Published in final edited form as:

J Commun Healthc. 2016 ; 9(3): 200–209. doi:10.1080/17538068.2016.1231858.

The Influence of Health Messaging Source and Frequency on Maternal Smoking and Child Exposure among Low-Income Mothers

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Abstract

Addressing maternal smoking and child tobacco smoke exposure (TSE) remains a public health priority, particularly in low-income, underserved populations which are known to experience the highest TSE rates and tobacco-related morbidity/mortality. Little is known about the types of TSE messaging received in high-risk populations, and which communication channels are influential in promoting smokers' efforts to protect children from TSE. The purpose of this study was to examine associations between reported sources and frequency of TSE-reduction health messages maternal smokers received and the effects of the messaging on smoking-and TSE-reduction related behaviors. Maternal smokers from low-income communities in Philadelphia, Pennsylvania who were enrolled at baseline in the Family Rules for Establishing Smokefree Homes (FRESH) trial (N=359) were included in this study. Each participant completed a 60-minute in-home baseline interview, which included questions about their smoking history, current smoking patterns, children's TSE, and the TSE-related health messaging they had received prior to enrollment. Multivariable analyses were conducted to determine the effect of source messaging on mothers' knowledge, behavior, and intention regarding their baby's TSE. Results suggest that different sources of messaging may differentially impact smoking behavior and intention to change. For example, messaging from healthcare and dental providers may influence efforts to protect children from TSE whereas friends and family may influence intention to quit. Future studies could examine the value of multilevel health communication strategies, utilizing advice from healthcare providers that is augmented by family and peers to help promote smoking behavior change in this high-risk group of underserved postpartum smokers.

Keywords

Secondhand smoke; health communication; passive smoking

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Conflicts of Interest: The authors have no conflicts-of-interest to declare.

Introduction

Tobacco smoke exposure (TSE) among nonsmokers has been linked to several preventable illnesses, numerous cancers, and coronary heart disease (1). Children bear increased risks from TSE which has associations with sudden infant death syndrome, respiratory health problems including asthma, increased odds of emergency room visits due to asthma, and an increased risk for a variety of cancers (2,3). Such findings have indicated the health risks associated with exposure to tobacco smoke. According to the US Surgeon General, there is no risk-free level of TSE, no matter how brief; however, approximately 52% of U.S. children aged 3–11 are routinely exposed to tobacco smoke in low-income communities (1,4). Parents, particularly mothers, are the primary source of exposure for children (5,6). Infants and young children are more likely to be exposed to tobacco smoke due to greater proximity to the smoking parent and are therefore at an increased risk of TSE-related health consequences (6).

Addressing maternal smoking and child TSE remains a public health priority, especially in low-income racial minority and other underserved populations who have the highest smoking and TSE rates and bear the greatest tobacco-related morbidity and mortality risks (4,7). Most interventions targeting maternal smokers encourage abstinence from smoking; however, even the most effective cessation interventions yield high relapse rates (65–70%) by one-year follow-up (8). Pregnant and postpartum women, and in particular low-income African American women, face increased challenges to quitting smoking than the general population (e.g., increased daily stress, fewer resources to support behavior change). Thus, some investigators have shifted focus away from cessation-only goals to more achievable child TSE protection and smoke-free home goals. For example, among maternal smokers in the Philadelphia FRESH trial (9) (described in more detail below), the primary intervention endpoint for participants was to reduce child exposure to tobacco smoke rather than cessation.

