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Coping Style and Depressive Symptomatology during Pregnancy in a Private Setting Sample

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Aim: to evaluate the association of antenatal depressive symptomatology (AD) with life events and coping styles, the hypothesis was that certain coping strategies are associated to depressive symptomatology.
Methods: we performed a cross sectional study of 312 women attending a private clinic in the city of Osasco, São Paulo from 27/05/1998 to 13/05/2002. The following instruments were used: Beck Depression Inventory (BDI), Holmes and Rahe Schedule of Recent Events (SSRS), Folkman and Lazarus Ways of Coping Questionnaire and questionnaire with social-demographic and obstetric data. Inclusion criteria: women with no past history of depression, psychiatric treatment, alcohol or drug abuse and no clinical-obstetrical complications. Odds ratios and 95% CI were used to examine the association between AD (according to BDI) and exposures variables. Hypothesis testing was done with χ^2 tests and a p value < .05.
Results: AD occurred in 21.1% of pregnant women. By the univariate analyses, education, number of pregnancies, previous abortion, husband income, situation of marriage and score of SSRS were associated with AD. All coping styles were associated with AD, except seeking support and positive reappraisal**.** By the multivariate analyses, four coping styles were kept in the final model: confront (p = .039), accepting responsibility (p < .001), escape-avoidance (p = .002), problem-solving (p = .005).
Conclusions: AD was highly prevalent and was associated with maladaptive coping styles.
Keywords: antenatal depression, coping, life events, pregnancy.

Objetivo: evaluar la asociación de la sintomatología depresiva antenatal (AD), con acontecimientos de la vida y estilos de afrontamiento, la hipótesis era que ciertas estrategias de afrontamiento se asocian a síntomas depresivos.
Método: Se realizó un estudio transversal con 312 mujeres que asistían a una clínica privada en la ciudad de Osasco, São Paulo desde 27/05/1998 a 13/05/2002. Los instrumentos utilizados fueron: el Inventario de Depresión de Beck (BDI), la escala de reajuste social de Holmes y Rahe (SRRS), la escala de estrategias de afrontamiento (ways of Coping)de Folkman y Lazarus y un cuestionario de datos socio-demográficos y obstétricos. Criterios de inclusión: mujeres sin antecedentes de depresión, tratamiento psiquiátrico, o de abuso de drogas o alcohol y sin complicaciones clínico-obstétricas. Se utilizaron Odds ratios y IC del 95% para examinar la asociación entre AD (según BDI) y las variables de exposición. La prueba de hipótesis se llevó a cabo con tests de ⊠² y un valor de p < ,05.
Resultados: AD se produjo en el 21,1% de las mujeres embarazadas. Con el análisis univariado, la educación, el número de embarazos, abortos anteriores, los ingresos del marido, la situación del matrimonio y la puntuación de SRRS se relacionan con AD. Todos los estilos de afrontamiento se asocian con AD, con excepción de la búsqueda de apoyo y la reevaluación positiva. Utilizando el análisis multivariado, cuatro estilos de afrontamiento se mantuvieron en el modelo final: enfrentamiento (p = ,039), aceptar responsabilidad (p < ,001), huida-evitación (p = ,002), y resolución de problemas (p = ,005).
Conclusiones: La AD fue altamente prevalente y se asocia con conductas de afrontamiento mal adaptadas.
Palabras clave: depresión antenatal, afrontamiento, eventos de la vida, embarazo.

