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Gender Differences in Provider's Use of a Standardized Screening Tool for Prenatal Substance Use

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Abstract

Objectives—Prenatal substance use contributes birth defects, prematurity, and infant mortality in the U.S. As such, it is critical that medical professionals receive appropriate education and actively engage in screening patients; however, a physician's gender may influence differences in screening practices. The purpose of this study is to examine male and female Ob/Gyn physician's beliefs and practices related to perinatal substance use screening and to identify the significant correlates of using a standardized screening tool.

Methods—Data were collected from 131 Ob/Gyn physician's in Kentucky using a web-based survey. Chi-square and t-tests were used to distinguish differences between male (n=84) and female (n=47) providers. Binary logistic regression was also used to assess the independent correlates of the use of a standardized screening tool.

Results—Female Ob/Gyn physician's were more likely to "believe in" the effectiveness of screening, to discuss sensitive topics with patients, and were motivated to screen as a part of comprehensive care or because screening could produce a behavioral change. Female providers were also more likely to use a screening tool in a multivariate model; however, being female was no longer significant after additional variables were included in the model. Specifically, younger Ob/Gyn physicians who frequently discussed mental health issues with female patients of childbearing age, and were motivated to screen because it is part of comprehensive care were significantly more likely to use a standardized substance use screening tool.

Conclusions—In summary, less than half of Ob/Gyn physicians were using a standardized screening tool and the majority of physicians were using the CAGE. This suggests additional training is needed to increase their use of substance use screening tools, especially those geared towards pregnant women.

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Keywords

Prenatal Substance Use; Standardized Screening Tools; Physician Gender Differences

Prenatal substance use contributes to birth defects, prematurity, infant mortality, as well as cognitive and behavioral problems in the United States. According to the National Survey on Drug Use and Health (NSDUH, 2005), in the past month 4.3% of pregnant women reported using illicit drugs, 9.8% reported using alcohol, 4.1% reported binge drinking, and 18.0% reported smoking cigarettes. While there has been a documented decline in substance use during pregnancy, the number of prenatal substance using women is still significant and the problems experienced by their unborn child are preventable (Goler et al., 2008). Therefore, it is critical that medical professionals adhere to guidelines which suggest that universal screening should occur for substance use disorders in both primary care practices as well as in specialized medicine (Chasnoff et al., 2001; D'Amico et al., 2005; Watkins et al., 2003). Specifically, there is a need for physicians, including those specializing in obstetrics and gynecology (Ob/Gyn), to use a standardized tool to screen for substance use during pregnancy because screening can assist the mother and fetus in attaining better health outcomes (Chasnoff et al., 2001; Svikis & Reid-Quinones, 2003). The American College of Obstetricians and Gynecologists (ACOG) recommends that physicians use a screening questionnaire developed specifically for use among pregnant women, such as the T-ACE, to screen for prenatal substance use (ACOG, 1994). The purpose of this study is to examine male and female Ob/Gyn physician's beliefs and practices related to prenatal substance use screening and to identify the significant correlates of using a standardized screening tool.

Provider's Screening Practices

More generalized research has shown that a significant number of substance using pregnant women go undetected and therefore untreated (Kelly et al., 2001). This could be due in part to "low competence" for substance use screening and brief interventions by Ob/Gyn physicians (Gassman, 2003). For example, physician training is reported to be inadequate in the area of perinatal substance use (Howell & Chasnoff, 1999) and a qualitative study of fourth year medical students overwhelmingly stated that medical school education was deficient and exposure to substance abuse issues depended on rotations (Klein et al., 2006). In addition, there are other physician barriers to the detection and treatment of pregnant substance using women such as, patient denial, lack of a standard screening instrument, and the limited availability of treatment (Armstrong et al., 2001; Bailey & Sokol, 2008).

An important factor in the detection and treatment of pregnant women's substance use is physician attitude (Helmbrecht et al., 2008). Physicians tend to have negative attitudes towards substance using pregnant women in general; however, if a physician has a positive attitude about the potential for behavioral change, this reinforces the patient's help-seeking behavior (Bland et al., 2001). Feeling comfortable and competent with the subject is critical when screening and intervening with pregnant substance users (Gassman, 2003).

