# Effectiveness of the Antenatal Psychosocial Health Assessment (ALPHA) form in detecting psychosocial concerns: a randomized controlled trial

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ß See related article page 267

**Abstract** 

**Background:** A pregnant woman's psychological health is a significant predictor of postpartum outcomes. The Antenatal Psychosocial Health Assessment (ALPHA) form incorporates 15 risk factors associated with poor postpartum outcomes of woman abuse, child abuse, postpartum depression and couple dysfunction. We sought to determine whether health care providers using the ALPHA form detected more antenatal psychosocial concerns among pregnant women than providers practising usual prenatal care.

**Methods:** A randomized controlled trial was conducted in 4 communities in Ontario. Family physicians, obstetricians and midwives who see at least 10 prenatal patients a year enrolled 5 eligible women each. Providers in the intervention group attended an educational workshop on using the ALPHA form and completed the form with enrolled women. The control group provided usual care. After the women delivered, both groups of providers identified concerns related to the 15 risk factors on the ALPHA form for each patient and rated the level of concern. The primary outcome was the number of psychosocial concerns identified. Results were controlled for clustering.

**Results:** There were 21 (44%) providers randomly assigned to the ALPHA group and 27 (56%) to the control group. A total of 227 patients participated: 98 (43%) in the ALPHA group and 129 (57%) in the control group. ALPHA group providers were more likely than control group providers to identify psychosocial concerns (odds ratio [OR] 1.8, 95% confidence interval [CI] 1.1–3.0; p=0.02) and to rate the level of concern as "high" (OR 4.8, 95% CI 1.1–20.2; p=0.03). ALPHA group providers were also more likely to detect concerns related to family violence (OR 4.8, 95% CI 1.9–12.3; p=0.001).

**Interpretation:** Using the ALPHA form helped health care providers detect more psychosocial risk factors for poor postpartum outcomes, especially those related to family violence. It is a useful prenatal tool, identifying women who would benefit from additional support and interventions.

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he psychosocial health of a pregnant woman and her family is a significant predictor of intrapartum, newborn and postpartum outcomes.<sup>1-4</sup> A critical review of the literature has identified an association be-

tween antenatal psychosocial risk factors and the poor postpartum outcomes of woman abuse, child abuse, postpartum depression and couple dysfunction.<sup>5</sup>

Clinicians have indicated that a practical tool to help them systematically collect and record prenatal psychosocial information would be helpful.<sup>6</sup> Although specific and often well-validated tools are available to predict or detect child abuse, woman abuse or depression, <sup>7-10</sup> clinicians are unlikely to use them because of time constraints.<sup>1</sup> Other forms aid in collecting more comprehensive antenatal psychosocial data, <sup>11-14</sup> but they are not evidence-based, and were developed to predict obstetric or newborn rather than psychosocial outcomes.

In contrast, the Antenatal Psychosocial Health Assessment (ALPHA) form (Appendix 1) was designed to identify antenatal psychosocial risk factors for poor postnatal psychosocial outcomes. It incorporates 15 risk factors found through critical literature review<sup>5</sup> to be associated with woman abuse, child abuse, postpartum depression and couple dysfunction.<sup>15</sup> These risk factors are grouped intuitively by topic, with suggested questions, into 4 categories: family factors, maternal factors, substance use and family violence. The ALPHA form has been field-tested by obstetricians, family physicians, midwives and nurses, 15,16 who have found using it to be feasible and useful.15 Pregnant women appreciate and feel comfortable with the psychosocial enquiry.<sup>15</sup> The ALPHA form was developed as a screening tool to help providers systematically identify areas of psychosocial concern. Once feasibility was established, 15 the next step was to determine whether using it in regular practice would increase the number of concerns identified.

We sought to determine whether health care providers using the ALPHA form detected more antenatal psychosocial concerns in their pregnant patients than clinicians practising usual prenatal care. A secondary objective was to determine women's and providers' satisfaction with the ALPHA form.

