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Complementary and Alternative Medicine for Low-Back Pain in Pregnancy: A Cross-Sectional Survey

SHU-MING WANG, M.D.,[1] PEGGY DEZINNO, R.N., B.S.N.,[2] LEONA FERMO, C.R.N.A.,[1] KEITH WILLIAM, M.D.,[1] ALISON A. CALDWELL-ANDREWS, Ph.D.,[1] FERNE BRAVEMEN, M.D.,[1] and ZEEV N. KAIN, M.D.[1]

ABSTRACT

Objective: To identify common treatments used for low-back pain (LBP) during pregnancy.

Design: A two-part anonymous survey.

Setting/location: New Haven, Connecticut.

Subjects: Pregnant women and providers of prenatal health care (nurse educators, nurse midwives, and obstetricians).

Results: We found that the majority of pregnant women who participated in our survey (61.7%) reported that they would accept complementary and alternative medicine (CAM) therapy as treatment for LBP during pregnancy. Similarly, 61% of providers of prenatal health care in our sample reported that they would consider using CAM as treatment for LBP during pregnancy. Massage (61.4%), acupuncture (44.6%), relaxation (42.6%), yoga (40.6%), and chiropractic (36.6%) were the most common CAM therapies recommended for LBP in pregnancy by the providers of prenatal health care in our sample.

Conclusions: This two-part survey study found that both providers of prenatal health care and pregnant women in New Haven county are likely to use CAM treatments for pregnancy-induced LBP. Further investigation should focus on whether it is a nationwide phenomenon, as well as if various CAM therapies are an efficacious treatment for LBP during pregnancy.

INTRODUCTION

Low-back pain (LBP) may be one of the most common problems associated with pregnancy.[1–6] Many pregnant women have reported that LBP not only compromises their ability to work during pregnancy but also interferes with their activities of daily living.[2,7,8] Pharmacologic as well as complementary and alternative medicine (CAM) interventions have been suggested as treatments for LBP in the general population. However, most of the LBP treatments in the literature have primarily focused on and been intended for non-pregnancy-related LBP.[9–15] We therefore determined it is important to understand better what types of LBP treatments are commonly prescribed for and used by pregnant women, particularly CAM therapies.

Traditionally, CAM is defined as "interventions neither taught widely in medical schools nor generally available in United States hospitals."[16] Recently, the World Health Organization (WHO) defined CAM as "a broad set of health practices that are not part of a country's own tradition, or not integrated into its dominant health care system."[17] Several large scale surveys indicate that more than one third of the United States population uses CAM therapies, the majority of them women.[18,19] Other data indicate that ~48% of all women of childbearing age currently use at least one CAM therapy for health-related problems.[20] Although it

[1]Yale University School of Medicine and [2]Yale–New Haven Hospital, New Haven, CT.
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might be hypothesized that a significant number of pregnant women in the United States use CAM, the actual frequency and prevalence of overall CAM use by pregnant women is unknown, as is the frequency of CAM use for LBP during pregnancy.[21]

The issue of CAM use during pregnancy is important for several reasons. First, since nearly 50% of women of reproductive age are already using CAM, it seems likely that they would continue to use CAM during pregnancy. Second, maternal-fetal circulation often poses a concern for both providers of prenatal health care and pregnant women who are using traditional allopathic medication.[22]

Following an extensive MEDLINE database search (1996–December 2004) with keywords: "pregnancy," "pregnant women," "alternative therapies," "CAM," "acupuncture therapies," "acupuncture analgesia," "ear acupuncture," "survey," and "low back pain," we found only very limited data regarding the frequency of CAM use among pregnant women as a treatment for LBP.[23–25] We therefore designed and conducted a two-part survey study to determine the prevalence of CAM use by pregnant women; to identify the attitudes of pregnant women toward CAM/acupuncture as treatment for LBP in pregnancy; and to identify attitudes of providers of prenatal health care regarding the treatment of LBP in pregnancy.

MATERIALS AND METHODS

We conducted this survey between May 2002 and October 2003 in a number of antenatal clinics in New Haven county, Connecticut. Respondents to the first section of the survey included pregnant women who visited clinics that serve the indigent population as well as women who attended clinics located at offices of private obstetricians and midwives. In addition, respondents to the first section of the survey were recruited from prenatal programs sponsored by the Hospital of Saint Raphael, Yale–New Haven Hospital, and other nonprofit health care organizations in New Haven county. These clinics serve a total of 10,000 pregnant women annually. Respondents to the second section of the survey included providers of prenatal health care in the above clinics, educational programs, and hospitals. Both sections of the survey were pre-tested and approved by the Yale University Human Investigation Committee as well the Institutional Review Board of the Hospital of Saint Raphael.