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Emotional distress in women during pregnancy has been shown to increase the risk of adverse outcomes, including post-partum depression (Anderson, Sundstrom-Poromma, Wuff, Astrom, & Bixo, 2004; Chung, Lau, Yip, Chiu, & Lee, 2001; Heron et al., 2004, Huizink, Robles de Medina, Mulder, Visser, & Buitelaar, 2003; Patel & Prince, 2006; Rahman, Bunn, Lovel, & Creed, 2007; Ferri et al., 2007). There is some agreement that antenatal depressive symptomatology (AD) is a multi-factorial problem demanding a psychosocial approach. Among several risk factors that may play a role in mood disturbances during pregnancy, stress and coping style have been mentioned. These two risk factors are amenable to interventions in contrast to others such as genetic and familiar background. Several studies have focused on women during the postpartum period and have found a relationship between stress and coping and depressive symptomatology. In a previous study with a sample of women in the early postpartum period, the way of coping, but not the life events (LE), was associated with depression (Faisal-Cury, Tedesco, Kahhale, Menezes, & Zugaib, 2004). In addition a prospective study found that higher depressive coping during pregnancy predicted higher depression levels six months after delivery (Demyttenaere, Maes, Nijs, Odendael, & Van Assche, 1995). Life events constitute demands for adaptation to life of the individuals and represent a number of common experiences which are relevant to the majority of people.

Coping has been defined as the cognitive and behavioral efforts to master, tolerate, or reduce external and internal demands and conflicts among them. The purpose of these efforts is to manage or alter the source of stress (problem-focused) or regulate the stressful emotions (emotion-focused) (Folkman & Lazarus, 1980). Considering that the strategies focused in the emotions occur after the evaluation that nothing can be done to reduce threat or damage, problem-focused coping is considered adaptive while emotion-focused is maladaptive (Bjorck, Cuthbertson, Thurman, & Lee, 2001).

Studies aiming the evaluation of coping during pregnancy have used different methods, instruments and theoretical background (De Tychey, Spitz, & Briançon, 2004; Levy-Shiff, Dimitrovsky, Shulman, & Har-Even, 1998; Huizink, de Medina, Mulder, Visser, & Buitelaar, 2002; Roesch, Schetter, Woo, & Hobel, 2004; Rudnicki, Graham, Habboushe, & Ross, 2001; Pakenham, Smith, & Rattan, 2007) presented discrepant results. A longitudinal study with 140 primiparous mothers evaluated from 7th month of pregnancy to12 months postpartum found that activity-focused coping was associated with involvement with infants but had little or no direct relationship with maternal distress, whereas emotion-focused was associated with increased maternal distress. The authors suggest caution against simplistic interpretations of the relationship between coping and parenting adjustment since coping efforts can have differential effects, depending on the mode of coping used and on the outcome measured (Levy-Shiff et al., 1998). According to Huizink et al. (2002) coping in nulliparous normal-risk pregnancy is a process with small temporal variations. Higher educational level predicted a high score on both coping strategies in the early period of pregnancy but only emotion-focused coping was negatively related to the number of pregnancy complaints and to experienced distress.

Others studies addressed the question of a relationship of specific coping styles and different problems during pregnancy like preterm labor (Demyttenaere et al., 1995), obstetrical complications (Roesch et al., 2004) and depressed mood (Rudnicki et al., 2001). In the latter, a longitudinal study with 155 lower income minority pregnant women, a formed association between avoidant coping style and depressed mood during pregnancy. A similar finding was suggested by De Tychey et al., 2004) in a prospective study with 221 pregnant women, in France, Switzerland and Scotland. Compared to non-depressed women, pregnant women presenting depressive symptoms used more maladaptive coping strategies like denial, cognitive distraction, feelings of guilt, and use of substances, among others.

One important aspect is that most studies on AD and coping were carried out with women from tertiary medical center in developed countries. Data about pregnant women mental health from private setting in developing countries are rare (Faisal-Cury & Menezes, 2007). In 2003, in São Paulo, 40% of women had a private health plan (Ministerio da Saude, 2007).

The aim of the present study was to investigate the association of depressive symptoms developed during pregnancy with life events and patterns for coping in pregnant women attending a private clinic in a large urban center of a developing country. We also hypothesized that maladaptive coping strategies would be associated to depressive symptomatology.

Methods

Study design and sample

The methodology has been described in a previous publication (Faisal-Cury & Menezes, 2007). We performed a cross sectional study with women during the second half of pregnancy who attended a private clinic in Osasco, a city that is part of Greater São Paulo, Brazil. Osasco, the biggest city in the west area of The State of São Paulo, has a population of approximately 700.000 habitants, and its main economic activities are commerce and industry.

