

# Supplementary Materials

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### A. Questions asked about occupational exposures in the computer-assisted telephone interview.

The next questions relate to the physical requirements of your current job during a typical work day.

1. At work, how many times per day do you lift or carry objects that weight 15 pounds or more. For reference, 15 pounds is about the weight of 2 gallons of milk.  
**[FLIGHT ATTENDANTS ONLY:]** An insert full of soda is about 18 pounds.  
**[TEACHERS ONLY:]** The weight of a slide projector is about 12 to 14 pounds.  
Would you say less than once a day, 1 to 5 times per day, 6 to 10 times per day, or more than 10 times per day?
2. At work, how many hours per day are you on your feet, including standing and walking?  
Would you say less than one hour a day, 1 to 4 hours per day, 5 to 8 hours per day, or more than 8 hours per day?
3. How many times per day does your job involve bending at the waist? This including bending forward or stooping, bending to the side, and twisting. Would you say less than once a day, 1 to 25 times per day, 26 to 50 times per day, 51 to 75 times per day, or more than 75 times per day?
4. How many times per day does your job involve pushing or pulling heavy objects requiring at least 15 pounds of force or effort? Please consider that each time you separately push or pull the object counts as one push, or pull event.  
**[FLIGHT ATTENDANTS ONLY:]** For reference, a full entrée cart requires about 20 to 25 pounds of force to pull.  
**[TEACHERS ONLY:]** For reference, a library cart full of books requires about 20 pounds of force to push. Sliding an overhead projector across a table, requires about 6 pounds.  
Would you say less than once a day, 1 to 9 times per day, 10 to 19 times per day, 20 to 30 times per day, or more than 30 times per day?
5. Is your overall physical effort level at work very light, somewhat light, moderate, somewhat hard or very hard?

## **B. Questions asked about menstrual history in the computer-assisted telephone interview.**

The next set of questions is about your menstrual periods, your use of contraception, and any medical problems related to your menstrual periods.

1. In the past 12 months, how many days of bleeding did you usually have during periods? Count from the day bleeding or spotting began until the day bleeding completely stopped.
2. Thinking about the amount of menstrual flow that you have on the heaviest days of your menstrual periods, would you describe this flow in the past 12 months as light, moderate, or heavy? I will describe what we mean by that.

By light we mean, usually you only change your pads or tampons a few times per day and you never use super absorbent pads or tampons. By moderate we mean, you have to change pads or tampons every few hours and at night you use super absorbent pads or tampons. By heavy we mean, you use super absorbent pads or tampons almost continuously, day and night, and you still have to change them every few hours to avoid leakage.