In addition to the ongoing public health initiatives to improve population-wide smoking cessation rates, health communication strategies have been employed to facilitate reduction of nonsmokers' TSE. For example, TSE messaging at organizational and community levels have accelerated adoption of smoke-free policies in the workplace and public spaces (10,11). California was the first state to initiate a series of media messages to reduce smoking and nonsmokers' TSE, demonstrating evidence that tobacco consumption declined among Californians following the intervention. During the program's implementation (1988–2007), the prevalence of adult smokers in California decreased by approximately 35% (12,13). An explicit goal of TSE-reduction messaging in media and community-level public health campaigns is to educate smokers and nonsmokers about TSE dangers and to shape social contingencies, stigma, and norms that ultimately dissuade smokers from exposing nonsmokers to TSE in public. While health promotion messaging at a population level has demonstrated some success in reducing smoking rates and protecting nonsmokers from TSE in public areas, they have been less successful in protecting children from TSE in their homes (14). This is likely because the focus of these programs is on cessation and reducing smoke exposure in areas outside the home, not on protecting children for TSE.

Most public policy strategies are designed to affect broad populations, regardless of age. However, because residential smoking, and in particular maternal smoking, is the primary source of child TSE, most strategies to reduce child TSE have targeted maternal smokers. Many efforts to disseminate messages about TSE dangers and benefits of child TSE protection have centered around teachable moments in the patient-provider dyad. Based on the success of clinical practices guidelines in boosting quit attempts among smokers in adult clinic settings (15), the American Academy of Pediatrics adopted similar guidelines, “Ask, Advise, Refer,” to encourage pediatric providers to address child TSE (16). Armed with messaging designed to improve smoking parents’ knowledge about TSE dangers and benefits about protective behaviors, pediatric providers also encourage parents to enroll in counseling services. Brief provider messaging may be important to motivate smokers to initiate treatment (17), but alone may not be sufficient to promote sustained smoking behavior change (18,19). Improving TSE messaging to parents in underserved high-risk populations such as African Americans living in impoverished communities, could create broader impact of messaging - potentially shaping social norms in populations with the highest smoking rates and among families bearing the greatest tobacco-related morbidity and mortality risk. However, little is known about the types of TSE messaging that high-risk populations receive and recall, and which communication channels and sources of information (i.e. media, personal sources, or providers) are most influential in promoting maternal smokers’ child TSE protections.

The purpose of this study was to examine the associations between (a) reported sources and frequency of TSE reduction health messages maternal smokers receive and (b) outcome-related targets of behavior change such as reported smoking and TSE behaviors, reported TSE protective behaviors (e.g., child cotinine, a biomarker of TSE), knowledge of TSE dangers, and intention to quit smoking in a population that was predominantly low-income African American. Specifically, this study examined baseline (pre-randomization) responses of maternal smokers who were enrolling in a clinical trial, Philadelphia Family Rules for Establishing Smoke-free Homes Study (FRESH) (9).

Methods

The parent trial, the Philadelphia FRESH study, was a two-arm randomized controlled trial designed to reduce child TSE (9). It compared the effects of enhanced behavior counseling and standard care (self-help materials) to determine if behavior counseling would be effective for reducing a child’s TSE. Data for the current study was collected pre-randomization. Participants (N=359) were recruited from pediatric primary care clinics, WIC clinics, and targeted mass transit and newspaper ads posted in low-income underserved neighborhoods in the city of Philadelphia. Mothers were eligible for the trial if they smoked at least 5 cigarettes a day, had a child <4yrs of age, and reported exposing the target child to at least 2 cigarettes a day. Potential participants were excluded if they had been diagnosed with severe psychopathology (e.g., psychotic disorder), if they were pregnant at the time of enrollment, or if they were not able to communicate in English.

Participants completed a 60-minute, in-home baseline interview, which included questions about their smoking history, child TSE, and child health, as part of the baseline measures for

a larger parent trial (sample of questions included below) (20). Participants received \$20 at baseline for completing the pre-treatment assessment questionnaire and providing their child's urine sample for cotinine. The sample for this study included mothers who dropped out prior to randomization in the parent trial (e.g., no longer interested in treatment, phone disconnected/no return calls). Baseline pre-randomization self-report data and baby's urine cotinine results were utilized for this analysis. The Theory of Planned Behavior was used to determine baseline outcome variables for the current analysis, which relate the impact of TSE messaging on mother's knowledge, behaviors, and intentions. Outcome and predictor variables are described below:

Predictor variables

The main predictor variable of interest for this study was the type and frequency of messaging that mothers received about reducing their child's exposure to tobacco smoke. At the baseline interview, participants were asked if they had received messages in the last 3 months about reducing their baby's exposure to cigarette smoke and to identify the sources of the health messaging they received. For each of the possible sources (friends, relatives, other children, physicians, pediatricians, and dentists), the mother was asked to recall how many times she received messaging from that source. For the purpose of analyses, source types were collapsed into categories: 1) personal messaging (messages received from friends, relatives, or another child), 2) formal messaging (messages from physicians, pediatrician, dentist), and 3) total messaging received from any source. The number of times mothers reported different messages (from any sources) about reducing child exposure to tobacco smoke created a total frequency of messaging received.

Outcome variables

Mother's TSE Knowledge—Mothers were asked on a scale of 0 to 5 (0= none; 5 = very much): 1) how much they think cigarette smoking can harm nonsmoker's health, 2) how much being exposed to TSE can harm children's health, 3) how much being exposed to TSE can harm their baby's health, and 4) how much they think cigarette smoking can harm their own health. Mothers were also asked to list ways in which TSE might harm nonsmokers. Each correct response was summed and analyzed as a continuous variable.

Mother's TSE protective behaviors—TSE protective behaviors were obtained by asking, when you smoke: 1) how often do you decide to smoke outside instead of inside, 2) how often do you ask other smokers who live in your home to smoke outside instead of inside, 3) how often do you ask smokers who are visiting to smoke outside instead of inside, and 4) when you are at the home of a friend who smokes, how often do you ask them not to smoke around your baby when you are visiting? Mothers answered on a scale of 1 ("never") to 5 ("almost always"). An average score was created using each of the 4 questions to get a mean frequency of behavior. Participants also reported the use of home smoking rules, which were dichotomized as 1 = some rules and restrictions and 0 = no rules at baseline.

Child TSE—Children's exposure to maternal cigarettes were assessed using reliable measures previously used in TSE studies (21). Mothers self-reported the number of cigarettes they exposed the target child to on a typical work/weekday during the past 2

weeks at home indoors, in the car, and outdoors. Additionally, at the time of the baseline interview, mothers also provided a sample of the target child's urine through cotton rolls in the baby's diaper, which was used to assess cotinine- a metabolite of nicotine and an objective measure of TSE. Cotinine assays were performed using tandem mass-spectrometry. Details on the methodology of urine collection and cotinine assay are previously described (9). Cotinine values were log transformed to normalize the distribution of values.

Intention to quit—Mother's intention to quit was assessed by asking the mother whether or not she intended to quit smoking within the next 30 days. This variable was assessed as a dichotomous variable, answered 1= "yes" or 0= "no".

Moderating/Confounding Variables

Potential moderating and confounding variables that had a significant p-value of <0.25 in preliminary analysis were included in the final multivariable model. Moderating variables included child age, mothers' age and education, the number of smokers in the home, the availability of a safe place to smoke outside the home, and the total number of pediatric provider visits the baby had had in the last 3 months specifically for respiratory illnesses, ear, nose, and throat infections, asthma, or allergies. Mother's baseline nicotine dependence was assessed using the Fagerström test of nicotine dependence (22). Depression was measured using the Center for Epidemiologic Studies Depression (CESD) scale (23). An assessment of the mother's total number of life events was completed by summing the total reported events, which has been described previously in another study (24).

Analysis

Stata statistical software version 12.0 (College Station, TX) was used for all analyses. The sources of messaging were analyzed individually to examine the potential influence of each source on maternal smoking and TSE behaviors. Univariate analyses were run to determine each type of messaging effects on the main outcome variables. Multivariable analyses were also run for each source of messaging including the grouped variables (personal and formal messaging), controlling for the variables listed above. For outcome variables that were continuous, linear regression was used. For outcome variables that were dichotomous, logistic regression was used. A p-value of 0.10 was considered significant for this exploratory study.