A convenience sample of 374 pregnant women, doing ante natal evaluation were invited to take part in a pregnancy anxiety-depression research, during the period of 05/27/1998 to 05/13/2002. The clinic attends 20 women per month mainly with low-risk pregnancies covered by private health plans. The inclusion criteria considered: singleton pregnant women over 20 weeks, with no clinical or obstetrics abnormality; no past history of depression, psychiatric treatment, and alcohol

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or drug abuse. Three hundred and twelve pregnant women were included in the study. They were mainly white (80.5%), catholic (58.2%) and legally married (73.1%). The mean age of subjects was 26 (varied from 16 to 42). More than half (59.6%) had a previous pregnancy. Two hundred and fifty five (81.7%) had no previous abortion and a hundred and sixty five (52.9%) had one or more children. The mean number of years married was 4.8, with 56.9% of women being in their first five years, while 33.8% had six or more years of relationship. Most women (88.1%) had less than 11 years of education. The mother's average income was US$ 153 (SD: US$253). A hundred sixty three women (52.2%) had no income while twenty nine (9.3%) had a monthly income between US$ 440 and US$ 2.400.

No one refused to participate. Thirty one (8.2%) women were not included due to a history of previous depression. Sixty-two (16.5%) women were excluded because of missing data in one of the main explanatory variables (ways of coping sub-scales or life events scale). Nine women had missing data some of socio-demographic variables but were not excluded from analysis. Thus, 312 pregnant women (83.4%) completed the psychological evaluation (table 1).

Table 1
Background characteristics of 374 pregnant women (312 participants and 62 excluded)

Variable	Women in studied group *N* (%)	Women excluded *N* (%)	Descriptive Level
AD cases			$p = .97$
No	246 (78.8%)	49 (79.0%)	
Yes	66 (21.2%)	13 (20.9%)	
Age (years)			$p = .04$
14/19	38 (12.2%)	3 (4.8%)	
20/29	187 (59.9%)	33 (53.2%)	
30/44	87 (27.9%)	26 (41.9%)	
Years of education			$p = .91$
Up to 8	73 (24.1%)	15 (24.6%)	
8 to 11	191 (63.0%)	37 (60.7%)	
More than 11	39 (12.9%)	9 (14.7%)	
Religion			$p = .80$
Catholic	180 (58.2%)	37 (61.7%)	
Others	72 (23.3%)	14 (23.3%)	
None	57 (18.5%)	9 (15.0%)	
Ethnic			$p = .39$
White	248 (80.5%)	53 (85.5%)	
Other	60 (19.5%)	9 (14.5%)	
Situation of marriage			$p = .33$
Legally married	226 (73.1%)	49 (79.0%)	
Living together	49 (15.8%)	8 (12.9%)	
Others	34 (11.0%)	5 (8.1%0	
Women income (US$)			$p = .12$
0	163 (52.2%)	27 (43.5%)	
1 to 400	120 (38.5%)	24 (38.7%)	
More than 400	29 (9.3%)	11 (17.8%)	
Husband income (US)			$p = .02$
0	114 (36.6%)	13 (21.0%)	
1 to 400	104 (33.3%)	21 (33.9%)	
More than 400	94 (30.1%)	28 (45.1%)	
Number of pregnancies			$p = .64$
1	126 (40.4%)	27 (43.5%)	
2/8	186 (59.6%)	35 (56.5%)	
Number of children alive at home			$p = .26$
0	147 (47.1%)	34 (54.8%)	
1 or more	165 (52.9%)	28 (45.2%)	
Previous abortion			$p = .84$
No	255 (81.7%)	50 (80.6%)	
Yes	57 (18.3%)	12 (19.4%)	

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Instruments

Beck Depression Inventory (BDI)

