

Assessing antenatal psychosocial health

Randomized controlled trial of two versions of the ALPHA form

Deana Midmer, MED, EDD Janet Bryanton, RN, PHD(CL) Rona Brown, MSW

ABSTRACT

OBJECTIVE To determine whether participants preferred a provider-completed or self-reported antenatal psychosocial health assessment (ALPHA) form, to evaluate the forms' effectiveness in facilitating disclosure of psychosocial issues, and to determine whether different providers gathered different information.

DESIGN Randomized controlled study.

SETTING Offices of family physicians and public health nurses (PHNs) in three health regions on Prince Edward Island.

PARTICIPANTS Physicians, PHNs, and 76 pregnant women.

INTERVENTIONS Participants completed one form and a questionnaire on their experience. Providers were also interviewed.

MAIN OUTCOME MEASURES Suitability and effectiveness of the forms and frequency of issues disclosed by type of form and provider.

RESULTS Most participants would recommend routine use of the ALPHA form for all pregnant women. Of the 238 psychosocial issues disclosed, significantly more were disclosed to physicians than to PHNs.

CONCLUSION Both forms were acceptable to women and providers (no clear preference emerged) and were effective at gathering information. Physicians gathered significantly more information than PHNs.

RÉSUMÉ

OBJECTIF Parmi deux versions d'un questionnaire d'évaluation de la santé psychosociale prénatale (ALPHA), déterminer celle que les participants préfèrent: auto-administré ou administré par un intervenant; évaluer l'efficacité des questionnaires pour faire ressortir les problèmes d'ordre psychosocial et déterminer si les renseignements recueillis diffèrent selon les intervenants.

TYPE D'ÉTUDE Étude randomisée contrôlée.

CONTEXTE Cabinets de médecins de famille et infirmières en santé communautaire (ISC) de trois régions sanitaires de l'Île-du-Prince-Édouard.

PARTICIPANTS Médecins, ISC et 76 femmes enceintes.

INTERVENTIONS Après avoir répondu à une des deux versions, les patientes ont rempli un questionnaire sur leur expérience. Les intervenants ont aussi été interviewés.

PRINCIPAUX PARAMÈTRES ÉTUDIÉS Pertinence et efficacité des questionnaires, et fréquence des problèmes trouvés en fonction du questionnaire et de l'intervenant.

RÉSULTATS La plupart des participants ont jugé l'évaluation utile et souhaiteraient son emploi systématique chez toutes les femmes enceintes. Une proportion significativement plus grande des 238 problèmes psychosociaux identifiés avait été obtenu par des médecins plutôt que par des infirmières.

CONCLUSION Les deux versions ont été jugées acceptables par les femmes comme par les intervenants (aucune préférence claire n'est ressortie) et elles étaient également efficaces pour recueillir l'information. Les médecins obtenaient plus de renseignements que les infirmières.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

Can Fam Physician 2004;50:80-87.

Although many new parents experience severe psychosocial difficulties during the postpartum period, systematic detection of psychosocial risk factors has not been routinely incorporated into prenatal care. Studies have identified numerous antenatal psychosocial risk factors (eg, poor social support, recent life stresses, unwanted pregnancy, low maternal self-esteem, history of abuse, prenatal depression) associated with an increased likelihood of one or more adverse postpartum outcomes, such as child abuse and neglect, woman assault, postpartum depression, marital dysfunction, and poor infant health.¹⁻³

Studies have found that the incidence of physical abuse during pregnancy ranges from 4% to 37%⁴⁻⁷ and is associated with substantially higher use of tobacco, alcohol, and illicit drugs, and low birth weight.^{4,6,7} Postpartum depression is reported in 8% to 16% of new mothers.^{8,9} Risk factors include poor social support, prenatal depression, stress, and abuse.^{1,8,10}

Because health care providers have increased contact with pregnant women, the prenatal period offers opportunities to determine families' psychosocial health and to identify interventions to promote better postpartum outcomes for mothers, newborns, and families.^{11,12} Systematic detection of antenatal psychosocial risk factors associated with poor postpartum outcomes has been encouraged,^{13,14} but the varying ways of recording and the diversity of assessment strategies make collection and interpretation of these data difficult.¹⁵

Numerous assessment tools address individual risk factors through interview or self-report, but few are comprehensive, and no consensus exists as to which is most effective.^{10,14,16-18} We found no studies comparing disclosure of prenatal

psychosocial issues to different health care providers, so this pilot study was designed to determine women's and prenatal care providers' preferences for either a provider-completed or a self-reported antenatal psychosocial health assessment (ALPHA) form, to evaluate the forms' effectiveness in facilitating disclosure of psychosocial issues, and to determine whether physicians and public health nurses (PHNs) gleaned different information.