Previous research by ACOG suggests that while almost all Ob/Gyn physicians (97%) report screening pregnant women for substance use, only 23% used a standardized screening tool (Diekman et al., 2000). Standardized screening tools, such as the CAGE, have been developed to assist with the detection of substance use and several have been tailored to screen for substance use among pregnant women, including the T-ACE, TWEAK, and 4 P's Plus. These tools have been shown to greatly increase the detection of pregnant substance users (Bailey & Sokol, 2008; Svikis, Reid-Quinones, 2003) and are easy to administer and score. If screening is to be effective, it needs to be brief and simple in order to be

incorporated into routine clinical care (Helmbrecht & Thiagarajah, 2008). In addition, self-reporting substance use in a supportive and non-judgmental clinical setting can provide the best opportunity for intervention (ACOG, 2004; Helmbrecht & Thiagarajah, 2008). The combination of using a standardized screening tool, clinician competence, and the physician's confidence in available substance abuse treatment options have been shown to increase referrals (ACOG, 2004; Howell & Chasnoff, 1999).

Using a standardized tool for substance use screening would not only help physicians feel more confident in their ability to detect substance use issues, but would also provide an opportunity for the patient to disclose sensitive information without feeling discriminated against because screening is a routine part of standardized care in accordance with the American Academy of Pediatrics and ACOG (2003) guidelines for prenatal care. In this way, the physician can integrate a screening tool as part of standard procedure for every pregnant woman, while also allowing the physician to offer advice, guidance, and possibly referral services to intervene. There are numerous studies which have demonstrated the effectiveness delivering brief interventions to pregnant substance using women including AR-Cares (Whiteside-Mansell et al., 1999), Choices (Ingersoll et al., 2003), and Early Start (Armstrong et al., 2003).

Gender Differences in Provider's Screening Practices

Variance in physician practices can be traced to not only physician attitudes, education, and age, but also physician gender. For example, female physicians are more likely than male physicians to provide preventive counseling and screening (Franks & Bertakis, 2003; Henderson & Weisman, 2001). The length of office visits and communication style also vary between male and female physicians and this may help explain differences in the detection and treatment of pregnant substance users. Research shows that female physicians spend an average of two minutes longer than male physicians with patients during visits (Franks & Bertakis, 2003; Roter & Hall, 2004). This additional time could allow for more adequate screening and for more in-depth communication with the patient about health concerns such as substance use. Female physicians also engage in more positive talk, psychosocial counseling, and emotionally focused talk with patients than male physicians (Roter & Hall, 2004). This communication style leads the patient to give more information, both biomedical and psychosocial in nature, thus opening a dialogue. In fact, female physician's patients converse more, and make more positive comments, such as agreeing with the physician, than the patients of male physicians (Roter & Hall, 2004). This allows for more discussions on topics like substance use (Henderson & Weisman, 2001). Female, as compared to male, primary care physicians are also more likely to schedule patient follow-up visits and to refer patients to other physicians (Franks & Bertakis, 2003).

It should be noted that these studies examining gender differences in physician care are not specific to physicians specializing in Obstetrics and/or Gynecology, but rather physicians in general. However, these findings are certainly applicable to Ob/Gyn clinical practices. Also, while the aforementioned research provides useful knowledge and implications about gender differences in physician care, there has been some research that indicates conflicting results. For example, a recent study by Bertakis and Azari (2007) found that female primary care physicians are less likely than male physicians to discuss tobacco, alcohol, and other substances with their female patients. In addition, female patients are less comfortable than male patients in discussing such socially unacceptable behaviors. Thus, when a female patient is treated by a female physician, the result can be under-diagnosed and undermanaged substance use (Bertakis & Azari, 2007). Henderson and Weisman (2001) reported that while female physicians provide more counseling on sensitive topics, such as prenatal substance use, they are less likely to screen their patients than male physicians.

Although research has shown gender differences in physician care and communication, several studies have found that there are fewer gender differences among those specializing in obstetrics/gynecology (Lurie et al., 1993; Roter et al., 2002). In fact, studies reported male Ob/Gyn physicians engaged in more “emotional talk,” where the physician specifically asks the patient about their feelings and emotions and exhibits empathy and concern (Lurie et al., 1993; Roter et al., 2002). Other research found that female Ob/Gyn physicians were significantly more likely than their male counterparts to advise abstinence to their patients who admitted to moderate alcohol use, but less likely to believe their pregnant patients should practice complete alcohol abstinence (Diekman et al., 2000). Furthermore, some of the gender differences may be confounded with physicians’ age and when they completed medical training. For example, female physicians are generally younger than male physicians and may have received more emphasis on preventive care during their training (Lurie et al., 1993; Roter et al., 2002).