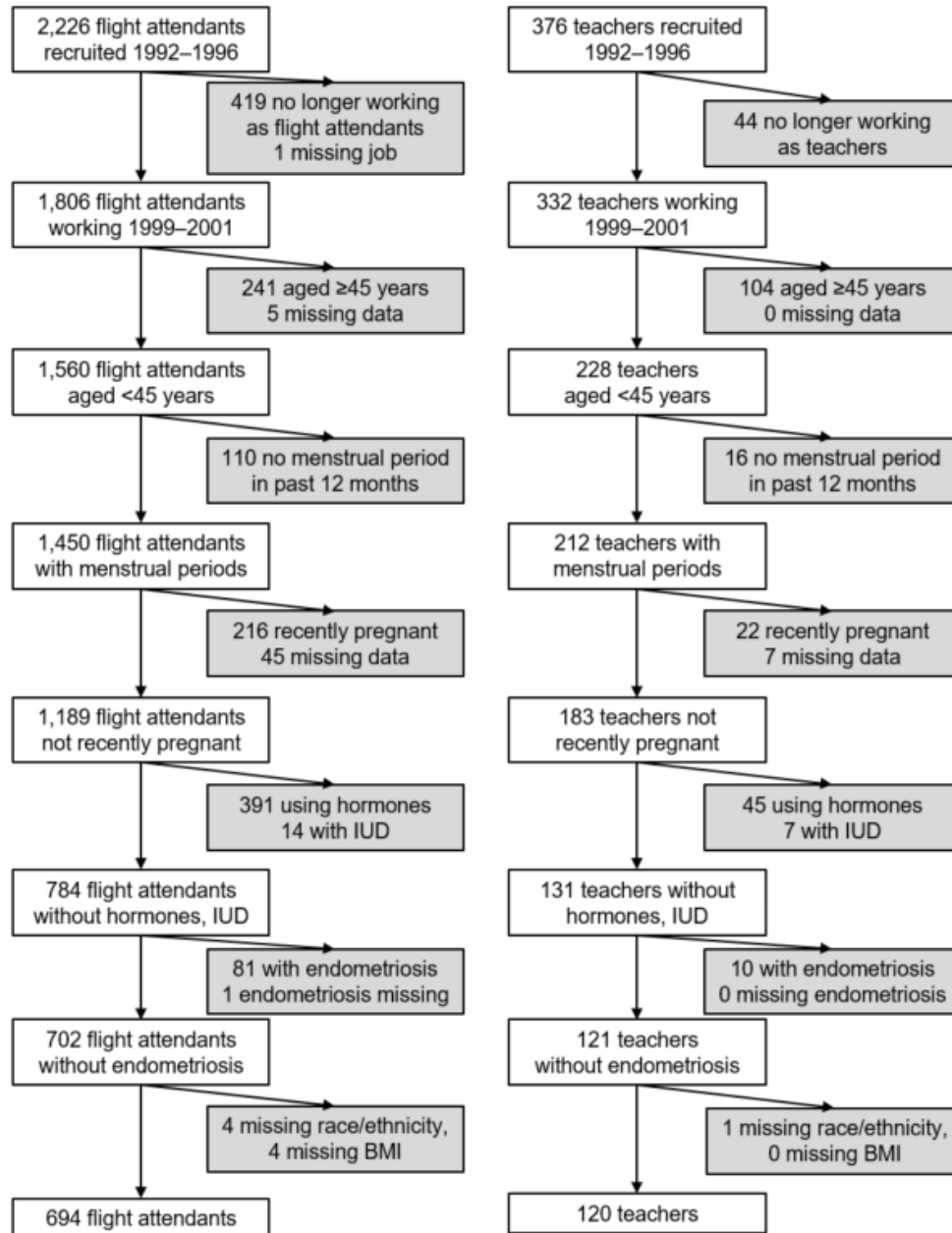
3. In the past 12 months, how often did you have cramps or backache before or during your menstrual periods? Would you say never, sometimes, often or always?
4. **[ONLY ASK IF ANSWER TO PREVIOUS QUESTION IS SOMETIMES, OFTEN, OR ALWAYS:]** When you have menstrual cramps or backache, would you describe your pain as mild, moderate or severe? I will describe what we mean by that.

By mild we mean, your daily activities are not usually affected and pain medication is rarely needed. By moderate we mean, your daily activities may be affected, pain medication is often needed and relieves your pain. By severe we mean, your daily activities are definitely affected, pain medication is needed but often does not relieve your pain.

5. In the past 12 months, what was the usual length of your menstrual cycle? In other words, how many days were there from the first day of one menstrual period to the first day of the next period? **[PROMPT IF ANSWER IS DON'T KNOW:]** What is your best estimate?
6. What is the longest menstrual cycle you have had in the past 12 months?
7. What is the shortest menstrual cycle you have had in the past 12 months?

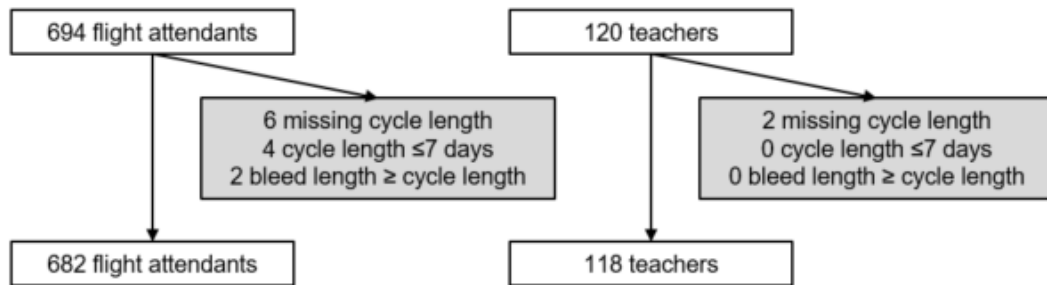
## C. Participant flow chart.