The BDI (Beck, Ward & Mendelson, 1961) was used to identify probable cases of depression. A cut-off of > 15 was used according a previous validation in Brazil (Gorenstein & Andrade, 1996). The Portuguese translation of the BDI was used. The scales consist of 21 items, including symptoms and attitudes with intensities ranging from neutral to a maximum level of severity, ranked from 0 to 3. This inventory has been used in several studies in different countries (Chung et al., 2001; Faisal-Cury et al., 2004; Teissedre & Chabrol, 2004) and BDI Brazilian versions have good reliability and validity (Gorenstein, Andrade, Vieira Filho, Tung, & Artes, 1999; Andrade, Gorenstein, Vieira Filho, Tung, & Artes, 2001). The BDI was considered a useful screening test for depression during pregnancy (Holcomb, Stone, Lustman., Gavard, & Mostello, 1996)

Social Readjustment Rating Scale (SRRS)

The SRRS (Holmes & Rahe, 1967) was used to evaluate the score in stressful life events during the last twelve months. It covers different types of life events as death of a beloved person, husband's death, retirement, unemployment, vacation, etc. Each event has a previous defined value and the higher is final score, the higher is the risk of getting sick. The Portuguese translation version was used. Participants' total score was classified in four percentiles (varying from 1, the lower, to 4, the higher). This scale has been used in studies of several diseases such as hepatitis (Srivastava & Boyer, 2010), epilepsy (Vaaler, Morken, Iversen, Kondziella, & Linaker, 2010), irritable bowel syndrome (Rey, Moreno-Ortega, Garcia Alonso, & Diaz-Rubio, 2009), and psoriasis (Manolache, Petrescu-Seceleanu, & Benea, 2010)

Coping

Measurement of coping style was performed using The Ways of Coping Questionnaire (WCQ) (Folkman & Lazarus, 1988a), a 66-item questionnaire developed to tap into two main types of coping: emotion-focused and problem-focused coping. There are eight empirically derived subscales of coping: confronting, distancing, self-controlling, seeking support, accepting responsibility, escape-avoidance, planful problem-solving and positive reappraisal (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). Maladaptive coping strategies include confrontive coping, accepting responsibility and escape-avoidance (Bjorck et al., 2001). Confrontive coping describes aggressive efforts to alter the situation, as well a degree of hostility and risk-taking. Escape-avoidance describes wishful thinking and behavioral efforts to escape or avoid. Accepting responsibility acknowledges one's own role in the problem with a concomitant theme of putting things right. Although one may view this type of coping as adaptive, as a matter of fact accepting responsibility scale emphasized negative variables. It focused on self-recrimination versus appropriate responsibility assumption (Bjorck et al., 2001).

The definition of subscales has been published elsewhere (Folkman et al., 1986). The subscales of problem-focused and emotion-focused strategies showed an internal consistency of 0.80 and 0.81, respectively. The subscales have a test-retest reliability of between 0.39 and 0.82 over 3 years (Hatton, Knussen, Slopper, & Turner, 1995). The WCQ was validated in Brazil (Savoia, Santana, & Mejias, 1996). Participants were asked to indicate on a 4-point Likert scale (0 = does not apply/or not used; 1 = used somewhat; 2 = used quite a bit; 3 = use a great deal) the extent to which they used each strategy for the fact of being pregnant**.** Adding the scores we obtained subscales. The results for each coping variable were categorized in 2 groups: not used/used occasionally (group 0) or used frequently/used a lot (group 1). We employed this strategy to have more balanced groups since the scores 0 or 1 were more frequently used in several coping variables. Even with this procedure, three coping variables (distancing, confronting and accepting responsibility) resulted in unbalanced groups.

Additional information

A questionnaire was used at the patient inclusion moment, to obtain information on socio-demographic characteristics (couple's information about age, religion, years of education, employment, ethnicity, income, and length of marriage), generally during the second semester. Maternal health information included past obstetrical history, number of children alive and history of miscarriage. Considering marital status, women were classified in legally married and living together (not legally married) and others, which included single and divorced. All variables were categorized.

Procedures

The research project was approved by the Ethics Committee of Osasco. Subjects who met the inclusion criteria were invited to participate by the main investigator (AFC), during the ante-natal appointments. During the interview, the participants answered the questionnaire, the BDI, WCQ and SRRS forms.

