

The Use of the Antenatal Psychosocial Health Assessment (ALPHA) Tool in the Detection of Psychosocial Risk Factors for Postpartum Depression: A Randomized Controlled Trial

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Abstract

Objective: Eliciting known risk factors for postpartum depression (PPD) during pregnancy may enable primary health care providers to identify women at increased risk of becoming depressed. The purpose of this study was to examine how well the Antenatal Psychosocial Health Assessment (ALPHA) form identified antenatal risk factors for PPD, compared with routine care, in a sample of pregnant women.

Methods: A randomized controlled trial was conducted to assess the effectiveness of the ALPHA form in detecting antenatal risk factors associated with the adverse postpartum outcomes of postpartum depression, intimate partner violence, child abuse, and couple dysfunction. The participants were primary antenatal care providers—family physicians, obstetricians, and midwives—from four diverse communities in Ontario. These providers were matched and then randomly allocated into the intervention group, who used the ALPHA form, or into the control group, who administered usual care. In total, 227 pregnant women were recruited: 98 in the ALPHA group and 129 in the control group. The data presented in this paper are from a secondary analysis focusing on PPD as the outcome.

Results: Providers randomized to the ALPHA group identified a statistically significantly higher proportion of women with antenatal psychosocial risk factors for PPD (36% vs. 26%) and a significantly higher number of risk factors per woman compared with the control group (mean 2.1 vs. 1.8) ($z = -1.96$, $P = 0.05$). Providers in the ALPHA group also identified significantly more women having a "previous history of depression" (16% vs. 6%) ($\chi^2 = 5.243$, $df = 1$, $P = 0.03$) and "[having] witnessed or experienced abuse as a child"

(17% vs. 3%) ($\chi^2 = 12.488$, $df = 1$, $P = 0.0005$), which are both established risk factors for PPD.

Conclusion: The ALPHA provides a systematic means of eliciting antenatal psychosocial risk factors for PPD for primary care providers, and it may be particularly useful for raising and discussing sensitive issues. The detection of depressive symptomatology during pregnancy remains problematic, however, and detection may be improved by administering a simple standardized measure of depressive symptomatology during routine antenatal care.

Résumé

Objectif : Le dépistage des facteurs de risque connus, en ce qui concerne la dépression post-partum (DPP) au cours de la grossesse, pourrait permettre aux fournisseurs de soins de santé primaires d'identifier les femmes qui courent un risque accru de sombrer dans la dépression. La présente étude avait pour objectif d'examiner l'efficacité du formulaire *Antenatal Psychosocial Health Assessment* (ALPHA) quant à l'identification des facteurs de risque prénatals de DPP, par comparaison avec les soins habituellement offerts, au sein d'un échantillon de femmes enceintes.

Méthodes : Un essai comparatif randomisé a été mené afin d'évaluer l'efficacité du formulaire ALPHA en matière de dépistage des facteurs de risque prénatals associés aux issues post-partum indésirables de la dépression post-partum, de la violence exercée par le partenaire intime, de la violence faite aux enfants et du dysfonctionnement du couple. Les participants étaient des fournisseurs de soins prénatals primaires (médecins de famille, obstétriciens et sages-femmes) issus de quatre communautés ontariennes différentes. Ces fournisseurs ont été appariés, puis affectés au hasard au groupe « intervention », au sein duquel le formulaire ALPHA a été utilisé, ou au groupe témoin, au sein duquel les soins habituels ont été offerts. En tout, 227 femmes enceintes ont été recrutées : 98 dans le groupe ALPHA et 129 dans le groupe témoin. Les données présentées dans le présent document sont issues d'une analyse secondaire s'étant centrée sur le DPP à titre d'issue.

Key Words: Postpartum depression, primary care, risk factors, detection

Competing Interests: None declared.