### a. Exclusions made from all analyses.

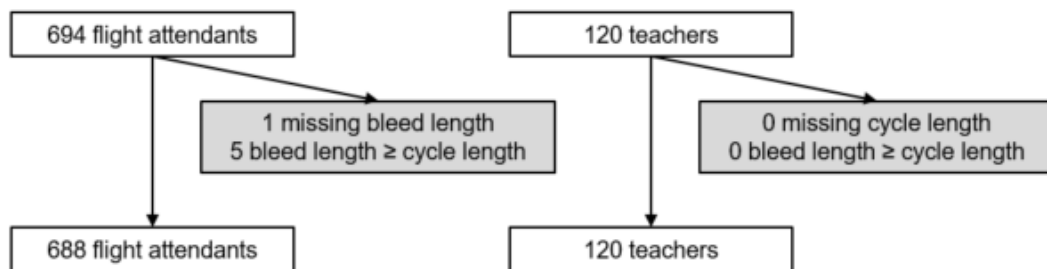


**b. Outcome-specific exclusions.**

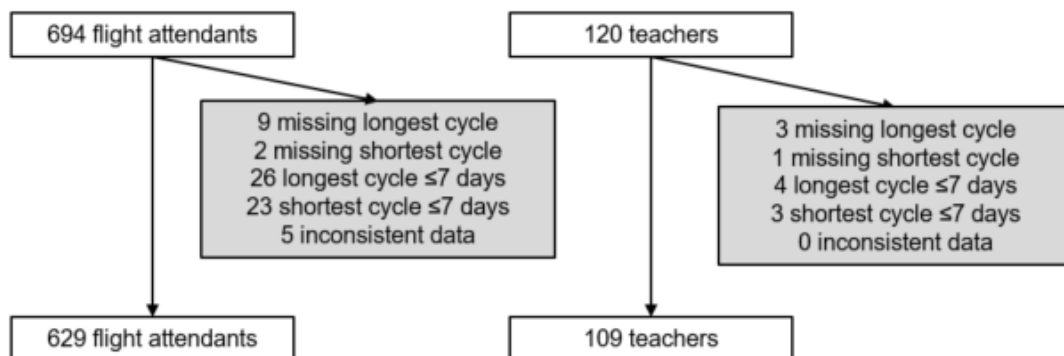
**Cycle length**



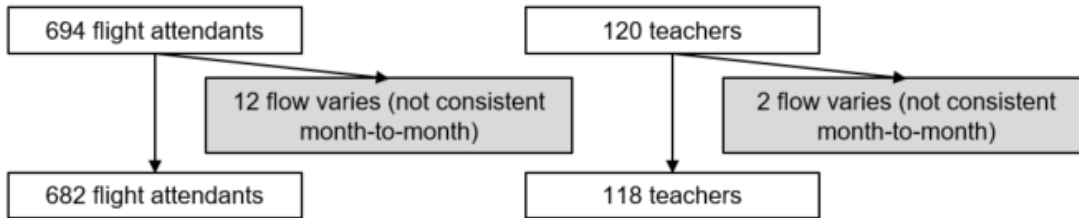
**Bleed length**



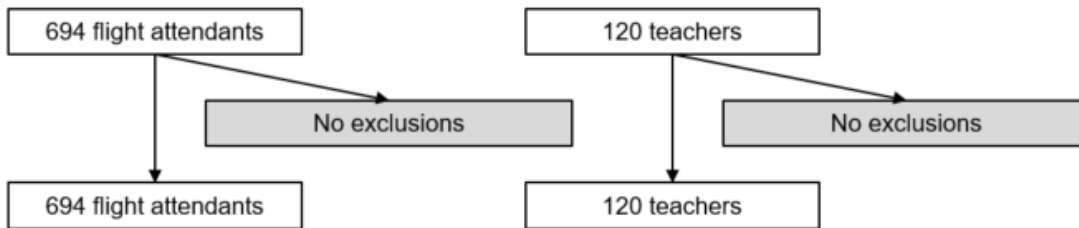
**Irregularity**



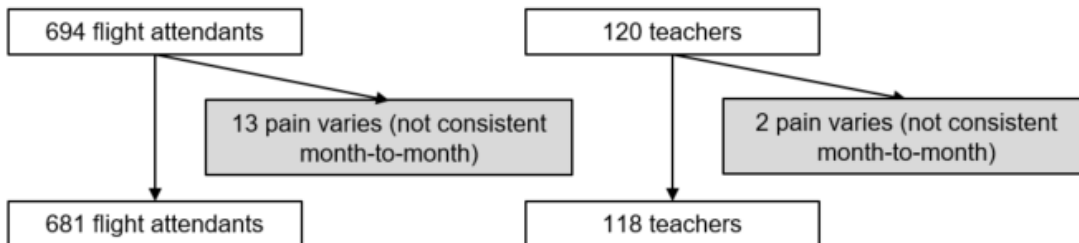
## Flow



## Cramps



## Pain



#### D. Results for occupational physical demands and bleed length and cycle length.

Table A1. Associations between daily occupational physical demands and bleed length and cycle length among flight attendants.

	Bleed Length Adjusted PR (95% CI) <sup>a</sup>		Cycle Length Adjusted PR (95% CI) <sup>a</sup>	
	Short vs. Average	Long vs. Average	Short vs. Average	Long vs. Average
Overall effort				
Light, moderate	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
Hard	0.9 (0.6, 1.5)	0.9 (0.7, 1.3)	1.1 (0.8, 1.5)	0.8 (0.5, 1.5)
Standing				
0-8 hours	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
>8 hours	1.2 (0.7, 2.0)	0.9 (0.7, 1.3)	1.3 (0.9, 1.8)	0.9 (0.5, 1.7)
Lifting ≥15 pounds				
0-5 times	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
6-10 times	1.6 (0.8, 3.1)	1.5 (1.0, 2.2)	0.7 (0.4, 1.0)	1.9 (0.8, 4.7)
>10 times	1.4 (0.7, 2.7)	0.9 (0.6, 1.5)	0.9 (0.6, 1.3)	1.7 (0.7, 4.3)
Pushing/pulling				
0-19 times	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