METHOD

Participants

Four family physicians and three PHNs from three health regions and separate clinics on Prince Edward Island recruited 10 to 15 pregnant women each for a total of 76 women. The PHNs traditionally see primiparous women in the first trimester for prenatal assessment.

Inclusion criteria included pregnancy of 20 to 30 weeks' gestation, care from a physician or PHN, ability to understand written and spoken English, and ability to give informed consent. Consecutive women who sought prenatal care with providers during the period and met the inclusion criteria were asked to participate. Of these women, 87% approached by physicians and 50% approached by PHNs agreed to participate.

Assessment forms

Participants used either the ALPHA provider form¹⁹ or the ALPHA patient self-report form.²⁰ The original provider-completed form was developed so that obstetric providers could document responses of pregnant women to 32 questions relating to maternal, family, substance use, and family violence issues. The form guides providers in assessing antenatal factors associated with poor postpartum outcomes. Assessment is recommended after the 20th week of gestation. The provider version takes approximately 20 minutes to complete.

The ALPHA self-report form, developed through a consensus process of the research team, reflected feedback from women in the original ALPHA pilot

Dr Midmer is an Assistant Professor and Research Scholar in the Department of Family and Community Medicine, Faculty of Medicine, at the University of Toronto in Ontario. Ms Bryanton is an Assistant Professor in the School of Nursing at the University of Prince Edward Island in Charlottetown. Ms Brown is a Family Violence Consultant in the PEI Department of Health and Social Services in Charlottetown.

study who indicated they wanted a written form to complete.^{19,20} Some providers also preferred a self-report form to save time. Questions on the self-report form mirror those on the provider form; the 33 questions are either open-ended or have a 5-point rating scale. **Table 1** shows a section of each form to highlight similarities.

Content validity of the forms was established through an extensive evidence-based literature review and previous pilot study.¹ Further testing of validity and reliability is currently under way in Ontario. The provider-completed ALPHA form, pilot-tested in several Ontario studies, has been adapted in response to feedback, and is included in the *Provider's Guide*

that outlines what to do should antenatal factors be disclosed.²¹ The ALPHA self-report form was not formally pilot-tested before this study.

Procedure

After attending ALPHA assessment training, providers received randomly ordered, sealed envelopes containing one version of the ALPHA form and provider and patient response sheets for feedback on the assessment process. Women who met the inclusion criteria were given a letter explaining the purpose of the study and its risks and benefits. Upon consent, each woman's care provider selected

Table 1. Comparison of family factors section in provider-completed and self-report ALPHA forms: Self-report form has 5-point Likert scales.

PROVIDER-COMPLETED FORM	SELF-REPORT FORM
Social support (CA, WA, PD)*	Emotional and practical support available
• How does your partner or family feel about your pregnancy?	1. About this pregnancy, my family or partner feels... very happy very unhappy
• Who will be helping you when you go home with your baby?	2. When I am home with my baby, I will have help from (state relationship) _____ Further comments about these questions _____
Recent stressful life events (CA, WA, PD, PI)	Recent life stresses (moving, job change or loss, illness)
• What life changes have you experienced this year?	3. Over the past year, my life has been... very relaxed very stressful
• What life changes are you planning during this pregnancy?	4. I am making major changes during this pregnancy No ___ Yes ___ If yes, please describe _____ Further comments about these questions _____
Couple's relationship (CD, PD, WA, CA)	Relationship with partner (if this applies)
• How would you describe your relationship with your partner?	5. My partner and I get along... very well not at all
• What do you think your relationship will be like after the baby?	6. After the baby, my partner and I will get along... very well not at all Further comments about these questions _____

CA—child abuse, CD—couple dysfunction, PD—postpartum depression, PI—physical illness, WA—woman abuse. Boldface type indicates good evidence of association; regular type indicates fair evidence of association. *Adverse postpartum outcomes associated with antenatal factors are indicated on provider-completed form only.

an envelope containing a version of the ALPHA form. The next visit was booked either for assessment with the provider form or for discussion of responses on the self-report form that patients were to complete in physicians' or PHN's offices just before their next prenatal visit. Following assessment, each woman completed a response sheet about her experience and sealed it in an envelope to ensure confidentiality. Providers also completed a response sheet for each woman.