## **Methods**

Four communities in Ontario were chosen as study sites, including urban, suburban and small-town practices, with patients from diverse socioeconomic and ethnic backgrounds. Family physicians, obstetricians and midwives were approached at rounds

with information about the study and invited to participate. Interested health care providers were sent an introductory letter with a fax-back form, which was followed by a telephone call from 1 of the investigators to determine whether they would participate. Practitioners were eligible if they practised prenatal and intrapartum care or prenatal care with transfer of care for delivery after 28 weeks, provided care for 10 or more prenatal patients per year, and were not currently using any prenatal psychosocial screening tool other than the standard Ontario Antenatal Record.

To obtain a balanced sample, each participating provider was paired to the greatest extent possible with another provider by practice location, type of provider, sex and age. One member of each pair was randomly assigned to the ALPHA or control group by a biostatistician using computer-generated random numbers.

Providers were asked to enroll 5 consecutive pregnant women who were between 12 and 30 weeks' gestation, able to read and write English and give consent. Women were excluded if they were at high obstetric risk as defined by the Ontario Antenatal Record, such as those with pre-existing diabetes, renal disease, severe hypertension or heart disease.

Interested women received an explanatory brochure and consent form from their provider and a phone call from the study nurse to further explain the study and secure consent. Participants completed a questionnaire on demographic and obstetric details along with several psychosocial instruments (not reported in this paper).817-22

Intervention group providers attended a 1-hour workshop on the ALPHA form given by 1 or more of the investigators. This interactive session included a review of the evidence for the ALPHA form, specific interview questions, role play, management strategies for partner violence and a summary of community resources for psychosocial problems. Once trained, providers completed the ALPHA form with enrolled women at a prenatal visit of the provider's choice between 20 and 32 weeks' gestation. Risk factors were rated as being of concern if they raised concern in the woman, her family or the provider. Women whose providers were in the control group continued to receive usual care.

All of the providers completed a data collection sheet entitled "Psychosocial concerns" on each of the enrolled women within 1 month after the last woman delivered. They were asked whether they had any concerns about the women, with specific reference to the psychosocial risk factors on the ALPHA form. For each patient, providers identified whether each of the 15 risk factors raised concern and, using their clinical judgment, rated the level of concern as "low," "some" or "high." Providers were advised that concerns rated as "high" would be those they were more likely to act on. For the study, issues were considered to be of concern if the level of concern was rated as "some" or "high." Both groups could refer to their antenatal records to fill out the form, and the inter-

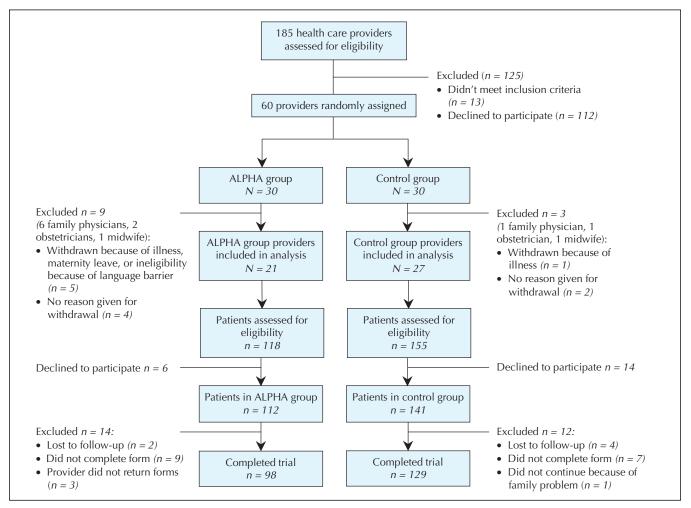


Fig. 1: Flow of health care providers and patients through the trial.

vention group could also refer to their antenatal ALPHA forms. Providers in the intervention group were also given a questionnaire about their experience using the ALPHA form.

At 4 months postpartum, the study nurse contacted all women in the trial to again complete a number of psychosocial instruments.<sup>17–23</sup> Women with providers in the ALPHA group were asked to give feedback about the ALPHA form.

At completion of the study, ALPHA group providers received \$50 per woman and control group providers \$20 per woman for time spent completing the documentation. Women received \$25 to help defray their expenses. The study took place between 1998 and 2002, with staggered participation by each site. Ethics approval was obtained from the University of Toronto Research Ethics Board and the McMaster University Research Ethics Board.