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Résultats : Les fournisseurs affectés au groupe ALPHA ont identifié, de façon significative sur le plan statistique, une proportion accrue de femmes présentant des facteurs de risque psychosociaux prénatals de DPP (36 %, par comparaison avec 26 %) et un nombre considérablement plus élevé de facteurs de risque par patiente, par comparaison avec le groupe témoin (moyenne 2,1, par comparaison avec 1,8) ($z = -1,96$, $P = 0,05$). Les fournisseurs du groupe ALPHA ont également identifié considérablement plus de femmes « présentant des antécédents de dépression » (16 %, par comparaison avec 6 %) ($\chi^2 = 5,243$, degré de liberté = 1, $P = 0,03$) et « ayant été témoin de violence ou ayant subi de la violence au cours de l'enfance » (17 %, par comparaison avec 3 %) ($\chi^2 = 12,488$, degré de liberté = 1, $P = 0,0005$), tous deux étant des facteurs de risque établis de DPP.

Conclusion : Le formulaire ALPHA offre, aux fournisseurs de soins primaires, une façon systématique de dépister les facteurs de risque psychosociaux prénatals de DPP; de plus, il peut s'avérer particulièrement utile pour soulever des questions délicates et en discuter. Le dépistage de la symptomatologie de la dépression au cours de la grossesse demeure cependant problématique; il pourrait être amélioré par l'administration d'une simple mesure standardisée de cette symptomatologie dans le cadre des soins prénatals habituels.

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INTRODUCTION

Pregnancy and the puerperium, events that bring healthy women into regular contact with the health care system, offer strategic opportunities to identify and ameliorate psychosocial concerns and risk factors. Health professionals who provide maternity care are often uniquely situated to address these challenges by virtue of their continuing relationships with and contextual knowledge of women and their families.

Postpartum depression (PPD) is the most common complication of childbearing, affecting approximately 13% of women.¹ The long-term effects of PPD on the mother and child make it important to diagnose and treat this condition.² The strongest antenatal predictors of PPD are depression during pregnancy, anxiety during pregnancy, stressful recent life events, lack of social support, a previous history of depression, and low self-esteem.^{1,3} It has been suggested that a history of abuse in childhood, which has been excluded from most antenatal screening studies, may also be a significant risk factor.⁴ Although PPD can be successfully treated, eliciting risk factors during pregnancy enables clinicians to anticipate and identify women who may be at increased risk of becoming depressed and therefore allows preventative measures and earlier treatment.

The Antenatal Psychosocial Health Assessment (ALPHA) form⁵ was specifically designed for use in primary care to identify a range of psychosocial concerns that are associated with adverse family outcomes, including PPD, child abuse, intimate partner violence, and couple dysfunction.⁶ Although risk factors such as poor compliance with antenatal care and drug or alcohol abuse may be identified when a

routine clinical history is taken,⁷ detection of other factors, such as depressive symptoms, domestic violence, and stressful life events, is more complex. The use of standardized interviews, questionnaires, or measures that have been developed specifically for these constructs is not always practical in a primary care setting.

The 15 items that make up the ALPHA form were obtained through a critical review of the literature and cover a range of outcomes with a relatively small number of questions.^{8,9} The purpose of the ALPHA is to enable the systematic collection of information in the context of an ongoing relationship between the clinician and the patient. It is also intended to determine areas of concern in individual women and thereby identify those who may benefit from additional resources.

This study was conducted to examine how well use of the ALPHA form identified antenatal risk factors for PPD compared with routine care. Specifically, we compared the frequency of providers' concerns related to risk factors for PPD between the intervention and control groups. A secondary aim was to compare the number of women providers identified as having antenatal depression with cases identified by the Edinburgh Postnatal Depression Scale (EPDS),¹⁰ a validated self-report questionnaire.

METHODS

The data were collected during a randomized controlled trial assessing the use of the ALPHA form versus standard care in the detection and elicitation of psychosocial risk factors for adverse outcomes within a sample of pregnant women¹¹ (a full description of the methods for the original study is available in Carroll et al.¹¹). Ethical approval for the study was obtained from the University of Toronto Research Ethics Board, and each participant gave written informed consent.

Clinicians

Four diverse communities in Ontario were chosen as study sites encompassing both urban and small town practices and diverse racial and socio-economic populations. There were 60 primary providers of antenatal care: family physicians, obstetricians, and midwives. 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 then randomly assigned to the intervention group (who would use the ALPHA to elicit information) ($n = 30$) or the control group (who would continue to provide their regular clinical care) ($n = 30$), using computer-generated random numbers.