Survey of pregnant women

Following the survey development phase and preliminary testing by 50 participants, the final version of the survey was limited to 12 questions: 7 items were directed at CAM, and the other questions targeted demographic information. These 7 items included:

- Participants' past and present experiences with CAM therapies (including massage, magnets, aromatherapy, relaxation, herbs, yoga, hypnosis, acupuncture, and homeopathy) (The survey also offered an opportunity to write in any other CAM therapy that was not specified.)
- Attitudes toward CAM using a visual analogue scale (VAS) consisting of a horizontal 10-cm line between the phrases "not believe at all" (score of 0) to "strongly believe" (score of 100).
- CAM treatment for LBP during pregnancy.

Prior to the start of the study, the principal investigator trained all research assistants who were responsible for distributing and collecting the surveys and answering any questions. The principal investigator was in constant contact with the research assistants throughout the study period to direct the survey and address any potential problems. Also, in case the pregnant women might receive the survey more than once, all respondents were instructed to complete the questionnaire only once. Research assistants who attended clinics with significant Hispanic populations spoke Spanish.

Survey of providers of prenatal health care

This survey was pre-tested in a group of 15 providers of prenatal health care, and the final version was composed of

Table 1. Demographic Characteristics of Pregnant Subjects (n = 950)

Age (years)	
<30	38.5
31–40	58.4
>40	3.1
Marital status (%)	
Single	8.8
Separated	0
Divorced	1.4
Widowed	0.2
Married	88.8
Other	0.8
Ethnicity (%)	
White	80.1
African-American	4.6
Hispanic	3.8
Asian	8.5
Other	2.5
Hollingshead index of social position (%)[a]	
Upper	12.3
Upper-middle	50.2
Middle	15.6
Lower-middle	19.1
Low	2.8
Household income (%)	
<30,000	9.6
30,000–50,000	34.3
>50,000	56.1
Pregnancy status (%)	
First trimester	1.5
Second trimester	23.4
Third trimester	75.1

[a]Hollinshead index of social position = (occupation score × 7) + (education score × 4).

10 questions. Following the development of the survey questionnaire, the names and business addresses of 168 providers of prenatal health care (physicians, nurse midwives, prenatal educators) in New Haven county were obtained from professional societies as well as other sources such as providers affiliated with Yale–New Haven hospital and Saint Raphael Hospital. An initial mailing occurred in November 2002. Although the survey was anonymous, return envelopes were coded to permit the identification of nonrespondents, to whom we again mailed surveys in April 2003. The 10 questions in the survey fell into three sections:

- Demographic data regarding the providers of prenatal health care: age, ethnicity, education, years of practice, the percentage of patients in his or her practice that are pregnant women
- Frequency of LBP in the providers' pregnant patients, and a list of their treatment options (The list included mainstream medical and CAM treatments, including a space to write in any additional treatments not listed.)
- Their attitude toward the use of CAM therapies for pregnancy-related LBP, as assessed by a VAS scale identical to that described above.

Data were analyzed using SPSS 10.1 software (SPSS Inc., Chicago, IL). Demographic data were summarized as mean ± standard deviation (SD) for continuous data and frequency for categorical data. We computed frequency or mean response with SD for each questionnaire item. Categorical items were analyzed using chi-square analysis. A stepwise logistic linear regression model was used to assess the independent effects of baseline characteristics on the use of CAM therapies. The final models were limited to significant predictors of the variable of interest and were performed for outcomes of use of CAM therapies. Significance was accepted at a level of $p < 0.05$.

Table 2. Factors Affecting Complementary and Alternative Medicine (CAM) Use by Pregnant Women

	Percent of subjects using CAM	P *value*[a]
Age (years)		
<30	29.2	
31–40	31.9	
>40	36.8	
		0.679
Household income		
<50,000	30.4	
≥50,000	32.1	
		0.719
Ethnicity		
Caucasian American	31.6	
African American	37.0	
Latin American	39.0	
Asian American	25.5	
Other	21.1	
		0.576
Education		
<High school	20.0	
High school	29.1	
College or beyond	36.9	
		0.008

Note: Income figures only cover 62.5% of the study population.
[a]*P* value represents chi-square analysis of CAM use versus each category.

