

Twin Pregnancies: Evaluation of Major Depression, Stress, and Social Support

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Background: Twin pregnancies are at increased physiological and psychosocial risks. **Objective:** To investigate the prevalence of major depression in twin pregnancies and correlate with stress and social support. **Method:** The study included 51 pregnant women under specialized prenatal care who were evaluated by a Portuguese version of the semi-structured questionnaire Primary Care Evaluation of Mental Disorders (PRIME-MD) for Major Depression, and the Prenatal Psychosocial Profile (PPP) for evaluation of stress and social support. **Results:** Major depression was found in 33.3% of pregnant women, and prevailing symptoms were fatigue or loss of energy (100%), insomnia or hypersomnia (82.4%), changes in appetite (82.4%), decreased interest in daily activities (82.4%), and psychomotor agitation or retardation (82.4%). Among pregnant women who were diagnosed depressive, 76.5% also had a high level of stress and 47.1% complained about lack of social support. Statistical significance was found when correlating depression with perception of negative aspects of having twins and belief in significant body changes during pregnancy ($p = .005$ and $.03$, respectively). Marital status, occupation, and pregnancy planning were not significantly associated with the diagnosis of depression. **Conclusion:** Major depression occurs in one-third of pregnant women expecting twins and is associated with higher levels of stress and lack of social support. A multidisciplinary approach in these cases is fundamental to minimize further risks and complications.

■ **Keywords:** twin pregnancy, depression, psychological stress, social support

Suddenly . . . A Twin Pregnancy

Pregnancy may have different meanings to different women. It may entail positive aspects such as the fulfillment of a dream, or a social role, when it changes an unsatisfying and monotonous life, or even when it rescues a relationship. On the other hand, it may also present negative aspects such as when it is not planned, triggers relationship breakups and loss of maternal independence, or is interpreted as a fetal intrusion. Indeed, pregnancies induce various changes in women's bodies, the social roles of a couple and family setting, requiring emotional changes, and adjustments to this new situation.

When pregnancy is diagnosed as multiple, with two or more fetuses, these changes can at first be even more striking for the couple, mainly because of perinatal risks such as pre-term delivery, low birth weight, fetal malformations, increased risk of mortality and morbidity, preeclampsia, and maternal bleeding, among others (Bryan, 2003).

Until the 1980s, multiple pregnancies were considered a rare phenomenon due to their lesser frequency. However,

because of assisted reproduction techniques the number of multiple pregnancies has increased significantly. In Spain, studies show that in the past 20 years twin pregnancies have doubled, and triplets have increased by six times (Roca de Bes et al., 2008).

In Brazil, data from the National Household Sample Survey (PNAD) of IBGE, between 1992 and 1999 show a total of 1,033 mothers of twins versus 194,903 non-twin mothers (Pazello, 2006). Colletto (2003) points out that in the city of São Paulo, as assessed in 2003 with the emergence of assisted reproduction, the incidence of twins was 10.45 and 0.29 for triplets per 1,000 births. The increase in worldwide

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incidence of multiple pregnancies, considering perinatal as well as economic and social risks, portrays a troubling scenario for public health.

Notwithstanding the higher risks, couples who undergo assisted reproduction often have a preference for multiple pregnancies, perhaps due to a wish to build an immediate family (Gleicher & Barad, 2009; Kalra et al., 2003), cultural aspects such as beliefs and myths about multiple children, ideals about motherhood with twins, and a search for love or a more emphasized complement to the family (Baor & Blickstein, 2005). To view multiple pregnancies from such a perspective may lead parents expecting multiples, including the attending health team, to neglect the risks (Campbell et al., 2004).

Previous studies that evaluated psychopathological disorders in multiple pregnancies have demonstrated increased incidence of depression and anxiety (Baor & Blickstein, 2005; Campbell et al., 2004; Colpin et al., 1999; Ellison & Hall, 2003; Fisher & Stocky, 2003; Kalra et al., 2003; Klock, 2004; Leonard, 1998; Nys et al., 1998; Roca de Bes et al., 2008; Thorpe et al., 1991; Vilska et al., 2009; Yokoyama, 2003).

Cataldo et al. (2003) point out that the risks of multiple pregnancy bring about greater stress, and relate to the development of depression and anxiety (Pereira & Lovisi, 2008), increasing the risks of this type of pregnancy (Da-Silva et al., 1998; Kennedy & Suttentfield, 2001; Loreto, 2003; Misri, 2000).