Statistical analyses

The presence of AD, according to the BDI, was estimated with 95% CI. Odds ratios with 95% confidence intervals were used to examine the association between AD and exposure(s) variables. All variables were categorized. Hypothesis testing was done with χ^2 tests, or χ^2 tests for linear trend, when categories were ordered. Multiple

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variables analysis where performed using a stepwise regression logistic procedure. Odds ratio and 95% confidence intervals were evaluated. A p value of $< .05$ was considered statistically significant. Statistical analyses were performed using STATA 9 software (Stata, 2005).

Results

Univaried analysis

Regarding coping patterns, women whose scores were high in distancing, escape-avoidance, self-controlling, confronting, problem-solving and accepting responsibility, had greater odds to be depressed. Seeking support and positive reappraisal were not statistically associated to AD (table 2).

Years of education, number of pregnancies, previous abortion, husband income, situation of marriage and score of SSRS were associated with AD. All others variables evaluated (number of children alive at home, number of pregnancies, ethnic, women income, age) did not show statistically significant associations with AD (table 3).

Multivariate analysis

In the stepwise logistic regression analysis only four variables remained in the final model: confronting (*OR*: 8.60; CI 95% 1.07:15.0, $p = .039$), accepting responsibility (*OR*: 7.89; CI 95% 2.46:12.2, $p < .001$), escape-avoidance (*OR*: 8.23; CI 95% 1.58:8.03, $p = .002$); problem-solving (*OR*: .52; CI 95% 0.18:0.73, $p = .005$) (table 4).

Discussion

Our results have showed that AD is quite common among this sample of middle-class, low risk pregnant women from private setting and that certain coping patterns are associated with this problem

The prevalence of symptoms of AD was quite high regardless the fact that previous studies have shown that self-reports evaluation possibly overestimated the prevalence of depression. Secondly, there are some criticisms about using BDI that includes a few somatic questions that may reflect normal physiological changes during pregnancy or puerperium (Salamero, Marcos, Gutierrez, & Rebull, 1994). Nevertheless,

Table 2

Total sample, number and percentage of AD cases, according to Beck Depression Inventory, Odds Ratio, 95% confidence interval, p-values and order of entrance into multivariate model for each coping pattern (explicative variable)

Explicative variable	Total (*n*)	AD cases (%)	*OR*	CI (95%)	Descriptive Level	Entrance order *
Score of distancing					.000	4
0	295	56 (18.9)	1.00			
1	17	10 (58.8)	6.09	2.16 : 17.1		
Score of escape–avoidance					.000	3
0	268	40 (14.9)	1.00			
1	44	26 (59.1)	8.23	3.91 : 17.3		
Score of self-controlling					.004	9
0	241	45 (18.6)	1.00			
1	71	21 (29.5)	1.82	0.99 : 3.36		
Score of confronting					.000	1
0	297	56 (18.8)	1.00			
1	15	10 (66.6)	8.60	2.72 : 27.2		
Score of positive reappraisal					.09	
0	161	40 (24.8)	1.00			
1	151	26 (17.2)	0.62	0.36 : 1.09		
Score of seeking support					.15	
0	216	41 (18.9)	1.00			
1	96	25 (26.0)	1.50	0.84 : 2.66		
Score of problem-solving					.03	7
0	181	46 (25.4)	1.00			
1	131	20 (15.2)	0.52	0.29 : 0.95		
Score of accepting responsibility					.000	2
0	263	38 (14.4)	1.00			
1	49	28 (57.1)	7.89	3.85 : 16.1		

* variable entrance order into multivariate mode

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Table 3
Total sample, number and percentage of AD cases, according to Beck Depression Inventory (BDI), odds ratio, 95% confidence intervals, p-values and order of entrance into multivariate model for each explicative variable)

