The advice-giving role of female friends and relatives during pregnancy

Caroline L. Dunn, Phyllis L. Pirie and Wendy L. Hellerstedt

Abstract
Disparities in prenatal smoking rates indicate the need for new smoking cessation intervention strategies tailored to low-income pregnant women. Information about natural patterns of advice-giving during pregnancy would facilitate this goal. This study examines the advice-giving role of close female friends and relatives (‘confidantes’) during pregnancy, and assesses the utility of including them in an intervention. A questionnaire was administered verbally to 225 low-income pregnant women to assess: (1) the prevalence and characteristics of confidantes, (2) the persuasiveness of confidante advice in general and with respect to smoking, specifically, and (3) the permissiveness of confidante smoking advice. Comparisons were made with doctors and partners. Most women (91.4%) identified a confidante, the majority of whom were their own mothers. Doctors were rated most persuasive in their general prenatal advice, followed by confidantes and partners (all differences, \( P < 0.05 \)). A similar pattern was observed among prenatal smokers in relation to advice given about prenatal smoking. As compared to doctors, confidante advice was significantly more permissive of smoking during pregnancy. While women value their doctors’ advice during pregnancy, close female friends and relatives also have an important and unique role. Educa-

Introduction
National trends indicate that pregnant women are responding to health warnings by quitting smoking. The 1999 national birth certificate data reveal a 12% prevalence of prenatal smoking, a decline of 33% since 1990 (Mathews, 2001). Scrutiny of rates within groups, however, reveals high smoking rates among poor and less-educated women (Mathews, 2001), which translate into greater risks of smoking-related diseases among those who can least bear such burdens. A dose-dependent depressant effect of maternal smoking on fetal development and birth weight is well established (US Department of Health and Human Services, 1989). Smoking is also a significant and preventable factor for ectopic pregnancy, spontaneous abortion, placental abruption, placenta previa and perinatal mortality (Cnattingius et al., 1985; US Department of Health and Human Services, 1990; Ananth et al., 1996; Andres, 1996; Wang et al., 1997; Castles et al., 1999).

Despite these serious health risks, 24.3% of women living below the poverty line and 27.6% of those with less than a high school education reported smoking during their recent pregnancy in the US in 1990, compared to 15.4% of women overall (LeClere and Wilson, 1997). Actual smoking prevalence rates could be higher given that pregnant smokers often conceal their behavior (Windsor et al., 1998; Kendrick et al., 1995). In addition to high smoking prevalence rates, smoking cessation rates among socially disadvantaged preg-
nant women are substantially lower compared to those with more education or income advantage. Findings from the 1985 National Health Interview Survey revealed that pregnant women with less than 12 years of education were half as likely to quit as those with more than 12 years of education (US Department of Health and Human Services, 1990).

Over the past decade, researchers have developed interventions for women in public prenatal settings to reduce these trends in smoking prevalence. The success of these programs has been modest. Expected quit rates are approximately 14% with programs that rely primarily on self-guided manuals, brief counseling and provider advice (Windsor et al., 1993), and even small reductions are often eliminated because of high rates of postpartum relapse (Albrecht et al., 1994).

Suggestions for interventions to reduce social disparities in prenatal smoking include strengthening their cultural relevance and harmony with the lifestyles of low-income women (Graham, 1987; Gillies et al., 1989; Rajan and Oakley, 1990), extending support into the postpartum period to prevent relapse and the risk of second-hand smoke exposure to infants (Berman and Gritz, 1991; Mullen et al., 1997; McBride et al., 1998), and developing personalized strategies for delivering non-judgmental messages and support (Jones and Macleod Clark, 1993; Price et al., 1991; Floyd et al., 1993). Studies suggest that information alone may lead to greater levels of anxiety, stress and guilt (Maclaine and Macleod Clark, 1991), and that written information (e.g. booklets and self-help guides) may not be used (Windsor et al., 1993). Further, brief interactions with health professionals may be dismissed by socially disadvantaged women because these exchanges are perceived as impersonal and do not explain the effects of smoking within the context of the realities of pregnancy (Maclaine and Macleod Clark, 1991).

