

## Differences in accuracy of offspring assessment based on parental smoking status

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### Abstract

To investigate the accuracy of offspring assessments of parental smoking status, we studied 116 parents and 151 adult children (276 parent–child dyads) who provided data on both their own and their parents' smoking status. All currently smoking and all ex-smoking parents were correctly classified as ever-smokers by their offspring ( $n=79$  and 100, respectively). Of the 97 offspring who reported on never-smoking parents, 88 correctly classified their parents as never-smokers. Thus, sensitivity for detecting ever-smoking in parents was 100%, and specificity, 91%. Because all incorrect classifications involved never-smoking parents, further analyses focused on this group. Too few parents were misclassified to permit testing of parental characteristics. Offspring who misclassified their parents were significantly older than those who did not; neither sex nor smoking status of the offspring was associated with the increased likelihood of misclassification. No significant differences were discovered for dyadic factors (concordance/discordance for sex; parent–offspring age difference). Overall, these results support the utility of proxy reports of parental smoking phenotype by adult informants when self-report is unavailable.

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**Keywords:** Family history; Genetics; Phenotype; Smoking status

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## 1. Introduction

Information on the smoking status of family members is important for studies involving the genetics of smoking, as well as for investigations of the impact of parental smoking on smoking or on other behaviors or traits in offspring (e.g., Kardia, Pomerleau, Rozek, & Marks, 2003). Ideally, this information would be obtained via interview of the family member. Often, however, this is either not possible or not feasible (e.g., the family member may be deceased, lost to follow-up, or otherwise not available to the study), and information gathered from informants must be relied upon to establish smoking status or history.

The ability of offspring to provide an accurate report regarding parental smoking could theoretically be affected by a variety of factors, including parent's smoking status (and for ex-smokers, recency of quitting), whether the parent considers him- or herself to be a smoker (a self-assessment that might not accord with the Center for Disease Control [CDC] definition of 100 or more cigarettes per lifetime; CDC, 2002), and attitudes that might promote non-disclosure (e.g., fear of being a poor role model, regarding smoking as a personal weakness or stigmatized behavior). Other factors that may influence accuracy include smoking status of the proband, sex of the offspring, whether the parent being evaluated is the same- or opposite-sex parent, and age of either the proband or the parent.

In a previous study conducted by our research group, a convenience sample of ever-smoking parents and their ever- and never-smoking adult children was recruited to fill out detailed questionnaires on the parents' smoking patterns and behaviors (Marks, Swan, Pomerleau, & Pomerleau, 2003). We found good agreement between parental self-report and offspring reports on their parents when the parent was a current smoker, especially for relatively observable dimensions. Because we were interested in the level and type of detail that could be provided by the offspring, however, this study did not address the issue of the accuracy of classification of smoking status per se because never-smoking parents were not included. More recently, Jack et al. (2003) investigated agreement between proband and family members' reports of several smoking behaviors and found good accuracy regarding ever-smoking, but less with regard to ever-quitting, age of initiation, and amount smoked. To explore these issues in a way that addresses more directly the concern that ex-smoking parents will be wrongly classified as never-smokers and never-smokers as ex-smokers by their adult children, we studied parents and adult children enrolled in a family registry who provided data on both their own and their parents' smoking status.

## 2. Methods

### 2.1. Participants

Participants were 116 parents and 151 of their biological adult children enrolled in the Great Lakes Smoker Sibling Registry. The total number of parent–child dyads was 276.

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