Gender disparities in physician practices and attitudes have received a fair amount of attention in the literature, yet Ob/Gyn physician gender differences in screening patients for substance use during pregnancy have only received a “ cursory glance.” Existing studies are conflicting with some research finding no gender differences in communicating with patients about substance use (Lurie et al., 1993; Roter et al., 2002), while others have reported that women provide more counseling (Henderson & Weisman, 2001).

Examining physician gender differences in the utilization of screening tools for prenatal substance use is an important scholarly endeavor. First, there are no known studies that have examined gender disparities in Ob/Gyn provider’s use of standardized substance use screening tools. Second, these standardized screening tools might help facilitate patient/provider communication about prenatal substance use. As summarized in the Center for Substance Abuse Treatment (CSAT) Treatment Improvement Protocol (TIP) number 2 (1995), women who screen positive on the screening tool should undergo a full psychosocial and substance abuse assessment as well as a brief intervention. The current study is the first known study to examine gender differences in Ob/Gyn’s beliefs and practices related to prenatal substance use as well as the use of standardized screening instruments.

METHODS

Sample

Data were collected from 131 Ob/Gyn practitioners in Kentucky as part of a survey of Ob/Gyn members of the Kentucky Medical Association (KMA). All KMA members who specialized in Obstetrics and/or Gynecology were invited to participate in a confidential web-based survey via an invitation cover letter which provided a description of the study’s social usefulness, purpose, highlights of the survey’s content, and a description of the respondent’s importance to the study. In addition, potential risks and benefits were discussed and instructions on how to participate in the web-based survey were provided. To improve survey response rates, Dillman’s (1978;2000) method was used, which incorporates the use of carefully spaced mailings. Hard copies of the survey instrument with self-addressed stamped envelopes were included in follow-up mailings so physicians has the choice of participating in the survey using either the on-line option or using paper and pencil format. Physicians who participated in the 15-minute survey were compensated by a \$25 check and were entered into a raffle to win 1 of 2 autographed University of Kentucky basketballs. The overall response rate was 55% which is consistent with other physician surveys (Embi et al, 2008;VanGeest et al, 2007). Participant recruitment and procedures were approved by the University of Kentucky Institutional Review Board.

Measures

The dependent variable of interest was a dichotomous variable based on whether the Ob/Gyn physician used a standardized tool to screen for substance use among pregnant women. Physicians were asked if they used the CAGE, T-ACE, TWEAK, or 4P's Plus. The CAGE is comprised of four questions and is not specific to pregnant women (Ewing, 1984). The T-ACE is specific to pregnant women and is based on the CAGE; however, it excludes the "Have you ever felt bad or guilty about your drinking" question. The T-ACE also includes a substituted item for Tolerance which asks "How many drinks does it take to make you feel high?" (Sokol et al., 1989). The TWEAK is also tailored to pregnant women and consists of 5 items, three of which are shared with the T-ACE (Chan et al., 1993). The 4 P's Plus is a screening tool for pregnant women that asks questions about parents, partners, past substance use, and substance use during pregnancy (Chasnoff & Hung, 1999). Physicians who responded yes to using any of four screening tools were coded "1" and physicians who responded no to all of the screening tools were coded "0."

Four groups of independent variables were examined in the multivariate model including physician socio-demographics, belief in effectiveness of screening in producing a behavioral change, frequency of discussions with patients about health issues, and motivations for screening pregnant women. These items were derived and adapted from a Washington State Department of Health, Office of Maternal and Child Health report (Peterson et al., 2004). Three dichotomous physician characteristics were explored including gender (0=male; 1=female), race (0=white; 1=non-white), and employment in a private practice (0=no; 1=yes). A physician's age was measured in number of years. Physicians' beliefs in the effectiveness of screening patients in producing a behavioral change in tobacco, alcohol, and illicit drug use were examined. Specifically, the question asked "Please rate on a scale of 1 (not at all effective) to 4 (extremely effective), how effective is screening in producing a change in behavior for the following substances?" Tobacco, alcohol, and illicit drug use were all examined. These three items were measured on a likert scale (1=not at all effective; 2=somewhat effective; 3=effective; 4=extremely effective).