Graham noted more than two decades ago that working class mothers who smoked relied almost exclusively on a lay referral system rather than on health professionals (Graham, 1976). However, the incorporation of lay systems into prenatal cessation programs remains virtually unexplored with the exception of proposals to encourage husbands or partners to support cessation during pregnancy (King and Eiser, 1981; McBride et al., 1998). Such approaches have not been tried in public prenatal settings, and may not be appropriate for some women whose partners are minimally involved in daily living and decision making.

Qualitative research by the authors (Dunn et al., 1998) suggests that close female friends and relatives may be important sources of influence during pregnancy for low-income women. In this study, they were described as the most valued advice-givers because they had first-hand experience with pregnancy in the context of reduced economic circumstances. In contrast, health professionals were perceived as providing unrealistic ‘textbook’ knowledge, oriented to an ideal set of conditions. Close women friends and relatives may also have a profound influence on perceptions and attitudes about smoking during pregnancy, and may be powerful sources of misconceptions that support continued smoking.

Within the framework of Social Learning Theory, close women friends and relatives may be viewed as influential role models that affect smoking behavior during pregnancy by helping to shape the social environment in which smoking occurs and is viewed. Interacting with factors in the social environmental are individual factors (the cognitive or individual aspects affecting the likelihood of engaging in a given behavior) and behavioral factors (the intent and skills to perform a behavior) (Bandura, 1977; Perry et al., 1997). As potential role models, close women may also help to shape and modify related risk factors, such as social norms and dimensions of social support related to providing advice and guidance. This influence is suggested in studies demonstrating an increased likelihood of quitting among women who have few or no smokers in their social network compared with those who socialize or live with a smoker (Aaronson, 1989; McBride and Pirie, 1990).

The purpose of this study is to provide descriptive information about female friends and relatives who give advice during pregnancy, and to assess
The relative utility of including them in smoking cessation interventions. Of specific interest in the current study is the role of ‘confidantes’, who are defined as the primary advice-giving friends and relatives with first-hand experience in pregnancy. Two constructs are introduced—persuasiveness and permissiveness—to assess the influence of confidantes, relative to that of doctors and partners, on general behavior and on smoking behavior, specifically. Within the context of Social Learning Theory, the persuasiveness of confidante advice and the permissiveness of their attitudes about smoking during pregnancy may help to establish social norms and related expectations that either support or discourage smoking during pregnancy.

Methods

Sample

Participants were recruited from 13 urban Women, Infants and Children (WIC) program sites and one public obstetrics clinic at a major metropolitan hospital in the Midwest. Study sites were selected on the basis of their day(s) of service and client load. Women were eligible to take part in the study if they were 19 years of age or older, at least 12 weeks pregnant and spoke fluent English. The study protocol was approved by the University of Minnesota’s Internal Review Board.

Design

Flyers, signs and information provided by a clinic attendant were used to recruit women who received prenatal services between April and August 1999. Women who expressed interest in participating were directed to an on-site study interviewer who described the purpose of the study, the types of questions that would be asked and the time commitment required. A $10 cash certificate to a grocery store was offered as an incentive for participating. Written consent was obtained from women prior to their participation and verbal surveys were administered by one of two study interviewers in remote or adjoining areas of waiting rooms before and/or after prenatal appointments.

Measurement

Smoking status classification

Smoking status was classified into four groups based on responses to a series of items concerning smoking status before the pregnancy and currently, as well as periods of abstinence lasting for at least 1 month during the pregnancy. ‘Never smokers’ never smoked 100 or more cigarettes in their lifetime, ‘previous smokers’ quit smoking before learning about their pregnancy, ‘non-continuous smokers’ smoked for some time during their current pregnancy but abstained for at least 1 month during this time (abstinence did not necessarily coincide with the time of survey), and ‘continuous smokers’ currently smoked and did not abstain at all or abstained for less than 1 month. For most of the study comparisons, these groups were collapsed to compare non-smokers (i.e. never smokers and previous smokers) with prenatal smokers (i.e. non-continuous smokers and continuous smokers). Additional comparisons were made between continuous and non-continuous smokers.