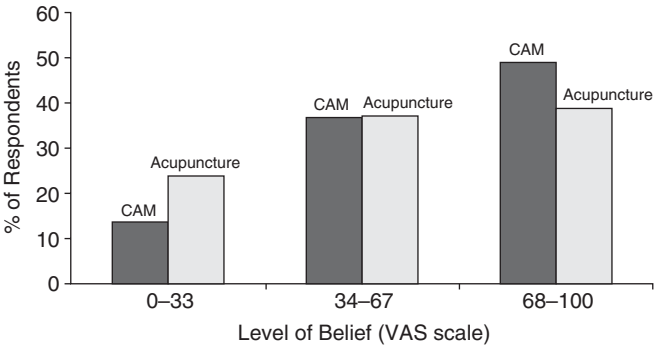

FIG. 1. Levels of belief in complementary and alternative medicine and acupuncture therapy in pregnant women, measured on a 100-point visual analogue scale.

RESULTS

Survey of pregnant women

Of the 1131 participants who were approached in prenatal settings, a total of 950 (84%) agreed to complete the questionnaire. The mean age of respondents was 31.5 ± 4.8 years (range, 16–46 years) (Table 1).

CAM use prior to pregnancy. A total of 501 (53%) respondents reported using various CAM therapies prior to pregnancy. Respondents reported using the following CAM therapies: massage therapy (32.5%), yoga (18.1%), chiropractic (11.7%), relaxation techniques (9.5%), acupuncture (8.6%), herbs (6.2%), aroma therapy (6.0%) and other less common therapies (7.3%). More than one form of CAM therapy was reported to be used by 67% of the respondents. Age ($p = 0.689$), income ($p = 0.261$), and ethnicity ($p = 0.313$) did not significantly influence the use of CAM therapies in this group of respondents. Respondents with at least a high school education were more likely to have used CAM therapies ($p = 0.001$).

CAM use during pregnancy. A total of 295 respondents (31.1%) reported that they continued using CAM therapies during pregnancy. The most common CAM therapies used during pregnancy were massage (31.7 %), yoga (18.3 %), and chiropractic (5.9%). Among all respondents who reported using CAM during pregnancy, 36% used more than

one form of CAM. There was no significant age difference between women who used CAM during pregnancy and women who did not use CAM during pregnancy (31.5 ± 4.9 years versus 32.0 ± 4.9 years, $p = 0.6$). Similarly, neither income nor ethnicity had an effect on the use of CAM during pregnancy (Table 2). Education remained a significant factor determining the use of CAM therapies before or during pregnancy. A logistic regression model that included age, education, income, and ethnicity confirmed that, in this sample, only education was a significant predictor for CAM use during pregnancy ($p = 0.015$).

Belief in CAM and acupuncture therapies. Pregnant women who participated in the survey indicated their level of belief in CAM as follows: 13.6% of the respondents' VAS scores indicating belief in CAM were located between 0 and 33 on the 0–100 scale (Fig. 1). For 37% of respondents, the VAS scores were located between 34 and 67, and 49.4% of respondents' scores were >67. These results indicate that half of the respondents reported a relatively high belief in CAM therapies. When respondents were asked about belief in acupuncture, 23.7% of the respondents' VAS scores were located between 0 and 33, 37.1% were located between 34 and 67, and 39.2% were >67.

Attitudes to treatment for LBP during pregnancy. When pregnant women were asked whether they would accept CAM as a treatment for LBP during pregnancy, 587 pregnant women (61.7%) reported that they would accept CAM, 25.1% reported that they would not accept any CAM, and 13.1% of respondents were unsure. A logistic regression model demonstrated that education was a significant predictor for willingness to accept CAM in the presence of age, ethnicity, and income ($p = 0.024$). That is, pregnant women who were more educated were more likely to accept CAM as a therapeutic option for LBP during pregnancy. When the respondents were asked whether they would accept allopathic medication as a treatment option for LBP, 23.2% reported that they would accept medication, 74.5% reported they would not accept medication, and 2.2 % were not sure. Age, income, and education had no effect on accepting or refusing allopathic medication.

Table 3. Demographic Characteristics of Providers of Prenatal Health Care who Responded (n = 104)

Age (years)	
Mean ± SD	45.3 ± 10.3
Range	26–73
Education (years)	
Mean ± SD	19.9 ± 1.4
Range	18–21
Years in practice	
Mean ± SD	16.7 ± 9.8
Range	1–40
Type of health care provider (%)	
Physician	58
Nurse midwife	17
Prenatal educator	25

SD, standard deviation.