Physicians were also asked about the frequency with which they discussed the risks of smoking, alcohol, and illicit drugs as well as the frequency with which they discussed stress, mental health, and sexual abuse with pregnant women. These six items were measured on a 4-point likert scale, where 1=never, 2=rarely, 3=sometimes, and 4=frequently. In addition, five Ob/Gyn physician motivations for screening were examined. Specifically, physicians were asked "what motivates you to conduct a screening?" Physicians responded either yes (coded 1) or no (coded 0) on five possible motivating factors including: (1) part of comprehensive care, (2) the ability to produce a behavioral change, (3) infant's health, (4) mother's health, and (5) liability.

Analytic Strategy

One way analysis of variance (ANOVA) was used to distinguish differences between male (n=84) and female (n=47) physicians across all of the variables except age. Since physician's age is a continuous study variable, a t-test was used to establish if there was a significant difference in age between male and female physicians. Two multivariate models were conducted. First, the relationship between physician's gender and the use of a standardized screening tool for prenatal substance use was examined using binary logistic regression. Second, variables which were significantly different at the bivariate level were also entered into the multivariate model to identify the significant correlates of Ob/Gyn provider's use of a standardized screening tool.

RESULTS

Table 1 displays the descriptive statistics for the sample as well as the results of the bivariate analyses. Participants were primarily white (92%), male (64%), and employed in a private practice (72%) with a mean age of about 47. There were no significant gender differences in race or working in a private practice; however, female Ob/Gyn physicians were significantly younger than their male counterparts. There were significant differences between male and female Ob/Gyn physicians in beliefs about screening, frequency of discussions about health issues, motivations for screening, and the use of screening tools.

Two of the three screening belief measures significantly differed by physician's gender. Specifically, female Ob/Gyn physicians were more likely than males to say that screening for both tobacco and illicit drugs is effective in producing a behavioral change among pregnant women. Female physicians indicated they were also more likely to discuss stress, mental health concerns, and sexual abuse with pregnant women. However, there were no significant gender differences in the frequency of Ob/Gyn physicians discussing the risks of smoking, drinking alcohol, and talking about illicit drugs with pregnant women.

As displayed in Table 2, the strongest motivation for provider's screening for prenatal substance use is that it is part of comprehensive care (86%); however, only 40% of physicians cited liability as a motivation for screening. There were also gender differences in motivations for screening. Specifically, female Ob/Gyn physicians were significantly more likely than males to say that they were motivated to screen pregnant women for substance use because it was a part of comprehensive care and because it could produce a behavioral change.

In general, the use of screening tools for substance use among pregnant women was quite low with only 42% of physicians reporting the use of any standardized screening tool. Female Ob/Gyn physicians were significantly more likely to use the CAGE, as compared to male Ob/Gyn physicians. When examining the use of any screening tool, female physicians (60%) specializing in obstetrics and gynecology were significantly more likely to use any screening tool as compared to their male counterparts (33%).

The results of the binary logistic regression model identifying the correlates of the likelihood of using a standardized substance abuse screening tool are displayed in Table 3. Model 1 only includes the primary covariate of interest, physician's gender, while Model 2 steps in all of the variables which were significantly different at the bivariate level. In Model 1, being female was significantly associated with the use of a screening tool for substance use during pregnancy. Specifically, female Ob/Gyn physicians, as compared to their male counterparts, were over 3 times more likely to use a screening tool such as the CAGE, T-ACE, TWEAK, or 4 P's Plus. Overall this model was statistically significant.

In Model 2, after the additional variables were included, gender was no longer a significant correlate of the use of a standardized screening tool. Physician's age was a significant correlate and with each additional year in a physician's age, the likelihood of using a standardized substance abuse screening tool decreased by 6%. Belief measures were not significantly associated with the physician's use of a screening tool. However, physicians who had frequent discussions about mental health concerns with pregnant women were more likely to use a standardized screening tool. In addition, physicians who were motivated to screen because they believe it is part of comprehensive prenatal care were over 5.8 times more likely to use a standardized screening tool. Overall, the multivariate model was statistically significant and the inclusion of the additional variables resulted in a better model fit.

DISCUSSION

This study offered the unique opportunity to examine gender differences in Ob/Gyn physician's beliefs and practices related to prenatal substance use as well as their use of standardized screening instruments. The use of standardized screening tools allow physicians to identify patients who need further assessments to subsequently diagnose their substance use disorder, to assess the potential risk of substance use to the fetus, and to intervene and develop treatment plans. In general, physician's use of a standardized tool to screen for substance use among pregnant women was surprisingly low. Less than half (42%) of Ob/Gyn physicians are using a standardized screening tool. While this is higher than previous ACOG research (23%) which was conducted about a decade earlier (Diekman et al., 2000), there is still room for improvement. Physicians who do not screen for substance use during pregnancy are missing a prime opportunity to communicate with their patients about the dangers of using substances while pregnant.