Explicative variable	Total (*n*)	AD cases (%)	*OR*	CI (95%)	Descriptive Level	Entrance order **
Years of education					0.001	5
Up to 8	73	26 (35.6)	1.00			
8 to 11	191	36 (18.8)	0.41	0.22 : 0.77		
More than 11	39	3 (7.7)	0.15	0.03 : 0.57		
Number of children alive at home					0.25	
0	147	27 (18.3)	1.00			
1 or more	36	39 (23.6)	1.37	0.79 : 2.39		
Number of pregnancies					0.06	10
1	126	20 (15.8)	1.00			
2 to 8	186	46 (24.7)	1.74	0.96 : 3.13		
Previous abortion					0.03	8
No	255	48 (18.8)	1.00			
Yes	57	18 (31.5)	1.99	1.04 : 3.79		
Ethnic					0.76	
White	248	54 (21.7)	1.00			
Other	60	12 (20.0)	0.89	0.44:1.81		
Religion					0.11*	
Catholic	180	35 (19.4)	1.00			
Others	72	12 (16.6)	0.82	0.40 : 1.70		
None	57	18 (31.5)	2.56	0.97 : 3.75		
Husband income (US$)					0.04*	11
0	114	28 (24.5)	1.00			
1 to 400	104	26 (25.0)	1.02	0.55 : 1.89		
More than 400	94	12 (12.7)	0.44	0.21 : 0.95		
Women income (US$)					0.16*	
0	163	37 (22.7)	1.00			
1 to 400	120	27 (22.5)	0.98	0.56 : 1.73		
More than 400	29	2 (6.9)	0.25	0.05 : 1.13		
Situation of marriage					0.001*	6
Legally married	226	38 (16.8)	1.00			
Living together	49	15 (30.6)	2.18	1.07 : 4.43		
Others	34	13 (38.2)	3.06	1.39 : 6.74		
Age (years)					0.58*	
14 to 19	38	11 (28.9)	1.00			
20 to 29	187	37 (19.8)	0.60	0.27 : 1.33		
30 to 44	87	8 (21.1)	0.64	0.26 : 1.54		
Score of SSRS (percentile)					0.007*	12
1	79	10 (12.6)	1.00			
2	78	15 (19.2)	1.64	0.68 : 3.94		
3	78	18 (23.0)	2.07	0.87 : 4.88		
4	77	23 (29.8)	2.76	1.26 : 6.84		

* p-value for chi-square test to evaluate linear tendency
** variable entrance order into multivariate mode

BDI has good psychometric properties (Beck, Steer, & Garbin, 1988) and has been used in several studies during pregnancy, some of them evaluating the relationship between AD or postpartum depression (PPD) and coping patterns to life events (O'Hara, Neunaber, & Zekoski, 1984; Holcomb et al., 1996). Thirdly, the cross sectional design does not allow any causal implications. In few specific circumstances it is quite difficult to define whether we are addressing a coping strategy (such as escape-avoidance) or a symptom of depression. Finally, we did not evaluate cognitive appraisal that interacts with stressful events and patterns of coping influencing encounter outcomes in few ways.

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Table 4
Final model of logistic regression after multivariate analysis showing the variables, with their respective odds ratio, 95% confidence intervals and p-values

Variable	Odds Ratio	Odds Ratio Adjusted	CI (95%)	Descriptive Level
Score of Confronting				0.039
0	1.00			
1	8.60	4.01	1.07 : 15.0	
Score of Accepting responsibility				0.000
0	1.00			
1	7.89	5.4	2.46 : 12.2	
Score of Escape–avoidance				0.002
0	1.00			
1	8.23	3.5	1.58 : 8.03	
Score of Problem-solving				0.005
0	0.18			
1	0.52	0.36	0.18 : 0.73	

* p-value for chi-square test to evaluate linear tendency
** variable entrance order into multivariate mode

One strength of our work is the sample size (and the absence of refusal). The excluded women, because of missing data in one of the psychological explanatory variables (SRRS or coping patterns), had the same AD prevalence. Moreover, participants are from private setting that is often forgotten in medical research.

AD was present in 21.1% of these pregnant women. The result is in agreement with others studies that showed that prevalence of depression during pregnancy is approximately 15% to 35% (Faisal-Cury, Menezes, Araya, & Zugaib, 2009), with 10% of women meeting the criteria for Major Depressive Disorder (Steiner & Yonkers, 1998). According to different authors, PPD may affect up to 13% of postpartum women (Bennett, Einarson, Taddio, Koren, & Einarson, 2004; O'Hara & Swain, 1996), and most of them have already been depressed during pregnancy.

