 6= Battalion Chief; 7= Deputy Chief; 8= Fire Chief; 9= Other Chief; 10= Paramedic only; 11= Other	Firefighter: 1 Firefighter/Paramedic: 2 Driver Operator: 3 Lieutenant: 4 Captain: 5 Chief: 6, 7, 8, 9 Paramedic: 10 Other: 11
Other pregnancy-level variables			
Age-at-pregnancy	How old were you when you became pregnant your 10 th time?	Write in response (possible response range 12-50 years)	Age plus square of age

Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
Gravidity	How many pregnancies (resulting in birth or miscarriage) have you had in your lifetime?	Possible responses: 0; 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 10+	Based on response, participants were asked about each pregnancy, where a higher number corresponded to a more recent pregnancy. For example, if you have had 3 pregnancies, Pregnancy 1 refers to your oldest child and Pregnancy 3 is your youngest. Previously pregnant: All pregnancies after Pregnancy 1 Not previously pregnant: Pregnancy 1
Previous preterm birth			Any livebirth (occurring during or outside of the fire service) resulting in preterm birth (see outcome ascertainment above) that occurred prior to the index pregnancy: Yes: At least one pregnancy that occurred before index pregnancy did result in a preterm livebirth No: Pregnancies that occurred before index pregnancy did not result in a preterm livebirth Nulligravid: Index pregnancy is first reported pregnancy

Table S1. Description of outcome, occupational factors and other variables collected using Health and Wellness of Women Firefighters Study 2017 survey

Measure	Survey question(s)	Survey responses	Categorization/Definition
Gestational hypertension	Were there any other pregnancy or medical complications encountered by either yourself or your baby during your Xth pregnancy?	No; Yes (please explain) If Yes: write in response	Yes: write in responses that included “Gestational hypertension”, “Hypertension”, “Preeclampsia” and “Blood pressure” Not reported: All other responses
Work restricted by doctor recommendation	Who decided when you would restrict your duties at the fire station for your 10th pregnancy? (check all that apply)	Doctor recommendation; Department mandated restricted duty; I chose when to restrict my duties	Yes: Doctor checked No: Doctor unchecked
Work restricted by department	Who decided when you would restrict your duties at the fire station for your 10th pregnancy? (check all that apply)	Doctor recommendation; Department mandated restricted duty; I chose when to restrict my duties	Yes: Department checked No: Department unchecked
Work restricted by self	Who decided when you would restrict your duties at the fire station for your 10th pregnancy? (check all that apply)	Doctor recommendation; Department mandated restricted duty; I chose when to restrict my duties	Yes: Self checked No: Self unchecked
Department policy regarding pregnancy and/or maternity	Does your department have any policies related to pregnancy? Does your department have any policies related to maternity leave?	Yes; No; Don’t know/don’t remember Yes; No; Don’t know/don’t remember	Yes: At least one marked Yes No: Both marked No Don’t know: (1) Both marked Don’t know/don’t remember or (2) one marked No and one marked Don’t know/don’t remember