Descriptive measures

Participants were asked if they had at least one close female friend or relative who had ever been pregnant who provided advice on matters related to the current pregnancy. Additional items asked about the overall number of advice-giving females involved in the pregnancy, their relationships to the participant and which one was relied on most for advice on pregnancy. The friend or relative relied on most for advice was defined as the ‘confidante’, distinguishing her from the other advice-giving women specified. This primary female friend or relative served as the reference person for scale items of the primary constructs, persuasiveness and permissiveness. The survey also included items to describe the smoking status of confidantes both at present and during their most recent pregnancy.

To characterize study participants, information was collected about age, race, education, employ-
ment status, presence of a husband or partner, gestational age at time of survey and pregnancy intention. Pregnancies were classified as intended if participants said that they wanted to be pregnant sooner or they wanted to be pregnant at the time of conception. Unintended pregnancy was defined as wanting to be pregnant at a later time (mistimed) or not wanting to be pregnant at the time of conception or ever.

**Primary construct measures**

Two constructs were introduced to assess the advice-giving role of confidantes compared with doctors and partners. ‘Persuasiveness’ assessed the strength and influence of advice, and ‘permissiveness’ evaluated the content. Focus group discussions informed the development of these construct scales (Dunn et al., 1998).

Two *persuasiveness* scales were developed to assess the persuasiveness of general pregnancy advice (GAP) and the persuasiveness of pregnancy-related smoking advice (SAP), as given by confidantes, doctors and partners. Each persuasiveness scale comprised three items: how often the participant agreed with the source’s advice, how often she felt the advice was realistic and how often she followed the source’s advice. Two single items asking which of the three sources was listened to most for advice on pregnancy in general (relating to general advice persuasiveness) and for advice on smoking during pregnancy (relating to smoking advice persuasiveness) were included as a check on scale validity.

A *permissiveness* scale was developed to examine the degree to which advice from confidantes, doctors and partners was permissive of smoking during pregnancy (SP). This scale comprised four items about smoking and pregnancy. The respondent was asked how the source would feel about each of the four statements: ‘[Source] believes that smoking during pregnancy really doesn’t matter much’, ‘[Source] believes that cutting back to a small number of cigarettes during pregnancy is enough and that it is not always necessary to quit’, ‘[Source] believes that some brands of cigarettes are safe to smoke during pregnancy’ and ‘[Source] believes that smoking during pregnancy is harmful’.

**Analyses**

Analyses were conducted to: (1) assess the reliability of study scales, (2) compare the characteristics of non-smokers and prenatal smokers, (3) describe the prevalence and characteristics of confidantes, (4) assess the relative influence of confidante advice compared with the advice of doctors and partners, and (5) examine the relationship between confidante smoking status and the permissiveness of their smoking advice. An α level of 0.05 was used for all statistical tests.

**Descriptive analyses**

Means and proportions were calculated to describe the study population overall and to compare non-smokers and prenatal smokers. Two-tailed *t*-tests and Χ² analyses were performed to assess the differences in characteristics between smoking categories.

**Reliability and validity assessment**

All developed scales demonstrated good internal reliability (Cronbach’s coefficient α = 0.66–0.91) after removal of one non-conforming item from the SAP scales. To assess validity, persuasiveness scales (GAP and SAP) for confidante, doctor and partner were compared against single-item measures of the relative persuasiveness of the three sources of advice. In general, scores on the confidante persuasiveness scale were highest for respondents who also identified confidantes as most persuasive on the single item measure, and the same held true for doctors and partners, indicating good concurrent validity of the construct measures.

**Construct analyses**

Scale items for the GAP, SAP and SP were summed and mean scores calculated for each of the three sources of advice (i.e. doctor, confidante and partner). GLM repeated measures analysis was used to examine source means overall with the sources treated as a repeated measure. GLM multivariate analysis (e.g. MANOVA) was used to compare source means within and between the smoking
subgroups (i.e. non-smokers versus prenatal smokers and continuous versus non-continuous smokers, depending upon the analysis). To examine the association between mean SP scores and confidante smoking risk to pregnancy, and the association between mean SP scores and confidante smoking activity, Spearman’s ρ was computed.