In Brazil, studies indicate that the diagnosis of depression in pregnancy can range from 29.5% (Baptista et al., 2006) to 38% in low-income pregnant women (Da-Silva et al., 1998), and that anxiety might reach 70.5% (Baptista et al., 2006). However, studies evaluating the risk of depression disorder among multiple pregnancies are still scarce (Bryan, 2003; D'Alton, 2004; Ellison & Hall, 2003; Roca de Bes et al., 2008; Thorpe et al., 1991), signaling the need for further research on the subject.

As such, this study was based upon the proven need for Brazilian research correlating depressive disorders and multiple pregnancies in an endeavor to investigate the presence of major depression, stress, social support, and self-esteem in women diagnosed with a multiple pregnancies.

Methods

This prospective cross-sectional study was carried out between March 2008 and December 2009 in the Twins Clinic of a tertiary teaching hospital (Hospital das Clínicas, São Paulo University Medical School, São Paulo, Brazil).

During the study period, 51 pregnant women were invited to take part in the study and gave informed consent. The study protocol is registered in Institution's Ethics Committee (CAPPESQ 0150/10). Inclusion criteria were: multiple pregnancies, intact membranes, absence of fetal congenital, or chromosomal abnormalities.

A semi-structured interview was carried out, based upon a questionnaire comprising closed questions that included demographic data such as maternal age (years), education (elementary, high school, and college), religion (yes, no), planning of pregnancy (yes, no), marital status (with partner, without a partner), and professional activity (yes, no), as well as questions to ascertain beliefs about motherhood of twins, expectations about the arrival of multiples, expectations of change after delivery, characteristics of life, and perceived or expected changes during and after pregnancy.

To assess major depression, a Portuguese version of the Primary Care Evaluation of Mental Disorders (PRIME-MD), mood disorders assessment module, translated and validated for the Brazilian population, was applied (Fráguas et al., 2006). This test provides rapid and accurate identification of mental disorders and was developed from criteria proposed by DSM-IV. To evaluate stress and social support, the Prenatal Psychosocial Profile (PPP) was used. There are three separate scales measuring stress, self-esteem, and social support. It was translated and validated for the Brazilian population by Weissheimer (2007).

Qualitative data were analyzed with the technique of content analysis or thematic analysis (Bardin, 1977), a qualitative assessment that implies the quantitative analysis of results, to interpret in an objective, systematic, and quantitative manner the communication content expressed in the interviews. This content was then categorized and analyzed with quantitative techniques.

Quantitative data were analyzed using the software SPSS for Windows version 16.0. Relative frequencies were compared with χ^2 tests with Yates correction for continuity, or Fisher's exact test, when appropriate. Significance level was set at 0.05.

Results

The present study enrolled 51 women with twin pregnancies. Mean maternal age was 28.4 ± 7.7 years (range: 18–47) and gestational age at the time of the interview was 17.2 ± 4.7 weeks. Major depression was diagnosed in 16 (33.3%) women. Demographic details are shown in Table 1.

Fatigue or loss of energy was referred to by all women diagnosed with depression. On the other hand, insomnia or hypersomnia was the most common finding (74.3%) in cases without depression. Several other depressive symptoms were found significantly more often in women with depression (Table 2).

These women were also more concerned about significant physical changes during pregnancy and reported negative expectations more often in the semi-structured interview (Table 3).

Results from the PPP questionnaire showed that 24 (47%) women had stress, 14 (27.5%) reported that were not receiving support from their partners, 15 (29.4%) had a

TABLE 1

Sociodemographic Characteristics According to the Diagnosis of Major Depression in Women With Twin Pregnancies

Characteristics	Major depression		<i>p</i> *
	Yes (<i>n</i> = 16)	No (<i>n</i> = 35)	
Religion			
Catholic	6 (37.5%)	19 (54.3%)	.46
Evangelical church	5 (31.2%)	8 (22.8%)	
Spiritism	2 (12.5%)	1 (2.8%)	
None	3 (18.7%)	7 (20%)	
Currently working	10 (62.5%)	17 (48.5%)	.38
Living with a partner	13 (81.2%)	26 (74.3%)	.73
Planned pregnancy	5 (31.2%)	14 (40%)	.76
Education			
None	0 (0%)	1 (2.8%)	1.00
Up to elementary school	8 (50%)	9 (25.7%)	
Up to high school	6 (37.5%)	18 (51.4%)	
Up to college	2 (12.5%)	7 (20%)	

Note: * χ^2 test or Fisher's exact test.

