Perceptions and Behaviors of Pregnant Dual Smokers

UK College of Nursing
Perinatal Research and Wellness Center

PURPOSE

The purpose of this study was to describe perceptions of electronic cigarette (e-cig) use and smoking-related behaviors of pregnant dual smokers (conventional cigarettes + e-cigs).

BACKGROUND

- E-cigs are perceived to be safer than conventional cigarettes, and a tool for smoking cessation.
- In the U.S., 8.4% of pregnant women are current smokers (Kentucky, 20.7%), and 5% of pregnant women use e-cigs.
- E-cigs contain nicotine, which is known to increase risk for adverse birth outcomes.
- Nicotine levels delivered from e-cigs are equal to or greater than levels from conventional cigarettes.

METHODS

- This is a sub-analysis of dual users from a larger study enrolling current smokers (biochemically validated) in early pregnancy
- Measures collected via electronic survey included:
  - ✓ Perceptions of how e-cig use relates to health outcomes
  - ✓ E-cig use behaviors: daily vs non-daily, times used per day, nicotine concentration levels, voltage, and e-cig flavors
  - ✓ Conventional cigarette use behaviors: number cigarettes per day, and dependence level via Fagerstrom Test for Nicotine Dependence (FTND) and Penn State Cigarette Dependence Index (PSCDI)

RESULTS

- 46% of conventional cigarette smokers (N=201) concurrently used e-cigs.
- Among dual users, e-cigs were perceived as harmful to the user (42%), fetus (37%), and may cause lung disease (42%); and considered acceptable or very acceptable to use in pregnancy (56%).
- 40% of dual users used their e-cig daily; median use times per day of 8 (IQR 3.5-15).
- Fruit was the most commonly used flavor (66%).
- More than half of dual users reported using a variable voltage device (59%), and 1-6mg of nicotine in the most recent e-cig (60%).
- 52% of dual users smoked <10 CPD; 33% smoked 11-20 CPD.
- Dual users scored higher on dependence measures: FTND (5.0 vs 4.2, p=.005) and PSDCI (11.7 vs 10.6, p=.094) compared to conventional users.

Almost half of **pregnant smokers concurrently use e-cigs (dual use)**, despite many **perceiving** them as **harmful to themselves and their fetus**. Dual users exhibited **higher nicotine dependence.**

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Table 1. Demographic characteristics

	Total sample (N = 201) Mean (SD) or n (%)	Conventional-only (n = 109) Mean (SD) or n (%)	Dual user (n = 92) Mean (SD) or n (%)	p
Age	28.2 (5.6)			.62[a]
Race/ethnicity				.86[b]
White, non-Hispanic	166 (83.8%)	91 (84.3%)	75 (83.3%)	
Hispanic or other race	32 (16.2%)	17 (15.7%)	15 (16.7%)	
Education				.063[c]
Less than high school	25 (12.5%)	17 (15.7%)	8 (8.7%)	
High school	81 (40.5%)	46 (42.6%)	35 (38.0%)	
More than high school	94 (47.0%)	45 (41.7%)	49 (53.3%)	
Household income				.49[c]
Less than $20,000	107 (60.1%)	58 (63.0%)	49 (57.0%)	
$20,000 - $49,999	52 (29.2%)	24 (26.1%)	28 (32.6%)	
$50,000 or more	19 (10.7%)	10 (10.9%)	9 (10.5%)	
Employed for wages				.81[b]
Yes	96 (48.0%)	51 (47.2%)	45 (48.9%)	
No	104 (52.0%)	57 (52.8%)	47 (51.1%)	
Dependence scores				
Fagerstrom	4.6 (1.8)	4.2 (1.7)	5.0 (1.8)	.005
Penn State	11.1 (4.1)	10.6 (3.6)	11.7 (4.6)	.094

[a] p from Mann-Whitney U test, omitting those who responded "Don't know"
[b] p from chi-square test of association
[c] p from Mann- Whitney U test

Table 2. Patterns of e-cigarette use among pregnant dual users (n = 92)

Characteristic	n (%)
Concentration of nicotine in most recent e-cigarette	
0 mg	4 (4.7%)
1 mg – 6 mg	51 (60.0%)
7 mg – 12 mg	13 (15.3%)
13 mg – 18 mg	5 (5.9%)
19 mg – 25 mg	5 (5.9%)
25 mg or more	4 (4.7%)
Decline to answer	3 (3.5%)
Number of days used an e-cigarette in past 30 days	
Daily	34 (40.0%)
Non-daily	51 (60.0%)
Number of times per day of e-cigarette use, *median* (interquartile range)	8 (3.5 – 15)
Use voltage	
Yes	49 (59.0%)
No	34 (41.0%)
e-cig voltage (n=49)	
3-3.75	18 (36.7%)
4-4.75	15 (30.6%)
5-5.75	6 (12.2%)
>=6	10 (20.4%)
E-cigarette flavors currently using (select all that apply; % checked)	
Mint/menthol (n = 35)	38.9%
Fruit (n = 59)	65.6%
Candy or other sweets (n = 28)	31.1%
other flavor (n=9)	10.0%

Note: numbers vary due to sporadically missing data

Perinatal Research and Wellness Center
University of Kentucky, Lexington KY

Andrea McCubbin, MPH
Janine Barnett, RN, MSN
Amanda Wiggins, PhD
Letitia Ducas, RN, BSN
Lucy Williamson, RN, MPH
Kristin Ashford, PhD, WHNP-BC