Results

Characteristics of participants

Of the 225 participants, 105 (46.7%) reported that they were prenatal smokers and 120 (53.3%) were non-smokers. Forty-eight of the prenatal smokers (45.7%) were classified as continuous smokers and 57 (54.3%) as non-continuous smokers. As shown in Table I, prenatal smokers differed from non-smokers in race (P = 0.001) and educational attainment (P = 0.001), and were less likely to have a husband or partner (P = 0.003) and more likely to be unintentionally pregnant (P = 0.04), but did not differ in age, parity, employment status and mean pregnancy length at the time of the survey.

Confidantes and other advice-givers

Eighty-nine percent of the participants identified at least one female friend or relative who offered them advice on pregnancy. Prenatal smoking status and background characteristics of participants with a confidante (n = 201) did not differ significantly from those without a confidante (n = 24), except that participants with a confidante were significantly more likely to be nulliparous than those without a confidante (39.8 versus 12.5%, respectively; P = 0.009). Similar percentages of participants with and without a confidante reported having a partner. Only one participant without a confidante also did not have a partner.

Of the 201 participants who identified one or more advice givers, 68 (33.8%) named their mother or stepmother as the advice-giver they relied on most (i.e. their confidante). Other frequently mentioned relationships between participants and confidantes were friends (n = 62; 30.8%) and sisters (n = 36; 17.9%). Twenty participants (10.0%) named another relative (e.g. cousins, aunts, grandmothers or other family members) and 15 participants (7.5%) identified their partner’s mother, sister or other relative as their confidante concerning pregnancy.

Persuasiveness of confidante advice compared with the advice of doctors and partners

GAP

Of the 225 participants, 170 (75.6%) responded to GAP scale items for all three sources of advice and were included in the analyses of means. Of the participants excluded from the analyses, 23 (41.8%) had a partner but no confidante, 23 (41.8%) had a confidante but no partner, one (1.8%) had neither a confidante nor a partner and eight (14.5%) did not provide complete data. GAP scale scores ranged from 3 to 12, with higher scores representing more persuasiveness.

For all participants, doctors had the highest mean persuasiveness scale score for general advice on pregnancy (11.06), followed by confidantes (10.64) and partners (8.38; P < 0.01 for all comparisons) (Table II). This pattern persisted in individual analyses of non-smokers and prenatal smokers. Differences in source means were statistically significant at P < 0.01 with one exception, the difference between mean GAP scores of confidantes and doctors among prenatal smokers. Non-smokers gave higher persuasiveness ratings than prenatal smokers for all three sources of advice, but the difference in GAP score means was significantly higher for doctors only (11.32 versus 10.74; P = 0.001).

SAP

Of the 105 prenatal smokers, 76 (72.4%) responded to SAP scale items for all three sources of advice. Of the 29 prenatal smokers who did not contribute to the analyses, 17 (58.6%) had a confidante but no partner, eight (27.6%) had a partner but no confidante, one (3.4%) had neither a confidante nor a partner and three (10.3%) had missing data. Scores ranged from 2 to 8; the higher the score, the more persuasive the advice given about smoking.
### Table I. Characteristics of 225 prenatal smokers and non-smokers

