

The feasibility of measuring puffing behaviour in roll-your-own cigarette smokers

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Abstract

Background/objective: Despite the increase in roll-your-own (RYO) cigarette consumption in many countries, very little is known about RYO smokers. In order to estimate the health risks inherent in RYO use, it is important to assess exposure to tobacco toxins in this group. Exposure is determined by a number of factors, including puffing behaviour, but so far this issue has not been addressed among RYO smokers. This study sought both to determine the feasibility of measuring puffing behaviour in this group, its reliability and validity, and to characterise puffing behaviour among RYO smokers compared with smokers of factory-made (FM) cigarettes.

Methods: At two visits, 24 hours apart, 131 FM and 29 RYO cigarette smokers provided saliva samples that were assayed for cotinine, a measure of nicotine intake and thus smoke exposure. Self-reported puffing behaviour of participants, as well as their demographic and smoking characteristics were also assessed. At the end of the first visit, smokers were shown how to use a portable smoking topography machine that measures puffing behaviour, the CReSSmicro, and asked to smoke all cigarettes with this machine until the second visit, when participants were asked to provide feedback on using the device.

Results: Both RYO and FM cigarette smokers reported that the CReSSmicro was easy to use; however, RYO cigarette smokers were more likely to have missing data, to reduce cigarette consumption and to indicate a change in their puffing behaviour because of the device. Machine determined puffing behaviour was equally stable over time in both groups with similar ability to predict exposure; cotinine levels were related to machine but not to self-reported puffing parameters. Overall, RYO smokers appeared to puff cigarettes less hard but for longer than FM cigarette smokers.

Conclusion: The measurement of puffing behaviour using a topography device is feasible but less practicable for RYO than FM cigarette smokers. Puffing parameters show comparable reliability and validity for both groups of smokers and reveal some differences in smoking topography dependent on the type of cigarette smoked.

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