A Comparison of Emotional State and Support in Women at High and Low Risk for Preterm Birth, with Diabetes in Pregnancy, and in Non-Pregnant Professional Women

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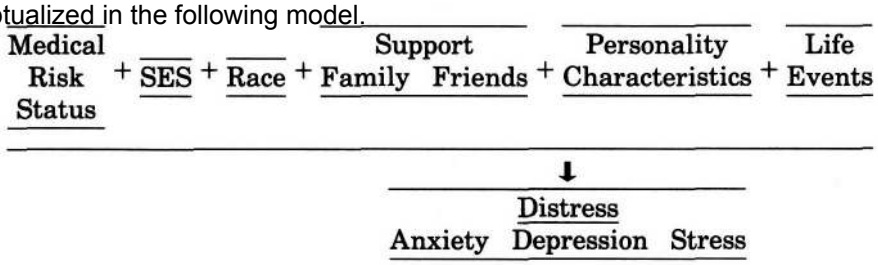
Abstract: None available.

Full Text: Headnote ABSTRACT: The authors examine psychosocial factors involved in producing pregnancy complications. An initial descriptive study of the development of psychosocial profiles of three groups of pregnant women (high and low risk for preterm birth and with diabetes mellitus) using seven instruments is presented. The study suggests that economic status may be as important as medical risk as a source of distress among pregnant women. In both theoretical formulations and clinical practice health care providers have recognized the importance of both psychosocial and physiologic factors in health and illness. Within the context of the care of childbearing women, several studies (Nuckols, Casell and Kaplan, 1972; Norbeck and Tilden, 1983; McDonald and Christakos, 1963; Newton, Webster, Binv, Maskrey and Phillips, 1979, Newton and Hunt, 1984) have linked a variety of psychosocial factors with pregnancy complications. This paper reports an initial descriptive study in the development of psychosocial profiles of three groups of pregnant women (high and low risk for preterm risk and with diabetes mellitus) utilizing seven instruments: three measures of "distress," two measures of support, a measure of life events and a measure of personality type. In addition, 16 professional women of childbearing age who were not pregnant completed the research instruments to provide a comparison group. THEORETICAL MODEL Following Norbeck and Tilden (1983) pregnancy is viewed as a life event with demands and constraints which may result in a stressful experience. Medical risk status, socioeconomic status, race, the amount of support from family and friends, basic personality type, other life events may be associated with feelings of anxiety, depression, and/or stress. The relationship between these variables is conceptualized in the following model.



SAMPLE Participants in the study were a convenience sample representing (1) prenatal clients at a clinic for low income women (public) and in a private office (private) who were between 24 and 30 weeks gestational age and who were identified as either at low (LR) or high risk (HR) for preterm birth; (2) prenatal clients with insulin dependent diabetes who were admitted to a hospital diabetic teaching unit and were in the third trimester of pregnancy (Table 1) (3) a group of professional women who were not pregnant but were of childbearing age. Women in the diabetic group received prenatal care from the same public and private practices as women in the preterm labor group. All clients signed consent forms prior to participation.

TABLE 1
Sample Size and Specific Characteristics of Patient Group

		High Risk Preterm Labor	*Low Risk Preterm Labor*	*Diabetic*	*Total*
White	Public	17	6	14	37
	Private	6	8	26	40
Non-White	Public	23	11	12	46
	Private	2	–	6	8
	Total	48	25	73	131