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total sample (n = 225)</th>
<th>Prenatal smokers (n = 105)</th>
<th>Non-smokers (n = 120)</th>
<th>Statistical significance&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;24</td>
<td>119 (49.2)</td>
<td>60 (57.1)</td>
<td>59 (49.2)</td>
<td>NS</td>
</tr>
<tr>
<td>25–30</td>
<td>69 (30.8)</td>
<td>32 (30.5)</td>
<td>37 (30.8)</td>
<td></td>
</tr>
<tr>
<td>≥31</td>
<td>37 (20.0)</td>
<td>13 (12.4)</td>
<td>24 (20.0)</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;high school</td>
<td>35 (15.6)</td>
<td>26 (24.8)</td>
<td>9 (7.5)</td>
<td></td>
</tr>
<tr>
<td>high school</td>
<td>92 (40.9)</td>
<td>42 (40.0)</td>
<td>50 (41.7)</td>
<td>P = 0.001</td>
</tr>
<tr>
<td>some college/vocational</td>
<td>83 (36.9)</td>
<td>34 (32.4)</td>
<td>49 (40.8)</td>
<td></td>
</tr>
<tr>
<td>college or higher</td>
<td>15 (6.7)</td>
<td>3 (2.9)</td>
<td>12 (10.0)</td>
<td></td>
</tr>
<tr>
<td>Has a husband/partner</td>
<td>201 (89.3)</td>
<td>87 (82.9)</td>
<td>114 (95.0)</td>
<td>P = 0.003</td>
</tr>
<tr>
<td>Race/ethnicity&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>87 (38.7)</td>
<td>29 (27.6)</td>
<td>58 (48.3)</td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>20 (8.9)</td>
<td>18 (17.1)</td>
<td>2 (1.7)</td>
<td>P &lt; 0.001</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>7 (3.1)</td>
<td>0 (0.0)</td>
<td>7 (5.8)</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>8 (3.6)</td>
<td>1 (1.0)</td>
<td>7 (5.8)</td>
<td></td>
</tr>
<tr>
<td>white</td>
<td>82 (36.4)</td>
<td>47 (44.8)</td>
<td>35 (29.2)</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td>21 (9.3)</td>
<td>10 (9.5)</td>
<td>11 (9.2)</td>
<td></td>
</tr>
<tr>
<td>Nulliparous</td>
<td>83 (36.9)</td>
<td>38 (36.2)</td>
<td>45 (37.5)</td>
<td>NS</td>
</tr>
<tr>
<td>Employed</td>
<td>125 (55.6)</td>
<td>52 (49.5)</td>
<td>73 (60.8)</td>
<td>NS</td>
</tr>
<tr>
<td>Mean weeks gestation at survey (mean ± SD)&lt;sup&gt;c&lt;/sup&gt;</td>
<td>27.84 ± 8.02</td>
<td>27.43 ± 8.22</td>
<td>28.20 ± 7.87</td>
<td>NS</td>
</tr>
<tr>
<td>Unintended pregnancy&lt;sup&gt;d&lt;/sup&gt;</td>
<td>139 (62.6)</td>
<td>73 (69.5)</td>
<td>66 (56.4)</td>
<td>P = 0.04</td>
</tr>
</tbody>
</table>

<sup>a</sup>Chi-square or t-test comparison of prenatal smokers and non-smokers; NS P > 0.05.

<sup>b</sup>Asian/Pacific Islander and Hispanic cells were grouped for significance testing.

<sup>c</sup>Does not include 24 participants who did not know gestation of pregnancy.

<sup>d</sup>Does not include three non-smokers who did not know or refused response.

Mean differences among these sources of advice were not significantly different.

Within prenatal smoker subgroups, non-continuous smokers rated the persuasiveness of smoking advice from all three sources higher than continuous smokers did. The difference in mean SAP scores for non-continuous smokers compared to continuous smokers was statistically significant for confidantes (mean difference = 0.85; SEM = 0.38; P = 0.03) and doctors (mean difference = 1.18; SEM = 0.32; P < 0.001), but the mean difference in partner scores did not reach statistical significance (mean difference = 0.70; SEM = 0.36; P = 0.06).