The intracluster correlation coefficient (ICC) in primary care settings for process variables is of the order of 0.05–0.15, <sup>24</sup> whereas the ICCs for outcome variables are generally lower than 0.05. We assumed an estimate of the ICC of 0.05 for the outcome variables. From previous work, it was estimated that a significant psychosocial concern would be detected in 5% of women. A 10% increase in detection (from baseline of 5%–15%) was considered clinically significant. A sample of 33 providers and 5 women per provider, which translates into 165 women in each group, was chosen to detect a 10% difference between the 2 groups (type I error = 0.05, power = 0.80) after adjustment for clustering of women by provider.<sup>25</sup>

We limited the analysis to patients who completed the study. However, we also did a sensitivity analysis by intention to treat to account for the 9 providers in the ALPHA group and the 3 providers in the control group who dropped out. Each missing provider was imputed with 5 patients, each with 0 psychosocial concerns.

All of the available data are reported for each question,  $\chi^2$  tests were used to compare proportions, and t tests and nonparametric tests were used to compare means of continuous variables between the 2 groups. For the analysis of the primary study question and the response to ALPHA categories, a 2-sided p value less than 0.05 was taken to indicate a statistically significant finding, but for the analysis of the 15 risk factors, significance was set at

**Table 1: Health care provider characteristics** 

	Group; no. (%)*	
Characteristic	ALPHA n = 21	Control $n = 27$
Provider type		
Obstetrician	3 (14.3)	4 (14.8)
Family physician	16 (76.2)	20 (74.1)
Midwife	2 (9.5)	3 (11.1)
Age, mean, yr (SD)	42.3 (7.1)	42.3 (8.5)
Male	13 (61.9)	11 (40.7)
Years in practice, mean (SD)	14.0 (8.7)	13.0 (8.1)
Type of practice		n = 26
Solo	6 (28.6)	5 (19.2)
Group	15 (71.4)	21 (80.8)
Study sites		
A (small town)	4 (19.0)	9 (33.3)
B (suburban site)	6 (28.6)	7 (25.9)
C (urban site)	4 (19.0)	6 (22.2)
D (suburban site)	7 (33.3)	5 (18.5)

<sup>\*</sup>Unless stated otherwise.

0.01. Hierarchical logistic regression was used to control for clustering of women per provider.

## Results

A total of 21 (44%) health care providers in the ALPHA group and 27 (56%) in the control group were included in the analysis (Fig. 1). There was a greater loss to follow-up of providers and patients in the intervention arm. If reasons likely unrelated to completing the ALPHA form are omitted, there were 4 provider dropouts in the ALPHA group and 2 in the control group. If provider-driven reasons are omitted (e.g., did not complete or return data collection forms), the number of patient dropouts was similar (9.8% in the ALPHA group, 8.5% in the control group). There were no significant differences in characteristics between the 2 groups of providers (Table 1). Each provider recruited an average of 5 women (range 1-7). Of 273 patients enrolled, 118 (43%) received the intervention and 155 (57%) received standard care. The only significant differences in characteristics between the 2 groups of patients were marital status and level of education (Table 2).

**Table 2: Patient characteristics** 

	Group;		
Characteristic	ALPHA n = 98	Control n = 129	<i>p</i> value
Age		n = 128	
Mean, yr (SD)	29.1 (5.4)	29.4 (5.2)	0.75
Range, yr	17-47	17-44	
Marital status		n = 128	
Married or living together	86 (87.8)	123 (96.1)	0.03†
Level of education		n = 128	
Completed high school or less	19 (19.4)	34 (26.6)	0.02†
Some college or university	25 (25.5)	26 (20.3)	
Completed college or university	54 (55.1)	68 (53.1)	
Country of birth		n = 128	
Canada	84 (85.7)	109 (84.5)	0.80
Total household income, \$	n = 97	n = 128	
< 25 000	10 (10.3)	6 (4.7)	0.52
25 000–49 999	22 (22.7)	29 (22.7)	
50 000–74 999	29 (29.9)	42 (32.8)	
75 000–99 999	19 (19.6)	31 (24.2)	
100 000+	17 (17.5)	20 (15.6)	
Attending or planning to attend			
prenatal classes	n = 97		
Yes	35 (36.1)	48 (37.2)	0.86
Problems with pregnancy so far		n = 128	
No concerns	54 (55.1)	64 (50.0)	0.48
Minor concerns	39 (39.8)	60 (46.9)	
Major concerns	5 (5.1)	4 (3.1)	
Smoker			
Yes	8 (8.2)	16 (12.4)	0.30

Note: SD = standard deviation.