After all assessments were completed, providers were interviewed personally to gather their opinions about the forms and their suggestions for future adaptation and use. Follow-up telephone interviews were conducted with 12 randomly selected women to solicit more details of their experience of the assessment. Ethics approval was secured through the University of Toronto and the PEI Reproductive Care Program Board.

Data analysis

Descriptive statistics were calculated for demographic data and responses to Likert-scale questions. Mann-Whitney tests and *t*-tests were used for differences between groups. Interviews were transcribed verbatim, and content was analyzed. An intra-rater reliability of 88% was obtained 1 month after initial coding of the interviews, and an interrater reliability of 85% was obtained by an independent coder.

RESULTS

Physicians interviewed 41 participants, and nurses interviewed 35; 39 were assessed with the provider-completed ALPHA, 37 with the self-report. Most women were white and English-speaking, although several were French by culture; 55% were primiparas; and 90% were living with partners. They ranged in age from 17 to 40 years, had 10 to 18 years' education, and had been known to their providers 0 to 13 years. All women interviewed by PHNs were either new to them or had been seen once before; women interviewed by physicians had been in their practices an average of

Table 2. Demographics of women by type of form completed

CHARACTERISTIC	PROVIDER-COMPLETED FORM (MEAN)	SELF-REPORTED FORM (MEAN)
Mother's age (y) (n = 75, range 17-40, mean 27.60, SD ± 5.67)	27.2	28.1
Gravida (n = 76, range 1-6)	NA	NA
No. of children at home (n = 76, range 0-4)	NA	NA
Years of education (n = 73, range 10-18, mean 13.50, SD ± 2.03)	13.46	13.56
Length of time known by provider (y) (n = 74, range 0-13, mean 2.70, SD ± 3.61)	2.4	2.9

5 years. Nurses interviewed only first-time mothers; physicians interviewed primiparous and multiparous women. This difference might have affected the results. There were no significant differences between women using each type of form (Table 2).

Women's perceptions of the ALPHA forms

Each woman rated six statements about the assessment on a 5-point scale (1—very much, 5—not at all). Most (88%) were comfortable or very comfortable with the assessment; 92% believed their providers were sensitive or very sensitive to their issues; 70% found the assessment helpful or very helpful; and 90% felt understood and supported. In general, 75% agreed or strongly agreed that psychosocial assessment should be part of a doctor's job, and 54% agreed or strongly agreed that it should be part of a nurse's job. Mean ratings by type of form are shown in Table 3.

Both groups agreed that discussing psychosocial issues should be part of routine prenatal care. Women who completed the self-report form, however, assigned a higher rating to the assessment being part of a physician's job than did women assessed with the provider version ($P \leq .008$). Regardless of form used, no significant differences were found with respect to women's comfort levels.

Content analyses of the written comments on the 76 response sheets and comments on the 12 interview transcripts indicated that women generally

Table 3. Women's ratings of the ALPHA form by type of form:
Scale ranged from 1—very much to 5—not at all.

ASPECT OF CARE	PROVIDER-COMPLETED FORM (N = 38)	SELF-REPORT FORM (N = 37)	TOTAL (N = 75*)
Comfort level	1.63	1.51	1.57
Provider sensitivity	1.47	1.44	1.46
Helpfulness of assessment	2.19	1.72	1.96
Felt understood and supported	1.59	1.33 [†]	1.47
Thought it should be part of a doctor's job	2.14	1.59 [‡]	1.86
Thought it should be part of a nurse's job	2.64	2.25	2.43

One response sheet was not returned.
[†]Trend approaching significance.
[‡]Significant at P < .05.

found the assessments helpful. They said ALPHA assessment helped providers get to know them better, helped them learn more about themselves, and helped them feel less stressed. Most believed the assessment could provide opportunities for discussing issues that might not arise unless specifically sought out.

Providers' perceptions of the ALPHA forms

Providers rated three statements relating to comfort, yield, and usefulness on a 5-point scale (1—very much to 5—not at all). Mean ratings by type of provider and form are shown in Table 4.

