Tobacco use in female firefighters

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Jitnarin *et al.* (1) has confirmed that negative lifestyle behaviors contribute to tobacco use among the female firefighters. The findings from her research suggest that (I) the social norms associated with smoking may be addressed with the focus of unhealthy behaviors; and (II) smoking cessation programs tailored for the female firefighters should take their occupational characteristics leading to a progressive use of tobacco into account. However, some highlighted findings require further clarification.

The reasons for inconsistent measurement of body mass index (BMI), with current tobacco users and nonuser counterparts, may be limited in this study. Beyond subjectspecific lifestyle choices provided by researchers, additional factors might notably be contributors to this inconsistency. First, the strenuous demand of the fire service often accompanies a higher BMI as this calculation does not account for large, dense, fat free muscle mass (2). This high BMI seen within firefighters suggests that those firefighters fit their high physical demand work as muscular firefighters might be misclassified as obsess using BMI (3). This higher BMI in addition to the stressor of this job leave the female firefighters at a higher risk for tobacco use in comparison to their fire chief who may spend most days working at a desk (4). Second, the complex set of social-ecological risk factors leading to unhealthy lifestyle behaviors may facilitate the development of higher BMI along with tobacco use. Given that the complexity of the processes that could affect body weights and tobacco use, a social-ecological framework is required for systematic characterization of the relationships (multi-level) and interactions (social-environmental) that shape BMI, behaviors, and smoking among the female firefighters. Thus, in future studies, researchers may be interested in using the

Ecodevelopmental Theory (5) to characterize the female firefighter lifestyle behaviors and determine associations of unhealthy lifestyle behaviors with BMI and smoking.

We feel like the non-significant smoking-BMI and smoking-weight associations across current tobacco users and nonuser counterparts need to be further discussed. Additional moderators, including educational attainment and socioeconomic status, might offset the significance level reported in the result section. Those moderators, especially social-ecological factors, may add the complexity of understanding smoking behaviors in the female fire service. Understanding provided by the authors about important and contextual moderators of the effect of smoking on BMI and weights in the female firefighters is limited and is needed for prevention. More future studies are necessary to advance this science base.

Due to snowball sampling (6), it is difficult to claim that the data collected likely can be generalized to women fire service personnel because this type of sampling technique does not use random selection mechanism. Therefore, it is not possible to determine the possible error and make a conclusion that is generalizable from this population.

In summary, this research highlights the need to seek to incorporate smoking screening with intentional inquiry about lifestyle behaviors and body weights among the female firefighters. Moreover, this study may be instructive to prevention programs that seek to leverage facets of social-ecological determinants to reduce healthrisk contexts, especially smoking addiction, for female firefighters. Smoking cessation program targeted the female firefighters who experience high risk from smoking at underrepresented role should take unique characteristics of female firefighters' progression to smoking addiction into

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account under the social-ecological system.

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References

- Jitnarin N, Poston WSC, Haddock CK, et al. Tobacco Use among Women Firefighters. Womens Health Issues 2019;29:432-9.
- 2. Rothman KJ. BMI-related errors in the measurement of obesity. Int J Obes (Lond) 2008;32:S56-9.
- Poston WS, Haddock CK, Jahnke SA, et al. The prevalence of overweight, obesity, and substandard fitness in a population-based firefighter cohort. J Occup Environ Med 2011;53:266-73.
- 4. Jahnke SA, Poston WC, Haddock CK, et al. The health of women in the US fire service. BMC Womens Health 2012;12:39.
- Prado G, Huang S, Maldonado-Molina M, et al. An empirical test of ecodevelopmental theory in predicting HIV risk behaviors among Hispanic youth. Health Educ Behav 2010;37:97-114.
- Biernacki P, Waldorf D. Snowball sampling: Problems and techniques of chain referral sampling. Sociol Methods Res 1981;10:141-63.