Prenatal clients at low and high risk of preterm births were the first group from whom data were collected. Risk status was determined using a risk assessment sheet developed at Bowman Gray School of Medicine in 1983 derived from the work of Papiernik (1969, 1985) and introduced to the United States by Herron, Katz and Creasy (1982). For the purposes of this study high risk was defined as having at least one of the following risk factors: 1. Repeated second trimester abortions 2. Previous premature delivery of birth weight <2500 g 3. Two or more stillbirths/neonatal deaths 4. Uterine anomaly 5. Cyanotic heart disease or renal failure 6. One second trimester abortion (spontaneous or induced) 7. Pyelonephritis this pregnancy 8. Hemoglobinopathies 9. Polyhydramnios 10. Oligohydramnios 11. Placenta previa 12. Multiple gestation 13. Abdominal surgery this pregnancy Low risk was defined as having a score of 4 or less on the risk assessment form. The risk assessment is found in Appendix A. The instruments were completed in the clinic. Seventy-three women from this initial group completed the instruments a second time during the immediate postpartum period before hospital discharge. Other than the factor analysis, the preterm group reported here focuses on these 73 women. The evaluation of pregnant women with diabetes mellitus was undertaken as a comparison to the first group of women. Women who were admitted to the diabetes educational unit at the tertiary center participated. The instruments were completed in the hospital diabetes education unit, an ambulatory unit where patients dress in street clothes, eat in a private dining room and spend a major part of their day in classes. One group of professional women completed the instrument at their work site during a group session. INSTRUMENTS All of the instruments were self-administered. The following instruments were utilized: State Anxiety The State Anxiety Inventory, a 20 item self-report instrument, assesses the individual's immediate anxiety-related feelings (e.g., "I am tense," "I feel nervous") or their converse (e.g., "I feel calm"). State anxiety is, by definition, transitory; Spielberger argues therefore that internal consistency provides the best index of reliability. Spielberger, Gorsuch and Lushene (1983) report alpha-coefficients of .92 for males and .93 for females aged 19-39 who are working adults. Correlations with other anxiety measures indicate a correlation of .70 with the Cornell Medical Inventory and .623 with the Personal-Psychological relation subscale of the Mooney Problem Check List (Spielberger et al, 1983). This scale takes approximately 5 minutes to complete. Depression To measure depressive affect, the Depression Adjective Checklist (DACL) (FORM C) was selected (Lubin, 1965, 1967). The DACL is a 32 item instrument designed to assess the depressive symptoms; it is particularly useful for the present samples, due to the potential confounds of somatic indices prevalent in other depression measures (e.g., the Beck Depression Inventory; Beck, 1967) with symptoms of pregnancy. Validation studies have demonstrated significant differences between depressed patients, nondepressed patients, and normal controls (Lubin, 1965). The DACL has also been used in previous research with pregnant women (Norbeck and Tilden, 1983). This scale takes approximately 5 minutes to complete. Perceived Stress The Perceived Stress Scale (PSS), developed by Cohen, Kamarck and Mermelstein (1983) is a 14 item self-report measure of global stress experienced during the previous month; the items were designed to assess the degree that individuals found

their lives unpredictable, uncontrollable, and overloading. Initial validation studies using the PSS on three separate samples (two university student samples, one community sample) indicated adequate psychometric properties of the scale (e.g., internal consistency reliabilities of 0.84,0.85 and 0.87; test-retest reliability over two days-0.85, over six weeks-0.55. The PSS also was a strong predictor of life event scores, depressive and physical symptomatology, and the utilization of health facilities. The scale takes approximately 5 minutes to complete. Social Support With respect to the characteristics of the sample for the present study (i.e., young women), two dimensions of social support are of importance: family and friends. Consequently, two scales designed to assess support from these areas were used. Procidano and Heller (1983) developed scales to measure these two areas of support (the Perceived Social Support-Friends Scale, and Perceived Social Support-Family Scale). Each measure contains 20 items. Three validation studies on young adults supported the psychometric properties of these instruments (e.g., internal consistency coefficients of 0.88 and 0.90, respectively). Also, separate factor analyses indicated that the scales were comprised primarily for one factor each. These scales take approximately 10 minutes to complete. Neuroticism The Eysenck Personality Inventory (EPI; Eysenck and Eysenck, 1964) is a 57 item, self-administered instrument designed to measure two central dimensions of personality, neuroticism and extroversion; a third aspect of the scale assesses social desirability. The two primary dimensions are independent (correlations of -0.04 for normal groups, -0.09 for neurotic and psychotic groups); test-retest reliability is 0.85. Several validation studies support the utility of this measure (e.g., Kendell and DiScipio, 1968; Zuckerman and Lubin, 1965). Studies have documented the validity and reliability of this instrument for detecting individuals who are vulnerable to neurotic disorder, especially when under stress (Eysenck and Eysenck, 1964; Henderson, Byrne and Duncan-Jones, 1981). This scale takes approximately 10-15 minutes to complete. Life Events The scale used was developed by Monroe (1982) represents a composite of several existing questionnaires, particularly those developed with respect to the experiments relevant for pregnant women (Barnett, Hanna and Parker, 1983; Berkowitz and Kasl, 1983; Dohrenwend, Krasnoff, Askenesy, and Dohrenwend, 1978; Gorsuch and Key, 1974; Newton, Webster, Binu, Maskrey and Phillips, 1979; Norbeck and Tilden, 1983; Yamamoto and Kinney, 1976). This scale takes approximately 20 minutes to complete. METHODS After explanation of the study and signing the consent form, subjects completed all instruments at one time in either clinic (group one) or hospital (group two) site. Professional women completed the instruments in a single group at their work site. Demographic data sheets were completed by research personnel from the client's health record. Instruments were scored and total scores with demographic data were entered into computer for analysis. Factor Analysis A principal components factor analysis was used for data reduction. Total scores on each scale for 169 subjects in the initial survey of women at high and low risk for preterm labor were entered.(1) Factor 1 consisted of STAI, DACL, Perceived Stress and Introversion/ Neuroticism. Factor 1 had an eigen value of 3.51 and accounted for 44 percent of the variance. Factor 2 consisted of Family and Friend Support. Factor 2 had an eigen value of 1.091 and accounted for 13.6 percent of the variance. Factor 3 consisted of Extroversion alone and Factor 4 consisted of Life Events. Neither Factor 3 or 4 had eigen value greater than 1. A summary of the factor analysis is found in Table 2. Measures of Distress and Social Support in Third Trimester Three measures of distress were used: STAI, DACL and Perceived Stress. In the preterm labor group highest levels of distress were found in public clinic women of both races, regardless of risk status. For the STAI, white private women had mean scores of 29.9 (HR) and 33.3 (LR) in comparison with mean scores of 41.2 (HR) and 42.8 (LR) for white public women and 45.3 (HR) and 44.9 (LR) for black public women. Similar differences were found for DACL and Perceived Stress. This was not true for the group of diabetic women, however, in which white private women had scores indicating higher stress than any other group on both STAI and DACL (x = 45.5 for STAI; 10.5 for DACL; 28.8 for Perceived Stress). STAI scores for this white private diabetic group were higher than for any other group examined. These scores are summarized in Table 3.