Providers generally rated all aspects of the assessment highly. Non-parametric tests on median ratings indicated that nurses were significantly more comfortable using the forms ($P = .031$), thought they learned more information ($P = .014$),

and rated the usefulness of the forms higher than physicians ($P = .012$).

Providers indicated they learned significantly more information using the provider form ($P = .012$) and found the provider form more useful than the self-report form ($P = .012$). Both groups were comfortable with the forms; no significant differences were found in comfort level based on type of form used.

All providers were personally interviewed upon completion of the study. Content analyses of interview transcripts indicated providers thought the forms very good for psychosocial assessment and thought they facilitated more comprehensive assessment than was currently conducted. They preferred the provider form, believing it yielded more information by delving into issues more deeply.

Providers reported they developed a better rapport with women using the provider form than the self-report form. Some found the provider form too long. All providers recommended that physicians complete assessments as part of routine prenatal care. Traditionally most women go to physicians for prenatal care; significantly fewer see PHNs.

Issues disclosed

Frequency with which psychosocial issues were mentioned was tabulated from all assessments. Six women had no issues; most women had at least one. Eight women had six issues each (the most identified). Content analyses of information on provider forms were completed and frequency of issues counted. Self-report responses were cross-tabulated. Items rated 4 or 5, and “yes” responses, were included as issues. Issues disclosed by type of form and provider are shown in Table 5.

Table 4. Mean ratings of providers' responses by type of provider and form: Scale ranged from 1—very much to 5—not at all.

ASPECT OF CARE	PROVIDER		FORM		TOTAL (N = 76)
	PHYSICIAN (N = 41)	NURSE (N = 35)	PROVIDER-COMPLETED (N = 39)	SELF-REPORT (N = 37)	
Comfort level	1.98	1.50*	1.72	1.80	1.76
Amount of new information	2.88	2.12*	2.21*	2.89	2.53
Usefulness of assessment	2.24	1.79*	1.82*	2.28	2.04

*Significant at P ≤ .05.

Table 5. Number of times issues were disclosed by type of form and provider

ISSUES DISCLOSED	PROVIDER-COMPLETED FORM		SELF-REPORT FORM		TOTAL (N = 76) (%)
	PHYSICIAN (N = 201)	NURSE (N = 19)	PHYSICIAN (N = 21)	NURSE (N = 16)	
Negative feelings toward family or partner	2	2	2	0	6 (8)
Life stresses during past year	9	4	6	2	21 (28)
Major changes during pregnancy	1	4	10	4	19 (25)
Concerns about relationship with partner	2	0	2	0	4 (5)
Concerns about relationship after birth	2	0	2	0	4 (5)
No plans for prenatal education	15	1	14	1	31 (41)
Ambivalence early in pregnancy	6	1	6	1	14 (18)
Current ambivalence about pregnancy	1	1	1	0	3 (4)
Issues about relationship with parents	6	3	3	0	12 (16)
Felt unloved by parent(s) as child	1	1	4	0	6 (8)
Concerns about motherhood	5	1	2	1	9 (12)
Emotional problems (past or present)	5	2	5	2	14 (18)
Treatment by therapist	4	4	4	2	14 (18)
Mood problems during pregnancy	3	1	3	0	7 (9)
Drug or alcohol use during pregnancy	0	0	0	0	0
Previous drug or alcohol problems	3	0	2	0	5 (7)
Parent relationship problems	5	1	6	3	15 (20)
Father abusive to mother	5	0	8	2	15 (20)
Woman abused as child	3	1	7	2	13 (17)
Arguments with partner scare woman	1	1	1	0	3 (4)
Physical abuse by partner	1	0	2	0	3 (4)
Emotional abuse by partner	2	0	5	1	8 (11)
Forced sex by partner	1	0	0	0	1 (1)
Harsh discipline by parents	1	1	6	1	9 (12)
Problems with disciplining children	1	1	0	0	2 (3)
TOTAL	85	30	101	22	238

There were no significant differences in number of issues disclosed according to form used: 123 with the self-report form and 115 with the provider-completed form, for a total of 238. Differences did appear in number of issues disclosed depending on provider assessing. Physicians gleaned significantly more information than nurses: 186 issues were disclosed to physicians and 52 to nurses.