TABLE 2

Frequency of Depressive Symptoms According to the Diagnosis of Major Depression in Women With Twin Pregnancies

Symptom	Major depression		<i>p</i> *
	Yes (<i>n</i> = 16)	No (<i>n</i> = 35)	
Insomnia or hypersomnia	14 (82.4)	26 (74.3)	.47
Fatigue or loss of energy	16 (100)	23 (65.7)	.01
Decreased or increased appetite	14 (82.4)	18 (51.4)	.02
Less interest in daily activities	14 (82.4)	11 (31.4)	<.01
Depressed mood	10 (58.8)	2 (5.7)	<.01
Feelings of worthlessness or guilt	7 (41.2)	1 (2.9)	<.01
Reduced concentration	9 (52.9)	8 (22.9)	.03
Psychomotor agitation or retardation	14 (82.4)	10 (28.6)	<.01
Recurrent thoughts of death	3 (17.6)	0 (0)	.02

Note: * χ^2 test or Fisher's exact test.

lack of social support, and 11 (21.5%) had a low self-esteem (Table 4).

Discussion

Twin pregnancies are at increased risk for adverse perinatal outcome. Previous studies have also shown greater emotional and social liabilities that are risk factors for depression. In a study involving twin pregnancies following assisted reproduction, Roca de Bes et al. (2008) identified

TABLE 4

Findings From the Prenatal Psychosocial Profile Questionnaire According to the Diagnosis of Major Depression in Women With Twin Pregnancies

Findings	Diagnosis of major depression		<i>p</i> *
	Yes (<i>n</i> = 16)	No (<i>n</i> = 35)	
Stress	13 (81.2)	11 (31.4)	<.001
Lack of partner's support	4 (25.0)	10 (28.6)	1.00
Lack of social support	8 (50.0)	7 (20.0)	.05
Low self-esteem	4 (25.0)	7 (20.0)	.72

Note: * χ^2 test or Fisher's exact test.

depression in 18.9% of the parents up to four years after delivery, while up to one-third of pregnant women bearing twins can be diagnosed with depression during pregnancy (Bryan, 2003; D'Alton, 2004; Ellison & Hall, 2003; Thorpe et al., 1991). The present study, which applied Radloff's Spanish version of the Center for Epidemiological Studies Depression Scale (CES-D), has demonstrated similar figures in twin pregnancies conceived spontaneously in our population.

Studies of pregnant women's mental health require caution because changes in sleep patterns and depressive symptoms such as hunger, fatigue, anxiety, irritability, and poor concentration are commonly seen at certain stages of pregnancy (Baptista & Baptista, 2005). It is therefore essential to employ adequate instruments for evaluation of mental health during pregnancy. PRIME-MD-structured interview allows distinction between physiological symptoms related to pregnancy and abnormal cases of depression.

The high prevalence of depression found in this study highlights the importance of examining the mental health of pregnant women during prenatal care, because it interferes with self-care and adherence to consultations (Baptista et al., 2006). In multiple pregnancies, which require more care and frequent medical follow-up appointments, a concurrent depression leads to even greater risk.

Major depression in our study was associated with several depressive symptoms such as fatigue, loss of energy, changes in appetite, reduced interest in daily activities, depressed mood, feelings of worthlessness and guilt, decreased

TABLE 3

Data From the Semi-Structured Interview According to the Diagnosis of Major Depression in Women With Twin Pregnancies

Interview data	Diagnosis of major depression		<i>p</i> *
	Yes (<i>n</i> = 16)	No (<i>n</i> = 35)	
Concerned with significant physical changes	14 (82.3)	15 (42.9)	.005
Concerned about emotional changes	7 (43.8)	13 (37.1)	.76
Foresees difficulties in caring for more than one baby	15 (93.8)	32 (91.4)	1.00
Believes that having twins has positive aspects	16 (100)	28 (80)	.08
Believes that having twins has negative aspects	9 (56.2)	8 (22.9)	.03

Note: * χ^2 test or Fisher's exact test.

concentration, psychomotor agitation or retardation, and recurrent thoughts of death. Moreover, significant association was described with stress, lack of support, concern with significant body changes, and negative aspects of having twins.