TABLE 2
Factor Analysis

	Factor 1 (Distress)	*Factor 2 (Support)*	*Factor 3 (Extra-version)*	*Factor 4 (Total Life Events)*
V1 Family Support	−.36838	.75399	−.10510	.01724
V2 Friends Support	−.04874	.77486	.29501	−.25572
V3 State Anxiety	.88169	−.21045	−.02192	.01340
V4 DACL	.87896	−.07081	−.06946	.010309
V5 Extro-version	−.09374	.09295	.948221	.05399
V6 Intro-version	.65698	−.08218	−.28555	.34265
V7 Perceived Stress	.78606	−.26685	.03022	.19682
V8 Total Life Events	.21394	−.14833	.06483	.92368

Family Support Women from the public clinic in all groups perceived less family support (x = 13.3, 13.2, 14.4, 11.9, 13.2, 15.0) than women from the private office (x = 17.5, 18.5, 17.3, 18.0) or professional women (x = 17.2). Neither race nor medical risk status appeared to influence these scores. Women in the private group perceived family support at the same level as the professional group (Table 4).

TABLE 3
Mean Scores: STAI[1], DACL[2] and Stress Inventory[3] in Four Groups of Women (24–30 Weeks Gestation)

			Black	*White*
STAI[1]	Private	HR[4]	–	29.9
		LR[5]	–	33.3
		D[6]	35.3	45.5
	Public	HR	45.3	41.2
		LR	44.9	42.8
		D	39.4	38.0
	Professional			42.6
DACL[2]	Private	HR	–	6.3
		LR	–	5.3
		D	7.3	10.5
	Public	HR	11.4	9.2
		LR	12.0	8.7
		D	10.6	11.9
	Professional		–	8.6
Stress[3]	Private	HR	–	19.7
		LR	–	23.9
		D	24.2	28.8
	Public	HR	28.4	29
		LR	29.2	22.5
		D	24.7	28.5
	Professional	–	–	–

[1]State Anxiety (Spielberger, 1970); [2]Depression Adjective Check List (Lubin, 1967); [3]Stress Inventory (Cohen, 1983); [4]High Risk for Preterm Labor; [5]Low Risk for Preterm Labor; [6]Diabetes Mellitus

Friends Support Patterns of perceived friends support were less clearly defined than those of family support. Highest friends support was reported by white private women at high risk for preterm labor (x = 18.2) and by professional women (x = 17.29). Lowest levels of support were reported by black public women (x = 11.7) and by diabetic public women (x = 11.8 for black women and 11.6 for white women) (Table 4).