This study found significant gender differences in the use of a standardized screening tool. Specifically, 60% of female Ob/Gyn physician's reported using the CAGE, T-ACE, TWEAK, or 4 P's Plus, as compared to only 33% of males. Consequently, efforts are needed to increase the frequency of substance use screening by male Ob/Gyn physicians who are providing services to pregnant women. This relationship was not significant in the multivariate model, while controlling for physician's age, beliefs, frequency of discussions, and motivations for screening. Based on previous research findings by Diekman and colleagues (2000), since female physicians were significantly younger it is hypothesized that women received their medical training more recently. Further analysis indicated that female physicians in this study did in fact graduate medical school about a decade earlier than male physicians in this sample (male $x=1982$, $sd=9.56$; female $x=1991$, $sd=7.06$). Medicine is a dynamic field and medical curriculum is constantly evolving. As such, it's plausible that those who graduated from medical school more recently received better training on prenatal substance use. In addition, it should be noted that the majority of physicians are using the CAGE, a screening tool which is not developed specifically for use with pregnant women. This is consistent with previous research and suggests that additional efforts are needed to increase physician's knowledge of the availability of screening tools which are tailored specifically for use with pregnant women (Miner et al., 1996; Russel et al., 1994). Screening tools for pregnant women have a better sensitivity (e.g., 75% for CAGE as compared to 87% for TWEAK) and are more accurate in detecting women's substance use patterns (Chang et al., 1998; Cherpitel, 1995).

In addition, frequently discussing mental health issues and being motivated to screen for prenatal substance use because it is part of comprehensive care were also positively associated with using a standardized substance use screening tool. Additional medical school training on prenatal substance use, addictions, and co-occurring disorders (i.e., mental health problems and substance use disorders) is needed and could improve the physician's knowledge on these topics (Howell & Chasnoff, 1999). This training could also increase the physician's self-efficacy in using the screening tool as well as substantiate the belief that prenatal screening can be effective in both identifying substance use and producing a behavioral change (e.g., through referrals to a substance abuse treatment specialist for further assessment, intervention, and subsequent treatment) (Howell & Chasnoff, 1999). This medical education training deficiency is substantiated by research with curriculum deans at 124 medical schools which suggest that the mean number of hours dedicated to substance use disorders was 12.9 (median 11.5) (Miller et al., 2001). Further medical training for both males and females, on developing clinical interviewing skills could provide physicians with the necessary communication skills to screen for prenatal substance

use. In addition, continuing education is needed for all Ob/Gyn physicians to fulfill their therapeutic obligation and improve the quality of health care (ACOG, 2004).

There are several limitations of this study which focused on identifying the independent correlates of Ob/Gyn physician's use of a standardized screening tool for prenatal substance use. Generalizability may be an issue because participation was limited to Ob/Gyn physicians in Kentucky who are part of the Kentucky Medical Association (KMA) and because of the small sample size. In addition, this survey did not collect patient-level data; therefore, it is not possible to determine implementation, or the extent to which screening tools were routinely used at every visit, nor the time spent with the physician during their prenatal visits. Additional limitations in measurement include that the survey did not ask about the use of other screening tools such as the AUDIT, 5 A's, Two Item Screen, or the NIAAA Questionnaire. Future research should include a more nationally-representative sample as well as examine longitudinal data to identify the predictors, rather than correlates, of the use of standardized tools to screen for substance use during pregnancy.

CONCLUSIONS

Despite these limitations, this is the first known study to look at Ob/Gyn gender differences in beliefs about the effectiveness of prenatal substance use screening, frequency of discussions about substance use with pregnant patients, and motivations for screening as well as the independent correlates of screening for prenatal substance use. Results suggest that additional training and continuing education are needed, especially for older physicians, because less than half of Ob/Gyn physicians are using any screening tools and the majority are not using screening tools developed for use with pregnant women. When patients screen positive for prenatal substance use, an Ob/Gyn physician should follow-up with a brief assessment, intervention, and referral for subsequent addiction treatment, if needed. Future studies could examine Ob/Gyn provider's referral mechanisms as well as the development of interventions for substance using pregnant women.