Results

Table 1 describes the demographics of the participating mothers (mean age= 29.7; SD=7.9). A majority of the participants were African American (87%) and were single/unmarried (82%). About 32% of the study group was employed and less than half of the study participants completed high school (43.6%). About half (55%) of the participants reported living with at least one other adult smoker.

Participants most often received messaging about reducing their baby's TSE from dentists (61%), physicians or nurses (41%), and family members (41%). Only 12% of the

participants reported ever receiving messaging from their baby's pediatrician, and only 7% reported hearing information from their other children (see Table 2).

Table 3 shows the results from the multivariable analyses. Maternal knowledge about the health consequences of smoking was associated with messaging from friends (OR= 0.99; $p=0.05$), family (OR=0.78; $p=0.08$), and a combination of personal sources (OR=0.997; $p=0.03$). Those receiving messaging from these sources were more likely to have knowledge about health consequences of TSE; however, this effect did not extend to knowledge of how to reduce TSE.

Messaging from a physician about reducing the baby's TSE significantly impacted the mother's intentions to quit with those who received messaging from their physician being twice as likely to report an intention to quit smoking in the next 30 days (OR= 2.4; $p<.01$). Messaging from a personal source (friend, family member, or other child) were also twice as likely to impact the mother's intention to quit smoking (OR = 1.9; $p=.05$).

Protective behaviors, such as a home smoking ban and keeping baby away from smoke from other smokers, were not significantly impacted by messaging about reducing a child's TSE. Even the combination of messaging received by any source was not associated with using protective behaviors around their children. In contrast to this, however, messaging from friends was negatively associated with a residential smoking ban in the house (OR= 0.37; $p=.05$). Thus, TSE messaging from friends decreased the likelihood that mother would adopt a smoking ban.

TSE messaging from a dental provider had significant impact on the child's cotinine value, with such messaging relating to lower child cotinine ($B= -0.17$; p -value 0.08). Dentists' TSE messaging was not related to mother's report of child exposure ($B = 1.4$; $p=0.2$), and the relationship was in the opposite direction.

Discussion

Health messaging around TSE dangers and the importance of protecting children from TSE is an integral part of public health interventions to reduce child TSE. This study is one of the first to look at sources of child TSE messaging to help determine the impact on TSE reduction-related behaviors in a high-risk sample of maternal smokers. Personal sources of messaging (friends, family, and some combination) appeared to influence improved knowledge of TSE and the mother's intention to quit. However, messaging from these personal sources did not relate to TSE protective behaviors, such as how often a mother smoked outside instead of inside, or a reduction in child cotinine. In fact, such messaging was associated with lower likelihood of residential smoking bans. Similarly, messaging specifically from families did not relate to reduced child exposure. Among healthcare providers, only messaging from dentists appeared to influence child TSE as measured by lower baby cotinine, although messaging from mothers' physicians may influence their intention to quit.

Consequently, based on results from our exploratory study, the effects of messaging on maternal smoking and TSE protective intentions and behaviors may vary depending on the

source of messaging. Results suggest the positive influence of dental provider advice on maternal TSE protections is particularly encouraging. Given that there is potential for large public health impact on TSE protection with improved utilization of dental services in low-income populations, where currently only about 25–30% of lower-income populations utilize oral hygiene services (25). A systematic review by Carr and Ebbert showed that smoking cessation interventions conducted in a dental office are more effective than intervention programs in usual care facilities. The study found a pooled odds ratio for smoking abstinence to be 70% higher in interventions conducted at dental offices compared to usual care facilities (26). Perhaps with the increase in services through the Affordable Care Act, more mothers will be able to visit dental offices and thus receive more information about TSE and smoking cessation.