TABLE 4
Mean Scores: Family and Friends Support
(24–30 Weeks Gestation)

			Black	*White*
Family Support[1]	Private	HR	–	18.5
		LR	–	17.3
		D	17.5	18.0
	Public	HR	13.3	11.9
		LR	13.2	13.2
		D	14.4	15.0
	Professional	–	–	17.2
Friends Support[1]	Private	HR	–	18.2
		LR	–	14.5
		D	16.0	15.6
	Public	HR	13.3	14.1
		LR	11.7	16.5
		D	11.8	11.6
	Professional	–	–	17.3

[1]Procidano and Heller, 1983

Extroversion and Introversion/Neuroticism White public women at high risk for preterm labor had highest mean scores for extroversion (x = 13.3) while lowest extroversions scores were found in black public women (x = 9.9 for women at high risk for preterm labor, 9.1 for women at low risk for preterm labor and 9.6 for diabetic women) (Table 5). Introversion/Neuroticism scores were highest in public women at high and low risk for preterm labor (x = 14.2, 13.5, 13.9, 13.9, 14, 14) and lowest for white private women at both low and high risk (x = 8.3, 9.1) (Table 5). Professional women had mean scores of 9.2 for extroversion and 10.7 for introversion/neuroticism. Undesirable and Total Life Events In the preterm labor groups, but not in the group of diabetic women, public clinic women experienced higher levels of both negative life events (x = 6.7, 7.8 for black women and 8.4, 8.6 for white women) in comparison with the private group (x = 4.0, 2.4) and total life events (x = 10.4, 12.4, 12.5, 11.8 for public and x = 7.3 and 4.5 for private). Professional women reported a low incidence of negative life events (x = 4.3 and a moderate number of total life events (x = 8.1) in comparison with other groups (Table 6).

TABLE 5
Mean Scores: Extroversion and Introversion/Neuroticism (24–30 Weeks Gestation)

			Black	*White*
Extroversion[1]	Private	HR	–	13.3
		LR	–	11.8
		D	11.6	10.4
	Public	HR	9.9	12.5
		LR	9.1	9.7
		D	9.6	10.4
	Professional		–	9.2
Introversion/ Neuroticism[1]	Private	HR	–	8.3
		LR	–	9.1
		D	11.6	12.2
	Public	HR	14.2	13.9
		LR	13.5	13.7
		D	11.1	11.5
	Professional		–	10.7

[1]Eysenck and Eysenck, 1964

Age and Selected Measures When mean scores for distress, support and life events variables were grouped by age, a pattern of higher stress, lower support and increased undesirable and total life events in younger women was evident in both the preterm labor group and the group of adolescent women with diabetes (Table 7).

TABLE 6
Mean Scores: Undesirable and Total Life Events (24–30 Weeks Gestation)

			Black	*White*
Undesirable Life Events[1]	Private	HR	–	4.0
		LR	–	2.4
		D	3.4	3.2
	Public	HR	6.7	8.4
		LR	7.8	8.6
		D	1.8	3.4
	Professional		–	4.3
Total Life Events[1]	Private	HR	–	7.3
		LR	–	4.5
		D	8.4	8.7
	Public	HR	10.4	12.5
		LR	12.4	11.8
		D	4.78	10.1
	Professional		–	8.1

[1]Monroe (personal communication)

TABLE 7
Selected Measures Grouped by Age (Means) (24–30 Weeks Gestation)

	Measure					
					Life Events	
Age	*STAI*	*DACL*	*Friend Support*	*Perceived Stress*	*Undesirable*	*Total*
Preterm Labor Group						
<19	45.5	12.2	11.8	29.3	8.7	12.8
20–29	41.7	9.9	13.9	25.5	6.8	19.5
30–39	37.6	8.9	13.8	23.9	5.9	9.3
Diabetic Group						
≤19	45.8	11.0	10.8	29.1	7.8	11.0
>19	40.4	9.2	15.0	25.2	6.6	10.1

three women (preterm labor group) completed the set of instruments between one and three days postpartum before discharge from hospital. On four variables, a high correlation was found between first and second scores (.79 for family support, friend support and extroversion; .77 for introversion/neuroticism). The number of undesirable and total life events reported decreased at similar levels. Both state anxiety and depression were reported at lower levels (r = .53 and .44, respectively), while perceived stress increased (r = .36). However, all correlations were statistically significant. These data are summarized in Table 8. As the lowest correlations were for the three measures of distress, these measures were examined by race and prenatal care group. As in the prenatal period, lowest distress was found in white private women in both high and low risk groups, while black women in the public sector had the highest levels with the exception of the DACL in high risk women. Prenatal high risk status was not associated with higher distress in the postpartum period on any of these measures. These data are summarized in Table 9.