The significant association between stress and major depression emphasizes the need for an accurate psychopathological evaluation as overlap of these conditions can further complicate pregnancy and affect maternal–fetal bonding. Studies also indicate that stress related to delivery and care of twins is associated with increased physiological risk during pregnancy (Elster, 2000; Thorpe et al., 1991). Constant medical follow-up and increased expectations regarding demands and fears also contribute to more stress in women carrying twins (Baor & Blickstein, 2005; Klock, 2004).

Lack of support from friends, coworkers, and family members may be interpreted as a risk factor for depression. In view of the increased stress, social support is crucial to make pregnant women feel secure. The importance of social environment for providing comfort and support to pregnant women was noted, because in the postpartum period women feel safe, aware that other people will help to take care of their babies. Moreover, studies signal the importance of social support to minimize stress during pregnancy and after (Feldman et al., 2004, Garel et al., 2006; Leonard & Denton, 2006).

Concern about physical changes due to a twin pregnancy was also associated with major depression. Fear of body deformity and failure to meet the imposed cultural standards of the ideal of a slim body are associated with other fears arising from multiple pregnancies, maternity, and social demands. Previous studies also refer to the fear of significant physical changes and deformity, of not returning to their previous condition, and the fear that the baby is a threat to her bodily integrity (Garel et al., 2006). Nys et al. (1998) found that 21% of pregnant women felt frustrated when facing the physical discomforts and limitations of pregnancy.

The relationship between awareness of negative aspects of having twins during and after childbirth and depression is also meaningful as it reduces maternal independence, contrary to the popular widespread idea that having twins is always ‘cute’ and ‘wanted’. In this study, women often had not planned their pregnancy and therefore the financial concerns had a great impact. Thus, while the positive and magical belief that twins shield the woman from a depressive condition, more realistic beliefs — although excessively negative — place her at risk for a major depressive disorder.

It can be verified that the main psychosocial risk factors influencing the mental health of women who are pregnant with twins are: exacerbated stress during pregnancy, fear of gaining too much weight or of a deformed body, low self-esteem, lack of social support, and negative beliefs or expectations about the babies, among others. These issues should not be ignored by health professionals when evaluat-

ing the physiological risks of multiple gestations. Attention should also be given to risk factors for a depression disorder, which can negatively influence self-care in pregnant women and their adherence to prenatal care, and later the mother–baby bonding process.

References

- Baor, L., & Blickstein, I. (2005). En route to an ‘instant family’: Psychosocial considerations. *Obstetrics & Gynecology Clinics of North America*, 32, 127–139.
- Baptista, A. S. D., & Baptista, M. N. (2005). Avaliação de depressão em gestantes de alto-risco em um grupo de acompanhamento. *Interação em Psicologia*, 9, 155–163.
- Baptista, M. N., Baptista, A. S., & Torres, E. C. R. (2006). Associação entre suporte social, depressão e ansiedade em gestantes. *PSIC — Revista de Psicologia da Vetor Editora*, 7, 39–48.
- Bardin, L. (1977). *Análise de conteúdo*. Lisboa: Edições 70.
- Bryan, E. (2003). The impact of multiple preterm births on the family. *BJOG: An International Journal of Obstetrics and Gynaecology*, 110(Suppl. 20), 24–28.
- Campbell, D., van Teijlingen, E. R., & Yip, L. (2004). Economic and social implications of multiple birth. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 18, 657–668.
- Cataldo, N. A., Gauer, G., & Furtado, N. R. (2003). *Psiquiatria para Estudantes de Medicina*. Porto Alegre: EDIPUCRS.
- Colpin, H., Munter, A. D., Nys, K., & Vandemeulebroecke, L. (1999). Parenting stress and psychosocial well-being among parents with twins conceived naturally or by reproductive technology. *Human Reproduction*, 14, 3133–3137.
- Colletto, G. (2003). Twinning rate trend in a population sample from the city of São Paulo, Brazil. *Genetics and Molecular Biology*, 26, 245–248.
- Da-Silva, V. A., Moraes-Santos, A. R., Carvalho, M. S., Martins, M. L. P., & Teixeira, N. A. (1998). Prenatal and postnatal depression among low-income Brazilian women. *Brazilian Journal of Medical and Biological Research*, 31, 799–804.
- D’Alton, M. (2004). Infertility and the desire for multiple births. *Fertility and Sterility*, 81, 523–525.
- Ellison, M. A., & Hall, J. E. (2003). Social stigma and compounded losses: Quality-of-life issues for multiple-birth families. *Fertility and Sterility*, 80, 405–414.
- Elster, N. (2000). Less is more: The risks of multiple births. *Fertility and Sterility*, 74, 617–623.
- Feldman, R., Eidelman, A. I., & Rotenberg, N. (2004). Parenting stress, infant emotion regulation, maternal sensitivity, and the cognitive development of triplets: A model for parent and child influences in a unique ecology. *Child Development*, 75, 1774–1791.
- Fisher, J., & Stocky, A. (2003). Maternal perinatal mental health and multiple births: Implications for practice. *Twin Research and Human Genetics*, 6, 506–513.
- Fráguas, Jr., R., Henriques, Jr., S. G., Lucia, M. C. S., Iosifescu, D. V., Schwartz, F. H., Menezes, P. R., . . . Martins, M. A. (2006). The detection of depression in medical setting: A