Providers in the intervention group received training in the use and completion of the ALPHA form through a workshop. Once trained, providers completed the ALPHA form with enrolled women at an antenatal 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. Although the ALPHA form could be completed over a series of visits, it had to be completed by 32 weeks' gestation.

A number of providers did not complete the study: nine providers in the intervention arm and three providers in the control group dropped out, leaving 21 providers in the ALPHA group and 27 providers in the control group. On the basis of previous work, it was estimated that a psychosocial concern would be detected in 5% of women. A 10% increase in detection was considered clinically significant. The study is therefore powered to detect a 10% difference between the intervention and control groups for the number of concerns detected.

Participants

Each of the providers was asked to recruit five consecutive patients who met the inclusion criteria: 12 to 30 weeks' gestation, low to medium obstetric risk, able to read and write English, and able to give informed consent.

Postpartum Data Collection

All of the providers were asked to complete a data collection sheet entitled "Psychosocial Concerns Outcome" for each of the participants; the form was completed one month after the woman had delivered. The providers were asked whether they had any concerns about the woman with specific reference to the psychosocial concerns listed in the ALPHA form. For every patient, they were asked to use their clinical judgement and rate the level of concern as "low," "some," or "high." A high level meant that the provider was prompted to take some action in response to the psychosocial risk factor, for example, refer the patient, arrange additional visits, or employ additional resources. A low level of concern meant that there was almost no risk, and "some" concern meant that the provider had concerns but was unlikely to act on them. Both groups of clinicians could refer to their antenatal records to fill in the form, and the intervention group could also refer to their ALPHA assessment forms. Clinicians and participants in the intervention group also completed a questionnaire about their experience of using the ALPHA form.

Depression Measures

All subjects completed the EPDS¹⁰ once during pregnancy and once in the postpartum period (approximately 6 weeks

after delivery). The EPDS has been extensively validated for the detection of PPD in community samples^{10,12,13} and has also been used to predict antenatal depression. We used the recommended cut-off score of 10 to reduce missed cases to under 10%: a score of ≥ 10 on the EPDS indicates a probable case of depression.

Analysis

Our main outcome measure was to compare the number of psychosocial concerns identified by providers in the intervention and control groups. T-tests were used to determine if these differences were statistically significant. Chi-square tests were used to test the association between study group and identification of each of the six psychosocial risk factors for PPD. Contingency tables were used to test for association between categorical variables, including marital status, education level, country of birth, and income level. Tests for differences between the groups for continuous variables such as age and number of children were conducted, using t-tests and the Mann-Whitney for parametric and non-parametric data respectively. Correlations were assessed using Spearman's rho. Where appropriate, relative risk, odds ratios (ORs) and, 95% confidence intervals (CIs) were calculated.

RESULTS

In total, 227 patients were enrolled in the study: 98 (43%) in the ALPHA group and 129 (57%) in the control group. (Complete data were not available for all subjects; therefore, the sample size is not the same for all variables.) Demographic information for the sample is given in Table 1.

There were no differences between the ALPHA and control groups in terms of age, total household income, or health provider for pregnancy care. A higher proportion of women in the control group were married than in the ALPHA group (96.1% vs. 87.8%) ($P = 0.03$), and the control group women had a lower level of education ($P = 0.02$).

Identification of Antenatal Risk Factors for Postpartum Depression

The ALPHA form included questions about six risk factors for PPD. Providers in both groups assessed each participant on the six factors and indicated their level of concern on a three-point scale: low, some, or high. For the purposes of analysis, ratings of "some" and "high" levels of concern were collapsed. The provider ratings of concern for the risk factors are shown in Table 2.