TABLE 8
Correlation Between Prenatal (24–30 Weeks Gestation) and Postpartum (103 Days) Responses: Women at High Risk and Low Risk for Preterm Labor

	Mean Score			
Variable	*Prenatal*	*Postpartum*	*Correlation*	*Significance*
STAI	41.4	38.2	.53	.001
DACL	9.7	7.8	.44	.001
Stress	27.6	30.4	.36	.01
Family Support	14.0	14.7	.79	.001
Friend Support	13.3	14.2	.79	.001
Extroversion	11.4	11.1	.79	.001
Introversion/ Neuroticism	12.6	11.7	.77	.001
Undesirable Life Events	7.0	5.9	.56	.001
Total Life Events	10.7	9.5	.65	.001

When the three measures of distress were compared by group at the two time intervals (third trimester and postpartum), public women who had exhibited high levels of stress in the third trimester reported lower state anxiety and depression, in the postpartum period, with the exception of black low risk women (Table 10). For those public women, both white and black, who felt low support from their family in the third trimester, perceived family support continued to be low in the immediate postpartum period, as was perceived support from friends. Among white private women at low risk, perceived friend support was lower than for those at high risk (Table 11), but both private groups (high and low risk) perceived high support from their families. These data should be viewed as preliminary. Although the total sample of 131 pregnant women and 12 professional women is of moderate size, the grouping of women by site of prenatal care, risk factors and race results in small groups of women. The data set is currently being expanded in rural populations. Further urban data will also be collected.

TABLE 9
Mean Scores: STAI, DACL and Stress Inventory
Postpartum Period

		Black	*White*
STAI	Private HR	–	30.0
	LR	–	35.4
	Public HR	39.3	37.8
	LR	44.9	38.0
DACL	Private HR	–	4.6
	LR	–	5.0
	Public HR	7.0	7.2
	LR	12.1	6.5
Stress	Private HR	–	21.7
	LR	–	22.5
	Public HR	26.2	25.6
	LR	32.4	26.7

TABLE 10
Comparison of Mean Scores: STAI, DACL and Stress Inventory
Third Trimester (Postpartum Period)

		Black	*White*
STAI	Private HR	–	29.9 (30.0)
	LR	–	33.3 (35.4)
	Public HR	45.3 (39.3)	41.2 (37.8)
	LR	44.9 (44.9)	42.8 (38.0)
DACL	Private HR	–	6.3 (4.6)
	LR	–	5.3 (5.0)
	Public HR	11.4 (7.0)	9.2 (7.2)
	LR	12.0 (12.1)	8.7 (6.5)
Stress	Private HR	–	19.7 (21.7)
	LR	–	23.9 (22.5)
	Public HR	28.4 (26.2)	29.0 (25.6)
	LR	29.2 (32.4)	22.5 (26.7)

In spite of these limitations the data provide some insights for practitioners. Perhaps the most important of these is the concept that it is not necessarily medical risk status but economic status (represented by prenatal care in public or private clinic) that is most important in the amount of distress experienced by pregnant women. On a very practical level, the inclusion of an assessment of life stress and support in prenatal risk assessment would appear to be important. In recent efforts to expand prenatal services to economically poor pregnant women through the Medicaid system under the enabling federal legislation of the Omnibus Budget Reconciliation Act of 1986 (OBRA-86) and the Medicare Catastrophic Amendments of 1988, state governments have been forced to consider who should receive special services-all pregnant women or women in high or at risk groups who can be more effectively served with the resources available. If services are to be provided to women at high risk, should high risk be defined from a traditional "medical" perspective, or should factors such as stress and/or absence of support be considered as risk factors?