**SP of confidantes compared with doctors and partners**

Seventy-five prenatal smokers (71.4%) responded to parallel SP items for all sources of advice. Prenatal smokers included in the SP analyses were the same as those included in the SAP analyses minus one participant who did not have complete data for the SP scale. Scale scores ranged from 4 to 16; the higher the score the more permissive.
Table II. Mean GAP scores for each source of advice and mean differences in GAP scores between sources and between non-smokers and prenatal smokers a

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean (SE)</th>
<th>Mean difference (SE) in GAP between non-smokers and prenatal smokers b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Non-smokers</td>
<td>Prenatal smokers</td>
</tr>
<tr>
<td></td>
<td>(n = 170)</td>
<td>(n = 94)</td>
</tr>
</tbody>
</table>
| Confi
dante  | 10.64 (0.12)   | 10.71 (0.16)        | 10.54 (0.18) | 0.17 (0.24), NS |
| Doctor      | 11.06 (0.10)   | 11.32 (0.12)        | 10.74 (0.16) | 0.58 (0.17), P = 0.001 |
| Partner     | 8.38 (0.20)    | 8.70 (0.26)         | 7.97 (0.29)   | 0.73 (0.40), NS |

Mean difference (SE) in GAP between sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean difference (SE) in GAP between sources</th>
</tr>
</thead>
</table>
| Confi
dante–doctor | -0.42 (0.14), P = 0.004 | -0.61 (0.18), P = 0.001 | -0.20 (0.24), NS |
| Confi
dante–partner | 2.26 (0.21), P < 0.001 | 2.01 (0.26), P < 0.001 | 2.57 (0.34), P < 0.001 |
| Doctor–partner | 2.68 (0.20), P < 0.001 | 2.62 (0.24), P < 0.001 | 2.76 (0.33), P < 0.001 |

aGAP scores ranged from 3 to 12, with higher scores indicating more persuasive.
bStatistical test of mean difference between non-smokers and prenatal smokers; NS P > 0.05.

Table III. Mean SP scores for each source of advice and mean differences in SP scores between sources and between continuous and non-continuous smokers a

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean (SE)</th>
<th>Mean difference (SE) in SP between continuous and non-continuous smokers b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>Continuous smokers</td>
<td>Non-continuous smokers</td>
</tr>
<tr>
<td></td>
<td>(n = 75)</td>
<td>(n = 34)</td>
</tr>
</tbody>
</table>
| Confi
dante  | 6.51 (0.36)        | 7.29 (0.52)                 | 5.85 (0.47) | 1.44 (0.70), P = 0.04 |
| Doctor      | 4.72 (0.17)        | 5.32 (0.24)                 | 4.22 (0.22) | 1.10 (0.32), P = 0.001 |
| Partner     | 5.92 (0.32)        | 6.41 (0.47)                 | 5.51 (0.43) | 0.90 (0.64), NS |

Mean differences (SE) in SP between sources

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean difference (SE) in SP between sources</th>
</tr>
</thead>
</table>
| Confi
dante–doctor | 1.79 (0.36), P < 0.001 | 1.97 (0.58), P = 0.002 | 1.63 (0.45), P = 0.001 |
| Confi
dante–partner | 0.59 (0.40), NS | 0.88 (0.63), NS | 0.34 (0.52), NS |
| Doctor–partner | -1.20 (0.28), P < 0.001 | -1.09 (0.34), P < 0.003 | -1.29 (0.44), P = 0.005 |

aSP scores ranged from 2 to 8, with higher scores indicating more permissive.
bStatistical test of mean difference between continuous and non-continuous smokers; NS P > 0.05.

the advice given. Confidantes and partners were perceived as significantly more permissive of smoking during pregnancy than were doctors (P < 0.001) (Table III).

Relationship between confidante smoking status and SP

SP scale scores were also examined in relationship to confidante smoking during their most recent pregnancy and confidante smoking status at present. These analyses examined only data from prenatal smokers who had confidantes and knew their confidantes’ smoking status during pregnancy, representing 91 of the 105 prenatal smokers (86.7%). Tables IV and V show a graded positive association between confidante smoking status during their most recent pregnancy and mean SP scores (r_s = 0.48; P < 0.001), and between confidante smoking status at present and mean SP scores (r_s = 0.5; P < 0.001).
Advice-giving during pregnancy

Table IV. Mean SP scores by confidante smoking status during most recent pregnancy

<table>
<thead>
<tr>
<th></th>
<th>Never smoked</th>
<th>Stopped smoking before pregnancy</th>
<th>Stopped smoking for pregnancy</th>
<th>Smoked throughout pregnancy</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>24 (26%)</td>
<td>19 (21%)</td>
<td>14 (15%)</td>
<td>34 (37%)</td>
</tr>
<tr>
<td>Mean SP (SE)</td>
<td>5.04 (0.41)</td>
<td>5.37 (0.48)</td>
<td>5.64 (0.80)</td>
<td>8.65 (0.53)</td>
</tr>
</tbody>
</table>

*aBased on 91 of 105 (86.7%) prenatal smokers.