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REFERENCES

- American Academy of Pediatrics. American College of Obstetricians and Gynecologists (ACOG). Guidelines for perinatal care. 5th ed.. AAP; ACOG; Elk Grove Village (IL): Washington, DC: 2003.
- American College of Obstetricians and Gynecologists. At-risk drinking and illicit drug use: ethical issues in obstetric and gynecologic practice. *Obstet Gynecol* 2004;103:1021–1031. ACOG Committee Opinion No. 294. American College of Obstetricians and Gynecologists. [PubMed: 15121596]
- American College of Obstetricians and Gynecologists. Substance abuse in pregnancy. ACOG technical bulletin no. 195. American College of Obstetricians and Gynecologists; Washington, DC: 1994.
- Armstrong MA, Gonzales Osejo V, Lieberman L, Carpenter DM, Pantoja PM, Escobar CJ. Perinatal substance abuse intervention in obstetric clinics decreases adverse neonatal outcomes. *J Perinatol* 2003;23:3–9. [PubMed: 12556919]
- Armstrong MA, Lieberman L, Carpenter DM, Gonzales VM, Usatin MS, Newman L, Escobar GJ. Early Start: An obstetric clinic-based perinatal substance abuse intervention program. *Qual Manag Health Care* 2001;9(2):6–15. 2001. [PubMed: 14598626]
- Bailey BA, Sokol RJ. Pregnancy and alcohol use: Evidence and recommendations for prenatal care. *Clin Obstet Gynecol* 2008;51(2):436–444. [PubMed: 18463472]

- Bertakis KD, Azari R. Patient gender and physician practice style. *J Womens Health* 2007;16(6):859–868.
- Bland E, Oppenheimer L, Brisson-Carroll G, Morel C, Holmes P, Gruslin A. Influence of an educational program on medical students' attitudes to substance use disorders in pregnancy. *Am J Drug Alcohol Abuse* 2001;27(3):483–490. [PubMed: 11506263]
- Center for Substance Abuse Treatment. Pregnant, substance-using women. Treatment Improvement Protocol (TIP) Series 2. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration; Washington, DC: 1995. DHHS Publication No. 95-3056
- Chan AW, Pristach EA, Welte JW, Russell M. Use of the TWEAK test in screening for alcoholism/heavy drinking in three populations. *Alcoholism, Clin Exp Res* 1993;17:1188–1192.
- Chang G, Wilkins-Haug L, Berman S, Goetz MA, Behr H, Hiley A. Alcohol use and pregnancy: improving identification. *Obstet Gynecol* 1998;91:892–898. [PubMed: 9610992]
- Chasnoff, IJ.; Hung, WC. *The 4 P's Plus*. NTI Publishing; Chicago, IL: 1999.
- Chasnoff IJ, Neuman K, Thornton C, Callaghan MA. Screening for substance use in pregnancy: A practical approach for the primary care physician. *Am J Obstet Gynecol* 2001;184(4):752–758. [PubMed: 11262483]
- Cherpitel CJ. Screening in alcohol problems in the emergency department. *Ann Emerg Med* 1995;26:158–166. [PubMed: 7618778]
- D'Amico EJ, Paddock SM, Burnam A, Kung FY. Identification of and guidance for problem drinking by general medical providers. *Medical Care* 2005;43(3):229–236. [PubMed: 15725979]
- Diekmann ST, Floyd RL, Decoufle P, Schulkin J, Ebrahimi SH, Sokol RJ. A survey of obstetrician-gynecologists on their patients' alcohol use during pregnancy. *Obstet Gynecol* 2000;95(5):756–763. [PubMed: 10775743]
- Dillman, DA. *Mail and Internet Surveys: The Tailored Design Method*. Wiley; New York: 2000.
- Dillman, DA. *Mail and Telephone Surveys: The Total Design Method*. Wiley; New York: 1978.
- Embi P, Jain A, Harris C. Physicians' perceptions of an electronic health record-based clinical trial alert approach to subject recruitment: A survey. *BMC Med Inform Decis Mak* 2008;8:1–8. [PubMed: 18171485]
- Ewing JA. Detecting alcoholism: The CAGE Questionnaire. *JAMA* 1984;252:1905–1907. [PubMed: 6471323]
- Franks P, Bertakis KD. Physician gender, patient gender, and primary care. *J Womens Health* 2003;12(1):73–80.
- Gassman RA. Medical specialization, profession, and mediating beliefs that predict stated likelihood of alcohol screening and brief intervention: Targeting educational interventions. *J Subst Abuse* 2003;24(3):141–156.
- Goler NC, Armstrong MA, Taillac CJ, Osejo VM. Substance abuse treatment linked with prenatal visits improves perinatal outcomes: A new standard. *J Perinatol* 2008;28(9):597–603. [PubMed: 18580882]
- Helmbrecht GD, Thiagarajah S. Management of addiction disorders in pregnancy. *J Addict Med* 2008;2(1):1–16. FACOG.
- Helmbrecht GD, Lewis KM, Ebert A, FASAM. Pregnancy complicated by opiate addiction and fetal growth restriction. *J Addict Med* 2008;2(1):17–21.
- Henderson JT, Weisman CS. Physician gender effects on preventive screening and counseling: An analysis of male and female patients' health care experiences. *Med Care* 2001;39(12):1281–1292. [PubMed: 11717570]
- Howell EM, Chasnoff IJ. Perinatal substance abuse treatment: Findings from focus groups with clients and providers. *J Subst Abuse Treat* 1999;17(1-2):139–148. [PubMed: 10435262]
- Ingersoll K, Floyd L, Sobell M, Velasquez MM, Project CHOICES Intervention Research Group. Reducing the risk of alcohol-exposed pregnancies: a study of a motivational intervention in community settings. *Pediatrics* 2003;111:1131–1135. [PubMed: 12728125]
- Kelly RH, Zatrack DF, Anders TF. The detection and treatment of psychiatric disorders and substance use among pregnant women care for in obstetrics. *Am J Psychiatry* 2001;158:213–219. [PubMed: 11156803]