TABLE 11
Comparison of Mean Scores: Family and Friends Support
Third Trimester (Postpartum Period)

		Black	*White*
Family	Private HR	–	18.5 (19.2)
Support	LR	–	17.3 (16.6)
	Public HR	13.3 (13.9)	11.9 (13.1)
	LR	13.2 (13.9)	13.2 (11.7)
Friends	Private HR	–	18.1 (17.8)
Support	LR	–	14.5 (13.9)
	Public HR	11.8 (12.9)	14.1 (15.1)
	LR	11.7 (11.9)	16.5 (16.5)

The findings that age is correlated with higher stress and lower support is not surprising but these data confirm both research and clinical experience once again. From a clinical perspective the data would again suggest that younger women in particular need more than "medical" care during pregnancy. Postpartum data, while showing some amelioration of distress levels, continues to suggest high levels of distress, particularly in black public women. From a clinical perspective, very little support is usually available to women in the postpartum period from professionals, so when women perceive limited support from both family and friends, this should be a cause for concern. Continuing Research This paper, as previously noted, represents the initial research in this area. Additional studies are currently in process: 1. The data base is being expanded both among women in the same practice settings and among rural women, who area not currently included in the study. 2. Detailed data concerning the outcome of pregnancy for each woman currently in the study is being collected. 3. Multivariate analysis will be utilized to link psychosocial variables, medical risk factors and outcome data. References REFERENCES Barnett BEW, Hanna B, Parker G. Life event scales for obstetric groups. J Psychosomatic Res 1983; 27:313-320. Beck AT. Depression: Causes and Treatment. Philadelphia: University of Pennsylvania Press, 1967. Berkowitz GS, Kasl SV. The role of psychosocial factors in spontaneous preterm delivery. J Psychosomatic Res 1983; 27:283-290. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. J Health Social Behavior 1983; 24:384. Dohrenwend BS, Krasnoff L, Askenasy A, Dohrenwend BP. Exemplification of a method for scaling life events: The PERI Life Events Scale. J Health Social Behavior 1978; 19:205. Dreger R. Review of the State-Trait Anxiety Inventory. In: Buros O (ed), The eighth mental measurements yearbook. Highland Park, NJ: Cryphon Press, 1978. Eysenck HJ, Eysenck SBG. Manual of the Eysenck personality inventory. London: London University Press, 1964. Gorsuch RL, Key MK. Abnormalities of pregnancy as a function of anxiety and life stress. Psychosomatic Med 1974; 36:352. Henderson S, Byrne DG, Duncan-Jones P. Neurosis and the Social Environment. Sydney: Academic Press 1981. Herron MA, Katz M, Creasy R. Evaluation of a preterm birth prevention program: preliminary work. Obstet Gynecol 1982; 59:452. Kendall R, DiScipio W. Eysenck Personality Inventory scores of depressive illness. Br J Psychiatry 1967; 114:767-770. Lubin B. Adjective check list for measurement of depression. Arch Gen Psychiatry 1965; 12:57. Lubin B. Manual for the depression adjective checklist. San Diego: Educational and Industrial Teaching, 1967. Lubin B, Gardener S, Roth A. Mood and somatic symptoms in pregnancy. Psychosomatic Med 1975; 37:136. McDonald R, Christakos A. Relationship of emotional adjustment during pregnancy to obstetric complications. Am J Obstet Gynecol 1963; 86:341. Monroe SM. Assessment of life events: Retrospective vs. concurrent strategies. Archives of General Psychiatry 1982; 39:606-610(a). Monroe SM. Life events assessment: Current practices, emerging trends. Clinical Psychology Review 1982; 2:435-452(b). Monroe SM. Social support and disorder: Toward an untangling of cause and effect. AM J Community Psychology 1983; 11:81-97. Newton RW, Webster PAC, Binu PS, Maskrey N, Phillips AB. Psychosocial stress in pregnancy and its relation to the onset

of premature labor. Br Med J 1979; 2:411. Newton RW, Hunt LP. Psychosocial stress in pregnancy and its relation to low birth weight. Br Med J 1984; 288:191. Norbeck J. Tilden V. Life stress, social support and emotional disequilibrium in complications of pregnancy: a prospective, multivariate study. J Health Social Behavior 1983; 24:30. Nuckolls S, Casel J, Kaplan B. Psychosocial assels, life crisis and the prognosis of pregnancy. Am J Epidemiol 192; 95:432. Papiernik-Berkhauer E. Coefficient de risque d'accouchement premature. Presse Med 1969; 77:793. Papiernik E, Bouyer J, Drefus J, et al. Prevention of preterm births: a perinatal study in Hagenau, France. Pediatrics 1985; 76:154. Procidano ME, Heller K. Measures of perceived social support from friends and from family: Three validation studies. Am J Comm Psychol 1983; 11:1. Spielberger CS, Gorsuch RL, Lushene RE. Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press, 1983. Yamamoto KJ, Kinney DK. Pregnant women's ratings of different factors influencing psychological stress during pregnancy. Psychological Reports 1976; 39:203-214. Zuckerman M, Lubin B. The Multiple Affect Adjective Checklist. San Diego: Educational and Industrial Testing Service, 1965. AuthorAffiliation Mary Lou Moore, Ph.D., R.N.C., F.A.A.N., Paul Meis, M.D., Sheliah Jeffries, M.P.H., R.D., J.M. Ernest, M.D., Lois Buerkle, R.N., B.S.N., Melissa Swain, R.N., and Carol Hill, B.A. AuthorAffiliation Address correspondence to Dr. M.L. Moore, Department of Obstetrics and Gynecology, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC 27103, USA.