<sup>\*</sup>Unless stated otherwise

<sup>†</sup>Adjusting for women's marital status and level of education in the logistic regression analysis did not change results.

ALPHA group providers identified 115 psychosocial concerns in 98 women, whereas control group providers identified 96 concerns in 129 women (odds ratio [OR] 1.8, 95% confidence interval [CI] 1.1–3.0; p=0.02). Of the 115 concerns identified by ALPHA group providers, 23 were rated as high; of 96 concerns identified by control group providers, 7 were rated as high (OR 4.8, 95% CI 1.1–20.2; p=0.03). The intracluster correlation based on the fitted model was 0.16.

ALPHA group providers identified at least 1 psychosocial concern in 38 of 98 (39%) women, and control group providers identified at least 1 psychosocial concern in 38 of 129 (29%) women (p = 0.14). Providers indicated a high level of concern about psychosocial issues in 11 (11.2%) women in the ALPHA group and 3 (2.3%) in the control group (p = 0.006). In the ALPHA group, 18 of 21 (86%) providers found at least 1 issue of concern in 1 of their patients compared with 22 of 27 (81%) providers in the control group. For continuous variables, nonparametric tests gave the same conclusions as t tests.

Table 3 shows the number of women in the 2 groups identified as having an antenatal risk factor of concern for

Table 3: Women with identified psychosocial concerns\*

	Group; no. (%) of women		
Psychosocial concern	ALPHA n = 98	Control n = 129	Odds ratio (99% CI)†
Family factors			
Social support	10 (10.2)	12 (9.3)	1.1 (0.4–3.5)
Recent stressful life events	14 (14.3)	15 (11.6)	1.3 (0.5–3.5)
Couple's relationship	11 (11.2)	14 (10.9)	1.0 (0.4–3.1)
Maternal factors			
Late prenatal care	1 (1.0)	5 (3.9)	0.3 (0.0-4.4)
Refused or quit prenatal education	5 (5.1)	2 (1.6)	3.4 (0.4–30.3)
Feelings toward			
pregnancy after 20 wk	8 (8.2)	3 (2.3)	3.7 (0.6–22.1)
Relationship with parents in childhood	8 (8.2)	7 (5.4)	1.6 (0.4–6.2)
Woman's self-esteem	8 (8.2)	10 (7.8)	1.1 (0.3-3.8)
History of psychiatric or emotional problems  Depression in this	13 (13.3) 8 (8.2)	7 (5.4) 9 (7.0)	2.7 (0.8–9.4) 1.2 (0.3–4.4)
pregnancy Substance use	0 (0.2)	9 (7.0)	1.2 (0.3–4.4)
Drug or alcohol abuse (woman or partner) Family violence	1 (1.0)	3 (2.3)	0.4 (0.0–8.7)
Experienced or witnessed abuse as a child	14 (14.3)	3 (2.3)	7.0 (1.3–37.5)
Current or past woman abuse	6 (6.1)	2 (1.6)	4.1 (0.5–34.9)
Evidence of previous child abuse	4 (4.1)	1 (0.8)	5.5 (0.3–99.1)
Child discipline	4 (4.1)	3 (2.3)	1.8 (0.2–13.2)

Note: CI = confidence interval.

each of the 15 items on the "Psychosocial concerns" form.

When data for the 15 risk factors were grouped into the 4 categories of the ALPHA form (family factors, maternal factors, substance use and family violence), the only category that was significant was family violence (Table 4). Women with providers in the ALPHA group were almost 5 times as likely to be identified with risk factors related to family violence than women with providers in the control group. Adjusting for marital status and education did not change the results.

Women with providers in the ALPHA group were asked for feedback on their experience with the ALPHA form. The majority of women felt comfortable discussing personal issues (72.7%) and felt that this was part of their provider's job (76.3%).