There were 67 risk factors for PPD identified for 30 of 83 (36%) women in the ALPHA group (mean number of risk factors per woman = 2.1, standard deviation [SD] = 1.2, range 1–6) and 55 risk factors identified for 31 of the 120 (26%) women in the control group (mean number of

Table 1. Demographic characteristics of the sample

	Overall Group	ALPHA Group	Control Group
Age	n = 226*	n = 98	n = 128*
Mean, years (SD)	29.26 (5.3)	29.1 (5.3)	29.4 (5.2)
Range, years	17–47	17–47	17–44
	n (%)	n (%)	n (%)
Marital Status			
Married / common law	209 (92)	86 (88)	123 (96)
Single	14 (6)	9 (9)	5 (4)
Separated / divorced / widowed	3 (1)	3 (3)	0 (0)
Level of Education			
High school or less	53 (23)	19 (19)	34 (27)
Some college or university	51 (22)	25 (26)	26 (20)
University degree	122 (55)	54 (55)	68 (53)
Country of Birth			
Canada	193 (85)	84 (86)	109 (85)
First Language			
English	208 (92)	88 (90)	120 (93)
Total Household Income†			
< \$50 000 Cdn	67 (30)	32 (33)	35 (27)
> \$50 000 Cdn	158 (70)	65 (67)	93 (73)
Number of Children			
Pregnancy is 1st child	95 (51)	43 (57)	52 (46)
Already have child(ren)	93 (49)	33 (43)	60 (54)
Health Care Provider for Pregnancy			
	n = 225	n = 98	n = 129
Family doctor	125 (56)	55 (56)	73 (56)
Midwife	22 (10)	9 (9)	13 (10)
Obstetrician	24 (11)	12 (12)	12 (9)
Multiple professionals	54 (23)	22 (23)	29 (22)

*Incomplete data for one participant.

† Statistically significant.

risk factors per woman = 1.8, SD = 0.9, range 1–4). There was a statistically significant difference in the number of risk factors for depression identified between the two groups ($z = -1.96$, $P = 0.05$).

Providers in the ALPHA group consistently identified a higher proportion of women with individual risk factors for depression than those in the control group. Significantly more women in the ALPHA group were identified by providers as having two antenatal risk factors: a previous history of depression (16% vs.6%) ($\chi^2 = 5.243$, $df = 1$, $P = 0.03$) and having witnessed or experienced abuse as a child (17% vs.3%) ($\chi^2 = 12.488$, $df = 1$, $P = 0.0005$). Differences in frequency ratings for the remaining risk factors were of small magnitude and not statistically significant.

Interventions were put in place for 13 of the 31 women identified as having risk factors for depression in the ALPHA group, three of whom had multiple concerns identified by their care providers. The interventions were additional appointments with the provider (during and after pregnancy) and counselling, given by the provider or through referral to another health professional or social agency. Women who had a previous history of depression or who were currently experiencing depressive symptoms were referred to a mental health professional.

Antenatal Depressive Symptoms: Clinician Ratings

Analysis showed that 27% (26/98) of women in the intervention arm of the study scored ≥ 10 on the EPDS during pregnancy, indicating probable depression. Clinicians in the

Table 2. Number and percentage of women with identified psychosocial concerns shown by group

PPD psychosocial risk factors	ALPHA group (n = 83)	Control group (n = 129)	Relative risk	95% CI	P
Lack of social support	10/83 (12%)	12/119 (10%)	1.20	0.54–1.64	0.65
Recent stressful life events	14/83 (17%)	15/116 (13%)	1.31	0.67–2.56	0.54
Lack of self-esteem	8/83 (10%)	10/120 (8%)	1.16	0.48–2.81	0.80
Previous history of depression *	13/83 (16%)	7/119 (6%)	2.66	1.11–6.39	0.03
Depression during pregnancy	8/83 (10%)	8/116 (7%)	1.40	0.55–3.57	0.60
Witnessed or experienced abuse as a child *	14/83 (17%)	3/115 (3%)	6.47	1.92–21.78	0.0005

Complete data were not available for all subjects; therefore, the sample size is not the same for all variables.

* Statistically significant.

PPD: Postpartum depression; CI: confidence interval

ALPHA group indicated concern about antenatal depression in 10% (10/98) of the women, therefore detecting 38% of probable cases of depression identified by the EPDS. Clinicians in the control group rated concern in 7% (9/129) of women, detecting 22% of cases identified through the EPDS. Subjects who scored ≥ 10 on the EPDS antenatally were four times more likely to develop postpartum depressive symptoms when measured at six weeks (OR = 4.1; 95% CI 1.4–12.1).