Among the explanatory variables, women's years of education and husband incomes were protective against AD, results that are in agreement with a cohort study in India (Patel, Rodrigues, & DeSouza, 2002). The association of depression (and anxiety) with poverty-related variables has been confirmed by other studies in developing countries (O'Hara & Swain, 1996). In Brazil, two hospital based studies also yielded high prevalence of depression among pregnant women and confirmed the association between depressive symptomatology and lower education (Lovisi, López, Coutinho, & Patel, 2005; Ferri et al., 2007)

Other background variables associated to AD were history of previous abortion and situation of marriage. Abortion has not been extensively associated to AD but at least one study in a developing country, Nigeria, confirmed our results (Fatove, Adeveni, & Oladimeji, 2004). Single or divorced pregnant women are at greater risk of depression symptomatology during pregnancy and postpartum. Possibly, the fact of not being married (or having a partner to count with) may increase the vulnerability of women in a moment where the emotional and social demands are really high. Social support has been demonstrated to buffer or decrease the risk of AD and PPD (Fatove et al., 2004; O'Hara & Swain, 1996).

With regard to LE score, we found that only women in the higher percentile had a greater chance of having AD. These results are in agreement with the work of Areias and colleagues (Areias, Kumar, Barros, & Figueiredo, 1996) that found in a small sample of pregnant women and their husbands an association between stressful life events and depression during pregnancy and postpartum. A meta-analysis confirmed the role of LE in PPD (Wilson et al., 1996). It is worth to mention that SSRS has been criticized for measuring general life events (Arizmendi & Affonso, 1987). Ideally a measure of LE for pregnant women should address specific concerns to pregnancy and the childbirth experience, including external events (marital conflicts, socio-economic deprivation, etc), physical source of distress (pain, fatigue, etc) and internal events (perception of stress, coping mechanisms, etc). It is recognized that stressors are multiple, complex and, more importantly, tend to vary in their relative impact as the childbirth process unfolds, not allowing to treat these events as discrete circumscribed variable but, instead as a continuous dynamic variable (Arizmendi & Affonso,1987).

Since the relationship between depression during pregnancy and puerperium and LE may be influenced by women's coping style (Demyttenaere et al., 1995), it is useful to know how pregnant women handle the stress at a time of emotional vulnerability, multiple demands and sense of uncontrollability (Wenzel, Haugen, Jackson, & Robinson, 2003).

The results of our multivariate analysis showed that specific coping styles are more important than other socio-demographic and obstetric factors that have been previously

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linked to mood disturbance during pregnancy. If this is true, assessments of coping patterns would be mandatory to the understanding of AD.

Coping has been defined as the cognitive and behavioral efforts to manage (master, reduce or tolerate) a troubled person-environment relationship and can be viewed as two major functions: the regulation of distressing emotions (emotion-focused) or doing something to change for the better the problem causing the distress (problem-focused) (Folkman & Lazarus,1985). Generally, problem-focused coping is considered adaptive while emotion-focused coping is maladaptive (Bjorck et al., 2001). However, this relationship may be more complex. For example, confrontive coping (a problem-focused strategy) is often maladaptive, whereas positive reappraisal (an emotion-focused strategy) is generally adaptive (Folkman & Lazarus,1988 b). Another fact is that selection of a coping style may be influenced by gender (Folkman & Lazarus, 1980; Gramling, Lambert, & Pursley-Crotteau, 1998), age (Folkman, Lazarus, Pimley, & Novacek, 1987), cultural background (Morling, Kitayama, & Miyamoto, 2003) and situation (Folkman et al., 1986). However, there is no clear consensus about which coping strategies are most effective in resolving problems or relieving emotional distress. Some studies have found that problem-focused coping decreases distress, whereas emotion-focused coping increases it (Felton & Revenson, 1984). In contrast, others studies have reported that emotion-focused coping decreases distress or that problem-focused coping has little effect on emotional distress (Aldwin & Revenson, 1987).