Table V. Mean SP scores by confidante smoking status at present

<table>
<thead>
<tr>
<th></th>
<th>Non/previous smoker</th>
<th>Smoking but trying to stop</th>
<th>Smoking and not trying to stop</th>
</tr>
</thead>
<tbody>
<tr>
<td>n (%)</td>
<td>47 (49)</td>
<td>19 (20)</td>
<td>29 (31)</td>
</tr>
<tr>
<td>Mean SP (SE)</td>
<td>5.04 (0.26)</td>
<td>7.16 (0.72)</td>
<td>8.83 (0.59)</td>
</tr>
</tbody>
</table>

*aBased on 95 of 105 (90.5%) prenatal smokers.

Discussion

While researchers have long noted a reliance of low-income women on non-professional sources of advice on pregnancy, little attention has been given to understanding the prevalence and influence of lay advice-givers on pregnancy behaviors and on smoking, specifically. The present study addresses this research gap by introducing descriptive information about female friends and relatives who give advice on pregnancy. Research on natural patterns of advice-giving may offer insights that can be used to develop salient intervention strategies targeting low-income women.

Study findings demonstrate that most pregnant women were able to identify a single, close female friend or relative (the ‘confidante’) who provided advice about pregnancy-related issues. Confidantes were found to be on average more persuasive than women’s partners on general pregnancy-related issues and at least as persuasive as partners on smoking-related issues. While the supportiveness of a woman’s social network has been shown to influence her decision to quit smoking during pregnancy, this finding points to a key role for a single member of that network. Focusing intervention efforts on confidantes may prove promising, as confidantes may be more readily identifiable than members of a social network.

Confidantes in this study were most often mothers, with other prominent relationships being friends and sisters. While confidantes were viewed as less persuasive than physicians, their more intimate and frequent contact with the expectant woman presumably magnifies their influence. Previous qualitative research in a similarly socially disadvantaged population suggested that mothers are often the heads of household (Dunn et al., 1998), and thus may be substantively involved in the daily lives and decision making of their pregnant daughters.

Schaffer and Lia-Hoagberg also found the relationships of mother, friend and sister to be the most frequently identified sources of social support for low-income pregnant women (Schaffer and Lia-Hoagberg, 1997). Giving advice and providing social support are highly integrated functions. Barrera conceptualized advice-giving as a dimension of social support, with other dimensions being material aid, physical assistance, intimate interaction, feedback and social participation (Barrera, 1981). It is likely, therefore, that confidantes have a range of functions that reinforce each other during pregnancy and consideration of this broader role may be important to the development of interventions.
C. L. Dunn et al.

Assessments of the persuasiveness of general advice on pregnancy revealed a consistent order of influence, with doctors rated most persuasive, followed by confidantes and then partners. Interestingly, prenatal smokers viewed doctors to be significantly less influential than did non-smokers, which made the influence of confidantes appear relatively more important. Doctors’ advice was rated significantly less permissive than the advice of confidantes and partners, and the permissiveness of confidantes was strongly associated with their smoking status, both at present and during their most recent pregnancy.

It is possible that women who smoke perceive advice from doctors to be overly cautious and this may detract from how realistic they view doctors’ advice while adding importance to confidante advice. Price et al., in a study of low-income pregnant women, noted that ([Price et al., 1991], p. 602):

The women seemed to have a strong informal peer education system. Several women indicated that other smokers with normal infants felt that the physicians seemed to be worried about something that was not that important. It may be helpful for physicians to be aware of this strong informal peer exchange of information.