Twenty-six percent of the women (24/91) in the ALPHA group scored ≥ 10 on the postpartum assessment of the EPDS. Analysis showed a statistically significant positive correlation between the number of antenatal concerns rated on the ALPHA form and the postpartum EPDS score ($r = 0.226$, $P = 0.015$).

DISCUSSION

This study was designed to assess how well the ALPHA form identified antenatal risk factors for PPD compared with routine care. Compared with the control group, providers in the ALPHA group identified significantly more antenatal risk factors for PPD per woman. They also identified a significantly higher number of women who had a previous history of depression and women who had witnessed or experienced abuse as children. Interventions were put in place for women who were identified as being at high risk. It is not known whether these interventions prevented PPD, but they may have mediated the outcome and provided the opportunity for the patient to receive additional support and care at a time of risk.

These results are consistent with the results of the original randomized controlled trial¹¹ that examined 15 risk factors associated with adverse postpartum outcomes. Carroll et al.¹¹ reported that providers in the ALPHA group detected

almost twice as many antenatal psychosocial concerns as providers in the control group (OR = 1.8; 95% CI 1.1–3.0; $P = 0.02$) and were more likely to rate the level of concern as “high” (OR 4.8; 95% CI 1.1–20.2, $P = 0.03$). Providers in the ALPHA group detected significantly more concerns related to family violence (OR 4.8; 95% CI 1.9–12.3, $P = 0.001$).

The results of the original study and of this paper, which focused on risk factors for PPD, indicate that the ALPHA form provides a framework within which to discuss and identify potentially sensitive issues, the opportunity for which may not arise during routine care.

The original study found that the ALPHA was acceptable to both women and clinicians. The women whose providers were in the ALPHA arm of the trial were asked for their feedback; the majority of women felt comfortable discussing personal issues (73%) and felt this was part of their antenatal health care provider’s job (77%).¹¹ Providers who used the ALPHA form and completed feedback forms found it easy to use (64%), and 86% said they would use it if were recommended for standard practice.¹¹

A secondary aim of this study was to determine whether using the ALPHA enabled providers to identify women who had depression during pregnancy. Although we found a significant correlation between the number of concerns identified through the ALPHA and the postpartum EPDS score, clinicians in both the ALPHA and control groups failed to identify over 60% of women experiencing depressive symptoms antenatally. This low detection rate is perhaps not surprising; studies have found that similar proportions of depressed patients are not recognized within primary care settings.^{14,15} Women may also be unwilling to disclose symptoms, and both doctors and patients may dismiss them as a normal part of pregnancy. It is also difficult

for a clinician to detect symptoms during relatively short appointments that must be used to obtain a wide range of information. The focus of these appointments for the clinician and perhaps for the patient is not detecting depressive symptoms but monitoring the physical health of the mother and fetus.

The use of standardized instruments to assess depressive symptoms in clinical practices is recommended¹⁶ and may be especially important for clinical practices that provide care to pregnant women. However, competing demands and limited time may deter clinicians. The EPDS instrument used in this study is validated, short (10 items), and easy to administer and score. The findings of this sample showed that an elevated antenatal EPDS score was associated with a four-fold risk of PPD.

The results of this study require confirmation in other samples. It may be that the health care providers who were willing to take part in the study were more comfortable or motivated to discuss psychosocial issues and their relevance to postpartum outcomes. The providers who dropped out of the study may have done so because of the additional time needed to complete the ALPHA form.

CONCLUSION

The detection and prevention of postpartum depression is complex. Its etiology is unknown but is probably multifactorial and heterogeneous. Although the literature has established known risk factors, antenatal screening remains problematic. The ALPHA form provides a convenient, structured means of eliciting risk factors for depression and other adverse outcomes in order to identify women at risk and enable the provider to arrange additional support or interventions. This may be particularly relevant for discussing sensitive issues such as psychiatric symptomatology or experience of abuse. Symptoms of depression during pregnancy were not detected as effectively as other risk factors, but this may be overcome by administering a simple standardized measure of depressive symptomatology, such as the EPDS during routine antenatal visits.

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