ASHES, Vol. 7(3) – Smoke, or e-Smoke?

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Previously, we have discussed the safety and efficacy of e-cigarettes (i.e., a battery-powered device with a refillable nicotine cartridge and a heater that vaporizes a nicotine solution; ASHES, Vol. 6(4)). Current research indicates that e-cigarette liquid and vapor contain significantly fewer chemicals than tobacco cigarettes. In fact, research suggests that harmful chemicals, if any, occur in trace amounts; these characteristics are similar to other nicotine replacement tools (Cahn & Siegel, 2011). This week's ASHES reviews a study of the effectiveness of e-cigarettes for smoking cessation (Siegel, Tanwar, & Wood, 2011).

Methods

- Siegel et al. (2011) sent an online survey to the first 5,000 people who bought a new e-cigarette seven months after their initial purchase.
    - Of the sample, 222 participants responded (4.5% response rate), but six were excluded from the survey because they did not meet the inclusion criteria for having been a smoker (i.e., lifetime cigarettes smoked ≥ 100).
- Participants (n = 216) completed an online survey that 1) described their typical pattern of e-cigarette and cigarette use at six months post-purchasing e-cigarettes, and 2) compared their overall smoking behavior during the six months following their initial e-cigarettes purchase to their smoking behavior prior to purchasing e-cigarettes.

Results

- Participants reported the following changes in smoking behavior during the six months following purchasing e-cigarettes: 143 reported smoking fewer cigarettes daily, 106 reported reduced nicotine use, and 104 reported they quit smoking for a period of time.
- Table 1 shows participants' reported smoking patterns at six months follow-up.
    - Thirty percent of the sample (67 of 216, 30%) reported that they

were not smoking cigarettes.
    - Among the 149 smokers, nearly equal numbers were using (52%) or not using (48%) e-cigarettes.
    - Among the 67 non-smokers, there were proportionately more participants using e-cigarettes (61%) than not (39%).
- The relationship between using e-cigarettes and smoking was not statistically significant (χ^2 (1 df) = 1.46, p = .23).

Smoking
(n, (row %), [column %])

e-cigarette Use	Yes	No	Total
Yes	78 (66) [52]	41 (34) [61]	119 (100) [55]
No	71 (73) [48]	26 (27) [39]	97 (100) [45]
Total	149 (70) [100]	67 (30) [100]	216

Figure. Smoking status by use of e-cigarettes. Click image to enlarge.

Limitations

- This study uses retrospective self-report without chemical verification.
- The results might not be generalizable to all people who use e-cigarettes because (a) the researchers only surveyed one e-cigarette brand and (b) the response rate was extremely low suggesting that the participants might not represent e-cigarette users.

Discussion

These results suggest that there might be an association between smoking reductions and using e-cigarettes (i.e., as the number of daily e-cigarette usage increased, the percentage of participants not smoking at six months increased). However, the results are not statistically significant when investigators compared participants who smoked and used e-cigarettes to those who smoked and did not use e-cigarettes. The same distribution in a sample containing about 100 more cases would be statistically significant, however, suggesting that the e-cigarette effect is small. Nonetheless, small effects can have considerable impact if this approach to stopping smoking was widely accepted.

Current research is mixed about whether e-cigarettes reduce craving (Bullen et al., 2009; Eissenberg, 2010), but some evidence suggests that simply holding a cigarette can help fight craving (Barrett, 2010). Using e-cigarettes mimics traditional cigarette use, so this could be the reason for the observed association

between not smoking and/or reducing smoking tobacco cigarettes. Nevertheless, more research is needed to determine the efficacy of e-cigarettes as a smoking cessation tool, including more comprehensive safety tests.

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References

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