Previous studies have also shown that pediatric provider advice to parents about the hazards of smoking around their children can be effective at decreasing child TSE (27,28). Our results support previous assertions that, while TSE messaging from a physician or healthcare provider may increase motivation to change maternal smoking behavior, physician advice alone may not be sufficient to promote smoking behavior change and child TSE reduction (18,20). While increasing knowledge and motivation may be necessary to initiating behavior change and contribute to sustained adoption of healthier behavior, smoking and TSE behaviors are too complex to modify with only knowledge and motivation. Other determinants, such as the influence of other smokers in the home, low risk perception (i.e. perception of harm related to TSE), and low TSE-protection self-efficacy may have a negative influence on a smokers' efforts to change behavior. The relationship between knowledge, intention, and perceived risk and barriers are critical to an individual's ability to cross from thinking about change to actual change (29).

Importantly, our results indicated that only 12% of participants reported receiving TSE messaging from their baby's pediatrician. This is considerably less than the messaging received from other sources. Given that more than 74% of mothers reported receiving TSE messaging from their dentist, and that dental provider messaging was associated with maternal TSE protection (as reflected in lower child cotinine), perhaps improving pediatric healthcare provider message frequency would improve the impact of their TSE messaging. Our earlier research suggests that support and skills training of healthcare providers is necessary to boost pediatric provider adherence to best practice guidelines related to TSE messaging to parents (19,30). Such efforts appear to improve the impact of their advice on parental smoking (17).

The findings of this study offer support for current and future counseling approaches that include TSE messaging at a family level to facilitate support for TSE reduction and smoking behavior change (20,31), but which sources of information have the most influence on creating a smoke-free home is not known. Some studies have indicated that peer influence is most persuasive in underserved populations who may be less trusting and/or not have significant interactions and relationships with medical providers.(32,33) Interpretation could be guided by constructs of the Diffusion of Innovation Theory in which "heterophilious" communication channels, in this case the dissimilarity between the mothers and their physicians, may not be as influential in changing maternal attitudes or behavior, especially

in groups also less likely to adopt new behaviors (i.e. “laggards”-people adopting behaviors much later than others in societal groups) (34). Heterophilious communication channels refer to how alike the communicator is with the recipient, and if information is only coming from physicians or dentists, they may not take the messages as seriously because they do not see them as similar to themselves. These groups rely more on their peers for information, do not use or trust public messaging as often, and are most resistant to change. Because the participants were low-income minorities who have been shown in a number of public health studies to be most resistant to “heterophilious” communication channels (35,36), many may feel that the messages about TSE from friends and family are more credible than those delivered via media or their pediatricians.

Additionally, interventions which focus solely on intrapersonal changes in attitude or interpersonal influences through the patient-physician dyad, may not be salient enough to lead to behavior change in high-risk groups. Intervention strategies which utilize family and peer connections to help strengthen the consistency of pro-TSE protection messaging through social networks may be more successful in creating long-term behavior change. Current provisions in the Affordable Care Act, which calls for increased resources for patient navigation, could consider the impact of social networks in affecting behavioral health interventions. For example, efforts to navigate patients to appropriate behavioral health resources could be enhanced by using community peers as agents of navigation, or by educating family members about ways to support the navigation process. Further research on sharing of health-related messages on TSE through peer interactions is important to understanding the influence it has on subsequent behavior (37).

One significant barrier to changing complex behaviors such as smoking is changing risk perception. Most people believe they (and by extension, their family and loved ones) are in less danger of negative health consequences than the average individual (38). This point may be particularly relevant with younger smokers of childbearing age who may not yet experience serious health consequences from smoking (39). In addition, those who feel they understand a risk because of previous participation in smoking cessation programs or through messages from the media or healthcare providers, may have “optimism bias” that reduces the perceived threat (40). Based on this principal, if a woman underestimates her or her child’s risk of experiencing a negative health outcome, she will be less likely to take precautions to prevent the outcome from occurring.