- study with PRIME-MD. *Journal of Affective Disorders*, 91, 11–17.
- Garel, M., Charlemaïne, E., & Blondel, B. (2006). Conséquences psychologiques des naissances multiples. *Gynécologie Obstétrique & Fertilité*, 34, 1058–1063.
- Gleicher, N., & Barad, D. (2009). Twin pregnancy, contrary to consensus, is a desirable outcome in infertility. *Fertility and Sterility*, 91, 2426–2431.
- Kalra, S. K., Milad, M. P., Klock, S. C., & Grobman, W. A. (2003). Infertility patients and their partners: Differences in the desire for twin gestations. *Obstetrics & Gynecology*, 102, 152–155.
- Kennedy, R. S., & Suttentfield, K. (2001). Postpartum depression. *Medscape Psychiatry & Mental Health Journal*, 6(4). Available at: <http://www.medscape.com/viewarticle/408688>.
- Klock, S. C. (2004). Psychological adjustment to twins after infertility. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 18, 645–656.
- Leonard, L. G. (1998). Depression and anxiety disorders during multiple pregnancy and parenthood. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 27, 329–337.
- Leonard, L. G., & Denton, J. (2006). Preparation for parenting multiple birth children. *Early Human Development*, 82, 371–378.
- Loreto, V. (2003). Transtornos psiquiátricos na gravidez e no pós-parto: diagnóstico e tratamentos. Acolhimento e psicoterapia interpessoal nas intervenções terapêuticas. *Psiquiatria Biológica*, 11, 121–125.
- Misri, S., Kostaras, X., Fox, D., & Kostaras, D. (2000). The impact of partner support in the treatment of postpartum depression. *Canadian Journal of Psychiatry*, 45, 554–558.
- Nys, K., Colpin, H., De Munter, A., & Vandemeulebroecke, L. (1998). Feelings and the need for information and counselling of expectant parents of twins. *Twin Research and Human Genetics*, 1, 142–149.
- Pazello, E. T. (2006). A Maternidade Afeta o Engajamento da Mulher no Mercado de Trabalho? Um Estudo Utilizando a Nascimento de Gêmeos como um Experimento Natural. *Estudos Econômicos*, 36, 507–538.
- Pereira, P. K., & Lovisi, G. M. (2008). Prevalência da depressão gestacional e fatores associados. *Revista de Psiquiatria Clínica*, 35, 144–153.
- Roca de Bes, M., Gutierrez Maldonado, J., & Gris Martínez, J. M. (2008). Psychosocial risks associated with multiple births resulting from assisted reproduction: A Spanish sample. *Fertility and Sterility*, 92, 1059–1066.
- Thorpe, K., Golding, J., MacGillivray, I., & Greenwood, R. (1991). Comparison of prevalence of depression in mothers of twins and mothers of singletons. *BMJ*, 302, 875–878.
- Vilksa, S., Unkila-Kallio, L., Punamäki, R. L., Poikkeus, P., Repokari, L., Sinkkonen, J., Tiitinen, A., & Tulppala, M. (2009). Mental health of mothers and fathers of twins conceived via assisted reproduction treatment: A 1-year prospective study. *Human Reproduction*, 24, 367–377.
- Weissheimer, A. M. (2007). *Tradução, adaptação transcultural e validação para uso no Brasil do Instrumento Prenatal Psychosocial Profile [tese]*. Escola de Enfermagem de Ribeirão Preto da Universidade de São Paulo, Ribeirão Preto.
- Yokoyama, Y. (2003). Comparison of child-rearing problems between mothers with multiple children who conceived after infertility treatment and mothers with multiple children who conceived spontaneously. *Twin Research and Human Genetics*, 6, 89–96.