DISCUSSION

Most women and providers were comfortable with the assessment, found it useful, and recommended

it be part of routine prenatal care of all pregnant women on Prince Edward Island. Consistent with ALPHA pilot data, the assessment validated women's experiences, allowed them to reflect on their situations, and made them feel someone cared about them.¹⁹

There was no clear consensus on which form should be used: women tended to favour the self-report; providers wanted a shortened version of the provider form. Women who preferred the self-report also rated its helpfulness and support higher than women rated the provider form. Although not significant, these differences are interesting. Women might have felt it was less intrusive to write

their experiences than to discuss them with a provider. This concurs with findings that drug use and physical abuse were reported more often during a computer interview²² and domestic abuse was disclosed more often on a standardized abuse questionnaire in comparison with directed interviews.¹⁷

Women were comfortable with assessment by PHNs or physicians, though there was a difference in their perception of whose job assessment should be. All providers agreed that physicians, because they see all women, should complete the assessments during pregnancy. Also, more than twice the number of issues were disclosed to physicians than to nurses. No literature was found to explain or support this finding, though it could relate to the longer relationships women had with their family physicians or possibly the perception that physician's and PHN's roles are different.

Limitations

Aside from the sample size, the relative cultural homogeneity of the sample limits generalizability to women of other cultures, although numerous issues raised were universal. Some women refused to return for ALPHA assessment with a PHN, so the sample might be self-selected. These refusals might have reflected issues with time because women seeing nurses needed to schedule a second visit for the assessment. All women interviewed by PHNs were either new to them or had been interviewed only once before. Women had been in their physicians' practices for 5 years on average and might have had more trusting relationships with them or might have felt less comfortable refusing to participate.

Differences might exist between groups, and there was no control for study setting. Future research should address these issues and explore whether pregnant women and their families fare better after assessment and subsequent interventions. An examination of resource use resulting from routine use of the ALPHA forms is also recommended.

Conclusion

There is no clear consensus on which ALPHA form

EDITOR'S KEY POINTS

- Although psychosocial problems are prevalent during the postpartum period, systematic screening for risk factors is not part of routine prenatal care.
- This study on Prince Edward Island evaluated two versions of an antenatal psychosocial health assessment (ALPHA) form: a self-report version, and a version administered by a health professional (doctor or nurse).
- There was no clear indication which version was better for identifying psychosocial risk factors. Doctors and nurses preferred the version they administered; women preferred the self-report version.
- Most women and health professionals believe that assessing psychosocial risk factors is useful and should be included in routine prenatal care.

POINTS DE REPÈRE DU RÉDACTEUR

- Bien que les problèmes psychosociaux soient fréquents durant la période post-partum, le dépistage systématique des facteurs de risque ne fait pas partie des soins prénataux de routine.
- Cette étude réalisée à l'Île-du-Prince-Édouard a évalué deux versions d'un questionnaire sur la santé psychosociale prénatale (ALPHA), soit une version auto-administrée et une version administrée par un professionnel de la santé (médecin ou infirmière).
- Il n'y a pas de consensus concernant la version ALPHA préférée et la plus efficace pour identifier les facteurs de risque psychosociaux. Les médecins et les infirmières ont préféré la version administrée par un professionnel alors que les femmes ont manifesté une préférence pour la version auto-administrée.
- La plupart des femmes et des professionnels croient que l'évaluation des facteurs de risque psychosociaux est utile et qu'elle devrait être incluse dans les soins prénataux usuels.

was preferred or more effective at assessing psychosocial issues. Family physicians and PHNs preferred the provider forms and women the self-report forms. Both ALPHA forms facilitated disclosure of prenatal psychosocial issues associated with adverse postpartum outcomes. Although women reported being comfortable discussing sensitive family issues with either provider, physicians gleaned significantly more information from the women than PHNs did. Women and providers recommended that the assessment should be part of routine prenatal care for all women on Prince Edward Island. ❁

Acknowledgment

We acknowledge the PEI Reproductive Care Program for financial support for this study and thank the family physicians and public health nurses who were involved.

Contributors

Dr Midmer, principal investigator, was involved in concept and design of the study, gaining ethical approval, designing the self-report ALPHA form, and developing the data-gathering sheets. **Ms Bryanton** was responsible for conducting the study in Prince Edward Island, securing ethical approval, training participants, overseeing data collection, analyzing the data, and writing the report that formed the basis of this article. **Ms Brown** assisted in conducting the study and training participants, and obtained feedback on use of the forms.