Risk perception may be further attenuated if the woman feels she is in control of the situation and/or has a choice in the situation (41). A woman’s perceived risk of TSE and its effect on a baby may be increased or decreased depending on the type of information she has been exposed to, the role and influence of those around her, and her previous experiences with smoking. Therefore, providing targeted messages, using the communication channels most important to her, would be an important strategy in any intervention aimed at reducing child TSE.

Results from this analysis indicate that interventions aimed at only one type of communication channel are missing opportunities to intervene with messages from a number of different sources. It is clear that one area of missed opportunity is the lack of messaging

from pediatricians and other physicians since pediatric health care visits provide teachable moments to increase parents' awareness of adverse effects of TSE on child health. Repeated messaging from other medical practitioners (parent physicians and dentists) would also help instill the importance of smoking cessation especially around children. Dentists especially may be an important information source of messaging that may be underutilized.

Given the likelihood that health messages from multiple sources could improve knowledge and support behavior change, intervention researchers have begun to test multi-level strategies that blend cross-level messaging and advice to enhance parents' motivation to change with more intensive counseling for skills training and support that can guide and sustain behavior change. Such approaches capitalize on the influence of social contingencies at the community- and family-level, the credibility of provider advice, and the opportunity for increasing dosing of multiple health messages across socio-environmental contexts (14,18,20,31).

Limitations

This study was a cross-sectional secondary analysis and had limitations. First, data was only collected at one time point and so results and measures may vary by day and time of assessment. The source of health messaging was also self-reported and relied on people to remember information they received from several sources. We also do not know how many times the mother had seen a physician or dental provider in the past year. Participants who had more visits to providers prior to starting the study may have been more likely to remember messaging received from those sources compared to others who had not seen a healthcare provider for an extended period. The type of health care coverage that a participant has may also affect how often they go to the physician or see a dentist, and could have affected results in this study. This may lead to recall biases, and information was not collected from participant's physicians or family members to help verify information collected.

Finally, details about specific messaging and advice was limited in our data so the specific details of the messages could have impacted results depending on relevance and factual information. We are also unable to know whether materials or information given to mothers was sensitive to literacy issues. African Americans are at greater risk for below basic health literacy, which occurs in approximately 24% of people (42). They have been shown to be unfamiliar with medical terms, how their bodies work, and do not know how to interpret numbers or risks to make a health care decision. This may also be exacerbated in urban centers (43). However, if a mom reports receiving information, it is likely to be verbal and perhaps in combination with written materials. Future studies could be designed to assess messaging from the perspective of provider observation/report as well as a parent report to bolster the reliability and detail of the information acquired during the assessment. Future research could also prospectively assess the influence of different message sources delivering consistent, evidence-based messaging about TSE dangers and benefits of TSE protections to children.

Conclusion

The information gained from this study may guide future research aimed at understanding the influence of source and frequency of TSE-reduction health messaging on parents' smoking behavior. Results suggest that different sources of messaging may differentially influence knowledge, behaviors, and intentions around smoking and child TSE protection. Our data also suggest that physicians and dentists are primary sources for TSE education and referral to smoking cessation services (e.g., Quitlines) given evidence that their messaging could boost motivation to quit. It is well established in the public health and health communications literature that increasing knowledge alone is not sufficient to promote health behavior change, which was apparent in this study (44–46). The TSE-reduction and smoking cessation processes are complex and multi-determined. Therefore, future studies should examine the utility of multilevel health communication strategies integrated across sources in high risk populations known to have increased challenges with smoking behavior change - an approach that could boost the impact of TSE reduction and maternal smoking cessation efforts compared to single-source health communication strategies.

Acknowledgments

This study was supported by grants from the National Cancer Institute at the NIH to B. Collins (CA105183 and CA93756). The authors would also like to thank the many students and staff who helped with this study, including: Katherine DiSantis, Ph.D., MPH, James Kingham, MA, Natalie Tolley, Ph.D., MPH, and Jamie Dahm.