In our previous focus group research there was a common perception that doctors were unrealistic in their prenatal advice and did not understand what it was like to be pregnant in a challenging environment with limited resources. Confidantes, on the other hand, were viewed as having experience in this environment, which was reflected in their advice (Dunn et al., 1998). Women who value their confidante’s experience may be less motivated to quit smoking during pregnancy if their confidante smoked during pregnancy without observable or serious consequences to pregnancy outcomes. Such events may be viewed as proof that health warnings are overstated and while women may take steps to reduce their risks by cutting back on the amount smoked or by changing brands, they may not be sufficiently motivated to quit (Maclaine and Macleod Clark, 1991; Cnattingius et al., 1992; Forrest et al., 1995; Dunn et al., 1998).

This study has several limitations. First, smoking status was based on self-reported information and under-reporting of smoking during pregnancy is well documented (Kendrick et al., 1995; Windsor et al., 1998). Grouping continuous and non-continuous smokers into a single category should have helped reduce the effect of response bias in this study. Participants who falsely reported quitting during their pregnancy were still classified correctly as prenatal smokers.

Social desirability may also be a concern in self-reported measures of confidante and partner relationships. The nature of confidante relationships was not examined, but certain characteristics (e.g., duration, relatedness, emotional closeness, functional content, etc.) may affect the influence of confidante advice. Also, partner status was broadly defined (i.e. women were asked if they had a partner rather than if they lived with a partner), which may limit inferences made about partners. Selection bias may also be a factor if women who volunteered for this study experienced significantly different relationships with confidantes, doctors and partners than women who did not. Due to the passive nature of recruitment, participation rates were not estimated nor was it possible to characterize non-participants. The generalizability of study results may therefore be limited.

Two constructs (i.e. persuasiveness and permissiveness) were introduced to assess the relative influence of confidantes as advice-givers compared with doctors and partners. The majority of scales used to measure these constructs had skewed distributions. In such cases, the arithmetic mean is often a poor measure of central tendency. The statistical tests used to assess the associations of interest, however, are robust to non-normality of data. It is noteworthy that the construct measures achieved satisfactory ratings of internal consistency reliability and concurrent validity.

The study findings point to two primary implications for intervention development. First, it is important to recognize that friends and relatives—
especially mothers and sisters—are frequently present during women’s pregnancies, and are valued for their advice. Confidantes have a distinct role as advice givers, in that they have greater continuity in pregnant women’s lives (compared with doctors), and they offer first-hand experience with being pregnant in an environment that may be challenging and stressful. It is important to consider their wide-ranging influence on women during pregnancy. While some confidantes may offer advice that is health promoting, others may deny that problems are associated with risky health behaviors.

Second, given the prevalence and potentially integral role of confidantes, as well as their general persuasiveness and their perceived permissiveness about smoking, interventions may be more salient to the needs of socially disadvantaged pregnant women when focused on the relationship between women and their confidantes rather than women and their partners. How to address the influence of confidantes in cessation interventions must be determined. Directly involving them in activities seems infeasible. Our efforts to recruit the confidantes of prenatal smokers involved in the present study for focus group discussions underscored how challenging this might be: out of an eligible 96 confidantes, only nine (9.4%) participated, despite offering a financial incentive (Dunn et al., submitted).

Finally, confidantes may be more resistant to change than the pregnant women they support. Direct involvement of confidantes in cessation intervention activities may even have a reverse effect if it encourages more direct opposition to professional advice to quit smoking. Consequently, intervention strategies may be more effective when focused on counteracting the influence of confidante behavior and advice rather than attempting to change confidante attitudes directly. Understanding the counterproductive messages confidantes give would be an important first step in developing effective intervention messages. Challenging confidante attitudes indirectly by targeting media messages to the community as a whole may help to modify social norms and expectations that support smoking during pregnancy. Larger attitudinal shifts may also help to persuade confidantes to adopt more negative attitudes toward smoking during pregnancy.

References


Received on September 4, 2001; accepted on May 22, 2002.