Only 14 of 21 (67%) of the ALPHA group providers completed the feedback form. Most found the ALPHA form easy to use (64%) and would use it if recommended as standard practice (86%). They all reported finding at least "a little" new psychosocial information using the ALPHA form; 86% reported uncovering "a lot" or a "moderate amount." When asked if they would prefer to use the ALPHA form or have women complete a "self-report" version that our group has developed and evaluated, 16 the provider-completed ALPHA was preferred by 28%, a woman self-report by 36% and a choice of either by 36%.

# Interpretation

The results of this study demonstrate that health care providers who used the ALPHA form detected almost twice as many antenatal psychosocial concerns as providers who did not use the form. The ALPHA form appears to have functioned effectively in practice situations with different providers. The results also show that pregnant women valued psychosocial enquiry and that providers found it useful. Particularly important was the increased detection of risk factors associated with family violence, an area that results of previous studies have shown to be problematic, given providers' discomfort with the subject. Whether a woman had experienced or witnessed abuse as a child, a risk factor associated with child abuse and woman abuse, was detected 7 times more often by those using the ALPHA form.

Our study has limitations. Use of the ALPHA form resulted in detection of more psychosocial concerns overall but

Table 4: Logistic regression analysis comparing psychosocial risk factors in ALPHA and control groups by category\*

<del> </del>			
Category	Odds ratio (95% CI)		
Family factors	1.3 (0.7–2.5)		
Maternal factors	1.8 (1.0–3.2)		
Substance use	0.5 (0.1–4.7)		
Family violence	4.8 (1.9–12.3)		

Note: CI = confidence interval.

<sup>\*</sup>The level of concern was rated as "some" or "high."

<sup>†99%</sup> confidence intervals were selected because of the multiple statistical tests.

<sup>\*</sup>Results adjusted for clustering of patients within providers.

did not show striking results for each factor. Small numbers limited the strength of the analysis, and provider dropout may have played a factor. A sensitivity analysis, performed to account for provider dropouts, changed the odds ratio for identifying a concern to 1.005 (95% CI 0.6–1.7, p = 0.98) and for identifying an issue with a high level of concern to 2.8 (95% CI 0.7–11.7, p = 0.16). Family violence remained significant as a category (OR 2.7, 95% CI 1.1-6.9, p = 0.04) in this "worst case" scenario. Participating providers were potentially those who were willing to enquire about psychosocial issues and may not reflect most caregivers; this may have diminished the differences in outcomes. The majority of participants were family physicians, and therefore the results are more reflective of their practice style and may not be generalizable to midwives and obstetricians. The greater loss to follow-up of providers and patients in the intervention group may be the result of the increased time involved completing the form. A self-report version of the ALPHA form has been developed in response to providers' concerns about time constraints and has been found to be acceptable to women and providers, and effective in gathering information.<sup>16</sup>

The ALPHA form has been demonstrated to increase detection of the antenatal psychosocial risk factors that are associated with woman abuse, child abuse, postpartum depression and couple dysfunction. It was well accepted by women and clinicians. Studies are underway to demonstrate the reliability of the ALPHA form, and future studies are needed to show whether using the form leads to improved psychosocial outcomes. We suggest that the AL-PHA form is a useful addition to routine prenatal care.