There are few studies about coping strategies during pregnancy or during the transition to parenthood (Huizink et al., 2002; Levy-Shiff et al., 1998; De Tychey et al., 2004; Pakenham et al., 2007). Although an association between depressive symptoms and maladaptive coping strategies has been observed, caution against simplistic interpretations of these findings is recommended.

The results of our study have shown that pregnant women with depressive symptoms used several coping mechanisms, either emotion-focused or problem-focused. In fact, in the univariate analysis it seems that depressed women score higher in almost all coping strategies, except in positive reappraisal and seeking support. One possible explanation is that depressed women tend to exaggerate their evaluation of feeling and attitudes regardless of the situation they are dealing with (e.g., pregnancy, motherhood). Interestingly, however, is the finding, in our multivariate model, that higher scores in maladaptive coping strategies (escape-avoidance, confront and accepting responsibility) and lower scores in adaptive coping strategies (problem-solving) are associated to depressed mood. Although a simple adaptive-maladaptive dichotomy approach has not been considered appropriate for all coping behaviors (Bjorck et al., 2001), our results clearly support a different view. The association between maladaptive coping strategies and AD suggests that either pregnant woman may become depressed because handle with stressful encounters inadequately or the stressful events lead them to mood disturbance.

Pregnant women with depressive symptomatology have a lower chance to use frequently planful problem-solving comparing to non-depressed pregnant women. Planful problem-solving is associated with an improved emotion state (Folkman & Lazarus, 1988b). It is assumed that people begin to feel better when they face the problem that is causing distress. In our case, participants may feel that they can't do much about the problem they are living and then give-up of trying to do something. The same hypothesis has been already suggested (Pakenham et al., 2007). Alternatively, once they got depressed (for any other reason), they give-up searching for any possible solution. Reinforcing the same idea, depressed pregnant women used more often confront coping than non-depressed pregnant women. A previous work showed the association between depression and confrontive coping (Folkman & Lazarus, 1986). Confrontive coping, defined as aggressive efforts to alter the situation (Folkman et al., 1986) may fail to improve person-environment relationships and to provide relief from distress (Folkman & Lazarus, 1988b).

One unexpected finding, the lack of association of depressed mood and seeking support, deserves a comment. Seeking social support has been shown to be inversely associated to symptoms of depression in non pregnant women (Bjorck et al., 2001). Social support has been consistently associated with lower risk of depression during pregnancy and postpartum (Fatove et al., 2004; O'Hara & Swain,1996). In our study, we did not address the problem of social support and only evaluated a related coping mechanism. One can think that women may not use seeking support coping strategies once they have adequate social support (from husband or someone else). Alternatively, mothers who experience continuously stressful conditions and therefore engage in frequent help-seeking behaviors may exhaust their resources or may perceive support as being less helpful (Belsky & Rovine,1984). More assessments of specific coping patterns in different scenarios (with and without social support) are necessary. In fact, a longitudinal study of coping styles throughout pregnancy and postpartum is recommended.

Finally, the present study has some limitations that have to be considered. Firstly, the inclusion/exclusion criteria limits generalization of the results, since the sample was constituted by white, middle-class, mostly married women, with no medical condition or history of depression and covered by private health plans. Comparing to other groups of women (single or divorced, without medical insurance, etc) this is clearly a group of lower risk for AD. Moreover, we did not include women with previous depression (31 cases) because we were mainly interested to study women that developed depressive symptoms during pregnancy, and to evaluate how they coped with them.

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Conclusion

AD was present in 21.1% of this sample of middle-class, low-risk, pregnant women from a private clinic. Depressed pregnant women scores higher in maladaptive coping strategies (confront, accepting responsibility and escape-avoidance) and lower in an adaptive coping strategy (problem-solving), suggesting that coping pattern is associated in some way with the problem. An antenatal care that highlights the importance of coping patterns, promoting the use of adaptive strategies is advisable, mainly in vulnerable women. Considering a pragmatic approach of pregnant women mental health, coping is a modifiable factor related to depression that can be addressed for both, physicians and psychologists, during prenatal care

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