Competing interests

None declared

Correspondence to: Dr D. Midmer, 26 Brule Gardens, Toronto, ON M6S 4J2; telephone (416) 767-9465; fax (416) 767-6962; e-mail deana.midmer@utoronto.ca

References

- Wilson L, Reid A, Midmer D, Biringir A, Carroll J, Stewart D. Antenatal psychosocial risk factors associated with adverse postpartum family outcomes. *CMAJ* 1996;154:785-99.
- National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention. Special focus: safe motherhood. *Chronic disease notes and reports* 2000;13(2):2000;13(2):1.
- Lundy B, Jones N, Field T, Nearing G, Davalos M, Pietro P, et al. Prenatal depression effects on neonates. *Infant Behav Dev* 1999;22(1):119-29.
- McFarlane J, Parker B, Soeken K. Abuse during pregnancy: associations with maternal health and infant birth weight. *Nurs Res* 1996;45(1):37-42.
- Stewart D. Incidence of postpartum abuse in women with a history of abuse during pregnancy. *CMAJ* 1994;151:1601-4.
- Anderson B, Marshak H, Hebbeler D. Identifying intimate partner violence at entry to prenatal care: clustering routine clinical information. *J Midwif Women's Health* 2002;47(5):353-9.
- Curry M. The interrelationship between abuse, substance use, and psychological stress during pregnancy. *J Obstet Gynecol Neonatal Nurs* 1998;27:692-9.
- Merritt T, Kuppin S, Wolper M. Postpartum depression causes and correlates. *Int Electron J Health Educ* 2001;4:57-63.
- Campbell S, Cohen J. Prevalence and correlates of postpartum depression in first-time mothers. *J Abnorm Psychol* 1991;100:594-9.
- Webster J, Linnane J, Dibley L, Hinson J, Starrenburg S, Roberts J. Measuring social support in pregnancy: can it be simple and meaningful? *Birth* 2000;27(2):97-101.
- Carroll J, Reid A, Biringir A, Wilson L, Midmer D. Psychosocial risk factors during pregnancy. What do family physicians ask about? *Can Fam Physician* 1994;40:1280-9.
- Chalmers B. Multicultural, multidisciplinary and psycho-social obstetrical care. *J SOGC* 1999;21(10):975-9.
- Culpepper L, Jack B. Psychosocial issues in pregnancy. *Prim Care* 1993;20:599-619.
- Covington D, Dalton V, Diehl S, Wright B, Piner M. Improving detection of violence among pregnant adolescents. *J Adolesc Health* 1997;21:18-24.
- Wilkinson D, Korenbrot C, Fuentes-Afflick E. Nonclient factors in the reporting of prenatal psychosocial risk assessments. *Am J Public Health* 1994;84(9):1511-4.
- Budd KW, Ross-Alaolmolki K, Zeller RA. Two prenatal alcohol use screening instruments compared with a physiologic measure. *J Obstet Gynecol Neonatal Nurs* 2000;29(2):129-36.
- Canterino J, VanHorn L, Harrigan J, Ananth C, Vintzileos A. Domestic abuse in pregnancy: a comparison of a self-completed domestic abuse questionnaire with a directed interview. *Am J Obstet Gynecol* 1999;181:1049-51.
- Sagrestano L, Rodriguez A, Carroll D, Bieniarz A, Greenberg A, Castro I, et al. A comparison of standardized measures of psychosocial variables with single-item screening measures used in an urban obstetric clinic. *J Obstet Gynecol Neonatal Nurs* 2002;31:147-55.
- Reid A, Biringir A, Carroll J, Midmer D, Wilson L, Chalmers B, et al. Using the ALPHA form in practice to assess antenatal psychosocial health. *CMAJ* 1998;159:677-84.
- Midmer D, Carroll J, Bryanton J, Stewart D. From research to application: the development of an antenatal psychosocial health assessment tool. *Can J Public Health* 2002;93(4):291-6.
- Midmer D, Biringir A, Carroll JC, Reid AJ, Wilson L, Stewart D, et al. *A reference guide for providers: the ALPHA form—Antenatal Psychosocial Health Assessment Form*. 2nd ed. Toronto, Ont: University of Toronto Press; 1996.
- Lapham S, Henley E, Kleyboecker K. Prenatal behavioural risk screening by computer among Native Americans. *Fam Med* 1993;25(3):197-202.