# This article has been peer reviewed.

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#### ANTENATAL PSYCHOSOCIAL HEALTH ASSESSMENT (ALPHA) Antenatal psychosocial problems may be associated with unfavourable Addressograph postpartum outcomes. The questions on this form are suggested ways of enquiring about psychosocial health. Issues of high concern to the woman, her family or the caregiver usually indicate a need for additional supports or services. When some concerns are identified, follow-up and/or referral should be considered. Additional information can be obtained from the ALPHA Guide. Please consider the sensitivity of this information before sharing it with other caregivers. ANTENATAL FACTORS CONCERN COMMENTS/PLAN **FAMILY FACTORS** Social support (CA, WA, PD) □Low How does your partner/family feel about your pregnancy? ☐ Some Who will be helping you when you go home with your baby? □High Recent stressful life events (CA, WA, PD, PI) □Low What life changes have you experienced this year? ☐ Some What changes are you planning during this pregnancy? □High Couple's relationship (CD, PD, WA, CA) □Low How would you describe your relationship with your partner? ☐ Some What do you think your relationship will be like after the birth? □High **MATERNAL FACTORS** □ Low Prenatal care (late onset) (WA) □ Some First prenatal visit in third trimester? (check records) □High Prenatal education (refusal or quit) (CA) □Low What are your plans for prenatal classes? ☐ Some □High Feelings toward pregnancy after 20 weeks (CA, WA) □ Low How did you feel when you just found out you were pregnant? □ Some How do you feel about it now? □High Relationship with parents in childhood (CA) □ Low How did you get along with your parents? ☐ Some Did you feel loved by your parents? □High □Low Self esteem (CA, WA) □ Some What concerns do you have about becoming/being a mother? □Hiah History of psychiatric/emotional problems (CA, WA, PD) □ Low Have you ever had emotional problems? ☐ Some Have you ever seen a psychiatrist or therapist? □High Depression in this pregnancy (PD) □ Low ☐ Some How has your mood been during this pregnancy? □High **ASSOCIATED POSTPARTUM OUTCOMES** The antenatal factors in the left column have been shown to be associated with the postpartum outcomes listed below. Bold, italics indicates good evidence of association. Regular text indicates fair evidence of association. CA - Child Abuse CD - Couple Dysfunction PI - Physical Illness PD - Postpartum Depression WA - Woman Abuse

Appendix 1: Antenatal Psychosocial Health Assessment (ALPHA) form. © ALPHA Project 1993, version: September 1998.

ANTENATAL FA	CTORS	CONCERN	COMMENTS/PLAN	
SUBSTANCE USE  Alcohol/drug abuse (WA, CA)  How many drinks of alcohol do you have  Are there times when you drink more tha  Do you or your partner use recreational of  Do you or your partner have a problem we  Consider CAGE (Cut down, Annoyed, G	an that? drugs? with alcohol or drugs?	□Low □Some □High		
<ul> <li>FAMILY VIOLENCE</li> <li>Woman or partner experienced or witness (physical, emotional, sexual) (CA, WA)</li> <li>What was your parents' relationship like?</li> <li>Did your father ever scare or hurt your m</li> <li>Did your parents ever scare or hurt you?</li> <li>Were you ever sexually abused as a chil</li> </ul>	.? nother? ?	□Low □Some □High		
<ul> <li>Current or past woman abuse (WA, CA, PE</li> <li>How do you and your partner solve argue</li> <li>Do you ever feel frightened by what your</li> <li>Have you ever been hit/pushed/slapped</li> <li>Has your partner ever humiliated you or other ways?</li> <li>Have you ever been forced to have sex and the past of the past of</li></ul>	uments? Ir partner says or does? I by a partner? I psychologically abused you in	□Low □Some □High		
<ul> <li>Previous child abuse by woman or partner</li> <li>Do you/your partner have children not liv</li> <li>Have you ever had involvement with a clinic., Children's Aid Society)?</li> </ul>	ving with you? If so, why?	□Low □Some □High		
Child discipline (CA) How were you disciplined as a child? How do you think you will discipline your How do you deal with your kids at home	e when they misbehave?	□Low □Some □High	amon and has familia?	
not at all concerned 1	re you about the psychosocial he		extremely concerned	
FOLLOW UP PLAN:  Supportive counseling by provider Additional prenatal appointments Additional postpartum appointments Additional well baby visits Public Health referral Prenatal education services Nutritionist Community resources / mothers' group	<ul> <li>☐ Homecare</li> <li>☐ Parenting classes / parents' group</li> <li>☐ Addiction treatment program</li> <li>☐ Smoking cessation resource</li> <li>☐ Social Worker</li> <li>☐ Psychologist / Psychiatrist</li> <li>☐ Psychotherapist / marital / fatherapist</li> </ul>	ns 🗆	Assaulted women's helpline / shelter / counseling Legal advice Children's Aid Society Other: Other: Other: Other: Other:	
COMMENTS:				
Date Completed  Copyright ALPHA Project 1993, version: September 1994,	 nber 1998	Signature		
*The ALPHA Guide is available through the Dep		Medicine, Univer	sity of Toronto.	

CMAJ • AUG. 2, 2005; 173 (3)