- Klein, E.; Oser, C.; Harris, M.; Ramlow, B.; Leukefeld, C. The March of Dimes Physician Assessment Project report. Center on Drug and Alcohol Research; Lexington, KY: 2006.
- Lurie N, Slater J, McGovern P, Ekstrum J, Quam L, Margolis K. Preventive care for women: Does the sex of the physician matter? *The N Eng J Med* 1993;329:478–482.
- Miller NS, Sheppard LM, Colenda CC, Magen J. Why physicians are unprepared to treat patients who have alcohol- and drug-related disorders. *Academic Medicine* 2001;76(5):410–418. [PubMed: 11346513]
- Miner KJ, Holtan N, Braddock M, Cooper H, Kloehn D. Barriers to screening and counseling pregnant women for alcohol use. *Minn Med* 1996;79:43–47. [PubMed: 8937053]
- National Survey on Drug Use and Health. Substance use during pregnancy: 2002 and 2003 update. Jun 2. 2005 Retrieved June 14, 2008, from <http://www.oas.samhsa.gov/2k5/pregnancy/pregnancy.htm>
- Peterson, A.; Johnson, B.; Bausch, S.; Cherry, K. Prenatal screening for substance abuse, tobacco, and domestic violence: assessing effective strategies for improving screening and intervention. Washington State Department of Health, Office of Maternal and Child Health; Olympia, WA: 2004.
- Roter DL, Hall JA. Physician gender and patient-centered communication: A critical review of empirical research. *Annu Rev Public Health* 2004;25:497–519. [PubMed: 15015932]
- Roter DL, Hall JA, Aoki Y. Physician gender effects in medical communication: A meta-analytic review. *JAMA* 2002;288(6):756–764. [PubMed: 12169083]
- Russel M, Martier SS, Sokol RJ, Mudar P, Bottoms S, Jacobson S, et al. Screening for pregnancy risk-drinking. *Alcohol Clin Exp Res* 1994;18:1156–1161. [PubMed: 7847599]
- Svikis DS, Reid-Quinones K. Screening and prevention of alcohol and drug use disorders in women. *Obstet Gynecol Clin N Am* 2003;30:447–468.
- Sokol RW, Martier SS, Ager JW. The T-ACE questions: practical prenatal detection of risky drinking. *Am J Obstet Gynecol* 1989;160:863–870. [PubMed: 2712118]
- Svikis DS, Reid-Quinones K. Screening and prevention of alcohol and drug use disorders in women. *Obstet Gynecol Clin North Am* 2003;30:447–468. [PubMed: 14664321]
- VanGeest JB, Johnson TP, Welch VL. Methodologies for improving response rates in surveys of physicians. *Evaluation & The Health Professionals* 2007;30(4):303–321.
- Watkins KE, Pincus HA, Taneilian TL, et al. Using the chronic care model to improve treatment of alcohol use disorders in primary care settings. *J Studies Alcohol* 2003;64:209–218.
- Whiteside-Mansell L, Crone CC, Conners NA. The development and evaluation of an alcohol and drug prevention and treatment program for women and children. The AR-CARES program. *J Subst Abuse Treat* 1999;16:265–275. [PubMed: 10194744]