20-30 times	1.0 (0.5, 1.8)	0.8 (0.5, 1.3)	1.3 (0.8, 2.1)	1.1 (0.5, 2.6)
>30 times	0.8 (0.4, 1.3)	0.7 (0.5, 1.0)	1.3 (0.9, 1.9)	1.3 (0.6, 2.5)
Bending				
0-50 times	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)	1.0 (Ref)
51-75 times	1.1 (0.6, 1.9)	1.1 (0.7, 1.6)	0.8 (0.5, 1.3)	1.1 (0.5, 2.4)
>75 times	0.8 (0.5, 1.4)	0.7 (0.5, 1.1)	1.3 (0.9, 1.8)	1.1 (0.6, 2.2)

Abbreviations: CI, confidence interval; PR, prevalence ratio.

<sup>a</sup>Adjusted for study site, age, race/ethnicity, income, and body mass index.

## E. Prevalence of occupational physical demands among flight attendants using or not using hormones or intrauterine devices.

Table A2. Flight attendants using hormonal contraceptives, hormonal medications, or intrauterine devices have a similar pattern of reported daily occupational physical demands to those who were not using these hormones or devices.

	Hormone users		Non-users	
	n	%	n	%
Overall effort				
Light, moderate	126	34	271	39
Hard	240	66	423	61
Standing				
0-8 hours	125	34	249	36
>8 hours	241	66	445	64
Lifting ≥15 pounds				
0-5 times	88	24	166	24
6-10 times	136	37	234	34
>10 times	142	39	294	42
Pushing/pulling				
0-19 times	116	32	222	32
20-30 times	74	20	133	19
>30 times	176	48	339	49
Bending				
0-50 times	134	37	257	37
51-75 times	96	26	146	21
>75 times	136	37	291	42