Appendix A
Risk Assessment Form

Risk Assessment of Preterm Delivery

Score	*Initial Screen*	Score	*Repeat Screen (24–28 weeks)*
	Socioeconomic Conditions		*Current Pregnancy*
1	2 or more children at home	1	≥ 2 lb weight loss/month in 2nd trimester
3	8 years or less completed education	3	Total weight loss of 5 lb by 26 weeks
1	9–11 years high school, no degree	2	Total weight gain ≤ 8 lb by 26 weeks
1	Less than 18 years old, not in school	2	Persistent albuminuria > trace
4	Less than 16 years old	2	Bacteriuria
2	16–19 years old	5	Pyelonephritis in this pregnancy
2	Greater than 40 years old	3	Febrile illness
2	Single gravida	2	Hypertension ≥ 120/80 in 2nd trimester
3	Less than 5 feet tall	10	Hemoglobinopathies (SS, SC, other)
3	Less than 100 pounds	3	Anemia < 9 g hbc or < 28% hct
1	Work outside home	2	First trimester bleeding
3	Heavy physical or stressful work (patients' perception)	4	Second trimester bleeding
3	Greater than 30 minutes commute to work	4	Engaged head at 26 weeks
2	Smokes > 10 cigarettes a day or uses snuff	4	Effacement > 20% at 26 weeks
	Past History	4	Dilation of internal os
1	Only one abortion < 14 weeks	4	Uterine irritability
2	Two abortions < 14 weeks	5	Placenta previa (after 22 weeks with bleeding)
3	Three or more abortions < 14 weeks	10	Polyhydramnios (confirmed by ultrasound)
5	One second trimester abortion (spontaneous)	5	Oligohydramnios (confirmed by ultrasound)
5	One second trimester abortion (induced)	3	Large uterine fibroids (> 5 cm)
10	Repeated second trimester abortions	10	Multiple gestation
10	Premature delivery or birth weight < 2500 g	10	Abdominal surgery in this pregnancy
5	Two or more previous still births/ neonatal deaths		
1	Less than one year since last birth; Birth to LMP		——— Total Score (B)
3	Cervical conization		
4	Pyelonephritis or > 3 urinary tract infections		Special Instruction Given To
5	Uterine anomaly (except myoma) or DES exposure		High-Risk Mother ——— Date ——— initial

Appendix A
Risk Assessment Form (Continued)

Score — Initial Screen
Past History (cont.)
3 History of placenta previa or abruptio
5 Cyanotic heart disease or renal failure

Patient Instruction Sheet
Given ____ Date ____ Initial

____ Total Score (A) ____ Initial
Risk of preterm delivery (circle one)
3 High (≥10) 2 Medium (6–9) 1 Low (≤5)
Date of scoring ____ month ____ day ____ year

____ Total Score (A + B) ____ Initial
Risk of preterm delivery (circle one)
3 High (≥10) 2 Medium (6–9) 1 Low (≤5)
Date of Scoring ____ month ____ day ____ year

Patient name ____ Date of Birth ____ Race: White 1 Black 2 Other 3
County of Residence ____
Estimated Date of Confinement: Original ____ Revised: ____
Physician/Health Dept. Name/Address: ____

Delivery Information: Birth Weight ____ Apgar Score (1) ____ (2) ____ Sex: Male 1 Female 2
Date of Birth ____ Month ____ Day ____ Year
Method of Delivery: Cesarean 1 Vaginal 2

Copy 1 Please Send To Bowman Gray School of Medicine After Initial Screen
Copy 2 Please Send To Bowman Gray School of Medicine After Baby Is Born

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