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Table 1

Mother's demographic information

Mother Characteristics	Frequency/Mean	Percentage/Standard Deviation
	N= 359	% or SD
Average Age	29.66	7.9
African American	262	87%
Average Cigarettes Smoked Per Day	12.1	6.4
Married	69	19.2%
Employed	115	32.0%
Income Under \$15,000	95	28.8%
High School Graduates	156	43.6%
Has Some College	77	22.8%
Residential Smoking Ban	319	89.6%
Total Number of Kids in the Home		
1–2	163	45.4%
3+	196	54.6%
Number of Smokers in Home		
1	162	45.1%
2+	197	54.9%
Total Number of Child's Symptoms in Past 3 Months		
0	63	20.5%
1–2	106	34.5%
3–4	95	31.0%
5+	43	14.0%

Table 2

Percentage of participants who received messaging about reducing child's exposure to tobacco smoke from the various sources.

Messaging Source	N	%
Friend	73	28.1
Doctor or Nurse	131	50.4
Family Member	132	50.8
Pediatrician	37	14.2
Other Child	23	8.9
Dentist	193	74.2
Formal (Doctor, Nurse, Pediatrician, Dentist)	220	84.6
Personal (Family Member, Friend, Other Child)	157	60.4

Table 3

Multivariable analysis of messaging effects on mother's knowledge, intention, and behaviors surrounding reducing their child's exposure to SHS.

	Knowledge		Intention		Behaviors			Exposure Measures	
	Knowledge about Health Consequences (Beta, p)	Knowledge of SHS Reduction Strategies (Beta, p)	Intention to Quit in 30 Days (OR, p)	Mother's Reported Cigarettes per Day (Beta, p)	Frequency of Protective Behaviors (Beta, p)	Past Quit Attempts (Beta, p)	Residential Smoking Ban (Beta, p)	Mother's Reported Child Exposure (Beta, p)	Baby's Log Cotinine Value (Beta, p)
Friend	0.99 (0.05)*	-0.001 (0.98)	1.5 (0.2)	0.85 (0.4)	1.1 (0.3)	0.014 (0.9)	0.37 (0.05)*	1.4 (0.2)	-0.05 (0.6)
Doctor	0.37 (0.39)	.005 (0.94)	2.4 (0.01)*	1.01 (0.23)	-0.74 (0.42)	0.03 (0.94)	0.96 (0.93)	0.46 (0.6)	-0.14 (0.10)
Family	0.78 (0.08)*	-0.01 (0.92)	1.6 (0.14)	0.82 (0.32)	-0.87 (0.3)	0.75 (0.04)*	0.68 (0.42)	0.43 (0.6)	-0.03 (0.7)
Pediatrician	-0.57 (0.36)	-0.001 (0.99)	1.1 (0.78)	0.96 (0.42)	-0.49 (0.7)	-0.4 (0.48)	0.55 (0.3)	0.40 (0.75)	0.03 (0.26)
Dentist	-0.18 (0.7)	-0.002 (.97)	0.6 (0.2)	1.5 (0.11)	1.3 (0.26)	-0.51 (0.23)	1.8 (0.27)	1.4 (0.2)	-0.17 (0.08)*
Other Child	-0.16 (0.83)	0.001 (0.98)	2.0 (0.18)	1.9 (0.18)	-1.3 (0.33)	-0.43 (0.51)	-----	1.13 (0.48)	-0.01 (0.92)
Combined Personal	0.997 (0.03)*	0.04 (0.78)	1.9 (0.05)*	0.39 (0.64)	-0.49 (0.60)	0.46 (0.22)	0.44 (0.13)	0.47 (0.61)	-0.05 (0.50)
Combined Formal	-0.43 (0.52)	0.003 (0.97)	0.5 (0.16)	0.07 (0.96)	1.07 (0.51)	-0.17 (0.75)	0.88 (0.85)	0.99 (0.46)	-0.16 (0.18)

Adjusted for baseline nicotine dependence score, mother's education, number of smokers in the home, mother's age, home smoking rules, depression score, total life events, and number of doctor's visits.

* Significant at the 0.10 level.