Table 1

Results of Bivariate Analyses for Physician Socio-Demographics, Belief in Effectiveness of Screening, and Frequency of Discussions with Pregnant Women

	Male Ob/Gyn's (n=84)	Female Ob/Gyn's (n=47)	Total Sample (n=131)
<i>Physician Socio-Demographics</i>			
% Non-White	10.00%	6.00%	8.00%
Age***	49.62 (8.91)	41.04 (7.51)	46.54 (9.36)
% Private Practice	73.00%	70.00%	72.00%
<i>Belief in Effectiveness of Screening in Producing a Behavioral Change for ...^a</i>			
Tobacco*	1.95 (.78)	2.34 (1.01)	2.09 (.89)
Alcohol	2.23 (.87)	2.47 (.93)	2.32 (.89)
Illicit Drugs*	1.98 (.79)	2.30 (.95)	2.09 (.86)
<i>Frequency of Discussion with Pregnant Women about ...^b</i>			
Tobacco	3.87 (.38)	3.68 (.76)	3.80 (.55)
Alcohol	3.42 (.68)	3.28 (.89)	3.37 (.76)
Illicit Drugs	3.18 (.84)	3.09 (.95)	3.15 (.88)
Stress***	2.40 (.70)	3.04 (.94)	2.63 (.85)
Mental Health**	2.73 (.75)	3.13 (.81)	2.88 (.79)
Sexual Abuse*	2.59 (.81)	2.89 (.91)	2.70 (.86)

*
p<.05

**
p<.01

p<.001; standard deviations in parentheses

^a Scale ranges from 1=not at all effective to 4=extremely effective

^b Scale ranges from 1=never to 4=frequently

Table 2

Results of Bivariate Analyses for Physician Motivations for Screening and Use of Screening Tool

	Male Ob/Gyn's (n=84)	Female Ob/Gyn's (n=47)	Total Sample (n=131)
<i>Motivations for Screening include ...</i>			
Part of Comprehensive Care *	81.00%	96.00%	86.00%
Could Produce a Behavioral Change *	67.00%	87.00%	73.00%
Infant Health	80.00%	81.00%	80.00%
Mother's Health	76.00%	85.00%	79.00%
Liability	38.00%	43.00%	40.00%
<i>Use of Screening Tools</i>			
CAGE *	27.00%	47.00%	34.00%
TACE	12.00%	13.00%	12.00%
TWEAK	1.00%	0.00%	1.00%
4 P's Plus	2.00%	2.00%	2.00%
Use of Any Screening Tool ***	33.00%	60.00%	42.00%

*
p<.05**
p<.01***
p<.001; standard deviations in parentheses

Table 3

Results of the binary logistic regression model identifying the independent correlates of Ob/Gyn's use of a standardized substance use screening tool (n=126)

	Model 1			Model 2		
	B (S.E.)	Odds Ratio	95% C.I.	B (S.E.)	Odds Ratio	95% C.I.
Physician Socio-Demographics						
Gender	1.12** (.38)	3.06	1.46-6.42	.51 (.49)	1.67	.64-4.31
Age				-.06* (.03)*	.94	.89-.99
Belief in Effectiveness of Screening in Producing a Behavioral Change for ...						
Tobacco				-.05 (.27)	.95	.56-1.62
Illicit Drugs				.01 (.28)	1.01	.59-1.74
Frequency of Discussion with Pregnant Women about ...						
Stress				-.41 (.33)	.66	.35-1.26
Mental Health				.94** (.32)	2.56	1.36-4.82
Sexual Abuse				.24 (.26)	1.27	.77-2.12
Motivations for Screening include ...						
Part of Comprehensive Care				1.77* (.89)	5.85	1.02-33.52
Could Produce a Behavioral Change				-.29 (.51)	.75	.28-2.02
Model χ^2			8.99**			33.153***
-2 Log likelihood			168.14			139.48
Nagelkerke R ²			.09			.31

*
p<.05

10^d

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