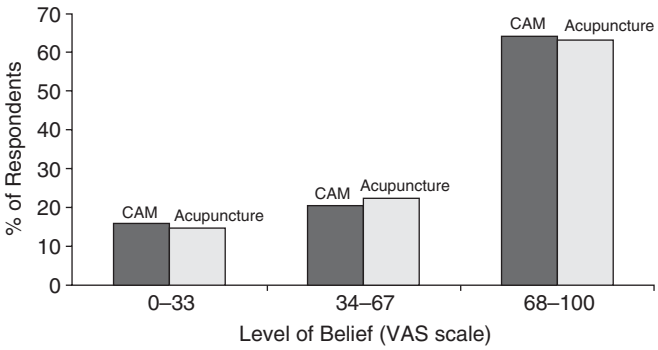

FIG. 2. Levels of belief in complementary and alternative medicine and acupuncture therapy in providers of prenatal health care, measured on a 100–point visual analogue scale.

Survey of providers of prenatal health care

Of the 168 providers of prenatal health care, 87 completed and returned the survey after the first mailing and 17 more returned it after the second mailing, yielding a response rate of 62%. Demographic characteristics of these respondents are shown in Table 3. The percentage of pregnant patients in the practices surveyed ranged from <10% to >75%. The majority of providers of prenatal health care (72.1%) reported that >30% of their patients are pregnant women.

Belief in CAM and acupuncture therapies. Of the providers of prenatal health care, 15.4% of the VAS scores showing belief in CAM were located between 0 and 33 on the 100-point scale; 20.2% of respondents' scores were located between 34 and 67; and 64.4% were >67, indicating similarly high levels of belief in CAM compared to pregnant women (Fig. 2). Similarly, when asked about belief in acupuncture, 14.4% of respondents' scores were <33; 22.1% were located between 34 and 67; and 63.5% were >67. There was a significant variability in belief based on the type of provider. For example, nurse midwives reported significantly higher belief in CAM and acupuncture compared to physicians ($p = 0.001$).

CAM treatment for pregnancy-related problems. When providers of prenatal health care were given the choice of either recommending medication or CAM for LBP in pregnancy, 36% of providers reported that they would recommend neither medication nor CAM treatment, while 11% indicated that they would consider using both types of interventions. In contrast, 1.5% of providers would consider only medication intervention, and 52% of providers would consider only CAM. Among all providers of prenatal health care, 61% would recommend more than one type of CAM

to pregnant women. Again, a significantly higher number of nurse midwives recommend CAM (93%) compared to physicians (64%) and prenatal nurse educators (57%; $p < 0.05$). Overall, 90.2% of providers of prenatal health care would recommend one form of nonpharmacologic treatment (including some CAM therapies) for LBP in pregnancy. The five most recommended treatment options were cooling/heating pad (47.1%), yoga (36.6%), massage (28.7%), shifting the center of gravity (26.5%) and using a supporting belt (25.7%). The most common medication recommended by providers of prenatal health care as the treatment for LBP in pregnancy was acetaminophen (48.5%).

DISCUSSION

Our study indicated that 53% of the pregnant women in our sample used various CAM therapies prior to their pregnancy and about 60% of them continued to use CAM during pregnancy. The education level of the respondent was the strongest predictor for the use of CAM. The majority of the pregnant women participating in the study indicated they were willing to accept CAM as a treatment for LBP during pregnancy.

More than 60% of providers of prenatal health care in this study were willing to recommend CAM as treatment for LBP for their pregnant patients. Although our sample of providers of prenatal health care was relatively small, we found that a higher percentage of nurse midwives recommended CAM than physicians or prenatal nurse educators. The percentage of nurse midwives (93%) who would recommend CAM for their pregnant patients is similar to a previous survey conducted in North Carolina.[21]

While a relatively large percentage of respondents would use CAM as treatment for LBP in pregnancy, only a very small number of pregnant women and providers of prenatal health care would consider using medications for this pregnancy-related problem. We also found that more than one third of pregnant women in our sample continued to use CAM during their pregnancy. As a result, it is important for providers of prenatal health care to inquire regarding usage of CAM in this population of patients. This inquiry should occur in an objective, nonjudgmental fashion to facilitate communication and encourage disclosure.[22] By exploring CAM use in this group of patients, we can then much more effectively discuss the risks and benefits associated with the wide variety and full range of complementary and alternative therapies available.

CONCLUSIONS

In summary, we found that a substantial number of the pregnant women who responded to our survey continued using CAM during pregnancy. We also found that both pregnant women and providers of prenatal health care at New Haven are more likely to use CAM as a treatment for LBP during pregnancy. Future studies should focus on exploring whether this is a national phenomenon and validate the efficacy of various CAM therapies as treatment for LBP during pregnancy.

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Address reprint requests to:
Shu-Ming Wang, M.D.
Department of Anesthesiology
Yale University School of Medicine
P.O. Box 208051
333 Cedar Street
New Haven, CT 06518

E-mail: shu-ming.wang@yale.edu