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Unravelling the Complexities of the Relationship Between Employment Status and Postpartum Depressive Symptomatology

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ABSTRACT. The aim of this paper is to explore the relationship between the employment status of new mothers and their depressive symptoms at 6 months postpartum. In order to have a better understanding of these links, we investigated the role that socio-environmental characteristics of new mothers plays in this relationship. Employment status is conceived to be closely linked to the characteristics of new mothers and their environment that constitute some of the well-known risk factors for postpartum depressive disorders. For that reason, the possibility that these characteristics could intervene in the relationship between employment status and depressive symptoms was considered. Three types of links were explored: independent, interactive or indirect relationships. Analysis was performed on a sample of 447 women in one of the four following situations: working, being on maternity leave, being a homemaker or actively seeking employment. Results appear to indicate the presence of an indirect relationship between employment status and depressive symptoms. Women on maternity leave, and, to a lesser degree, working mothers, present characteristics that are associated with a good mental health. Homemakers and women

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seeking employment, however, seem to be placed in situations associated with depressive symptoms. These results underscore the possibility that employment status could lead to living conditions that have an impact on a new mother's mental health. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-342-9678. E-mail address: <getinfo@haworthpressinc.com> Website: <<http://www.HaworthPress.com>> 2001 by The Haworth Press, Inc. All rights reserved.]

KEYWORDS. Postpartum depressive disorders, employment status, working mothers

During the last decade, the postnatal period has undergone major changes. In Canada and the United States, a majority of new mothers are now back to work before their child turns one year of age, and many new mothers work in the first months, or even weeks, after giving birth (Marshall, 1999; Rindfuss, Brewster, & Kavee, 1996). Numerous studies have underlined the role played by socio-environmental factors in the development of postpartum depressive symptomatology (Beck, 1996; Bernazzani, Saucier, David, & Borgeat, 1997; Gjerdingen & Chaloner, 1994; Neter, Collins, Lobel, & Dunkel-Schetter, 1995; O'Hara & Swain, 1996; Romito, Saurel-Cubizolles, & Lelong, 1999; Séguin, Potvin, St-Denis, & Loiselle, 1999; Wilson et al., 1996). It, therefore, seems likely that the employment status of new mothers may influence their chances of developing depressive symptoms.

In order to understand the impact of employment status on the psychological health of mothers, the usual strategy, in epidemiology, is to isolate the effect of employment on health. By adding several socio-environmental risk factors for psychological health problems to such a model, it is possible to look at the impact of employment, taking into account other risk factors. Unfortunately, such a model still only paints a partial picture of reality. Controlling for potential confounding factors tends to give the false impression that employment status has an independent effect, unrelated to the risk factors commonly seen in the literature on depressive symptomatology. Sociological knowledge concerning access of women to employment has shown, on the contrary, that the employment status of new mothers is closely linked to their individual characteristics and immediate environment (Desai & Waite, 1991; Joesch, 1994; Pascual, Haynes, Galperin, & Bornstein, 1995; Walzer, 1997; Wenk & Garrett, 1992). For that reason, it appears likely that the employment status of new mothers may also be related to some of the well-known risk factors for depressive symptoms. Such an associa-

tion could be at the root of major differences, in the mental health state of women, depending on their relationship to employment.

This paper proposes to explore the relationship between the employment status of new mothers and their depressive symptoms at six months postpartum, by shedding light on the links between employment status and the characteristics of new mothers and their environment that are known as risk factors for depressive disorders. Twelve socio-environmental risk factors commonly found in the literature were selected: three measure of stressors, two measures of social support, presence of husband or boyfriend, family income, number of children, perceived health, education, age and wantedness of the pregnancy. Analysis was performed on 447 women being in one of the following employment situation: working mothers, women on maternity leave, homemakers or unemployed women seeking employment. Employment status was linked to depressive symptomatology, firstly, in a univariate analysis, and secondly, in a multivariate analysis, taking into account the 12 risk factors for depressive symptomatology. A third analysis, comparing the characteristics of women in different employment statuses, was also performed, in order to propose an explanation for the nature of the links found between employment statuses and depressive symptoms.

EMPLOYMENT STATUS AND POSTPARTUM DEPRESSIVE SYMPTOMS

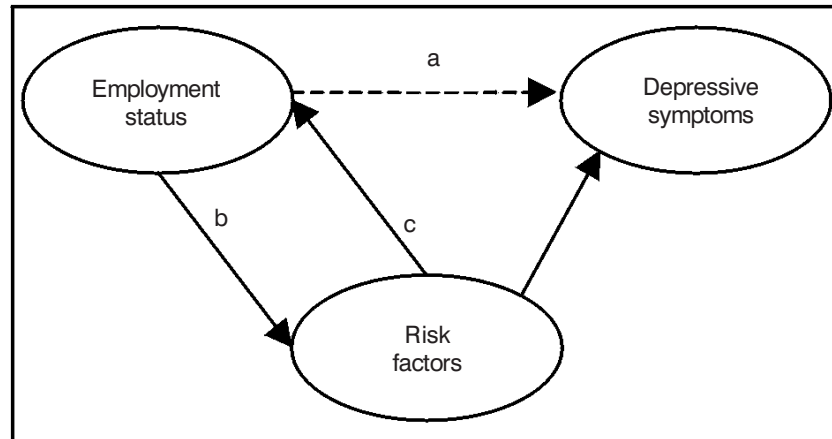
In the year following childbirth, between 10 and 20% of women suffer from depressive symptoms whose origins remain unclear (Bagedahl-Strindlund & Monsen Borjesson, 1998; Glangeaud-Freudanthal, 1999; O'Hara & Swain, 1996; Romito et al., 1999; Stuart, Couser, Schilder, O'Hara, & Gorman, 1998). Biological, psychological, as well as socio-environmental factors have been presented as potential causes for maternal mental health problems. None of these approaches can as yet be rejected, and an integration of different perspectives seems likely to be the best model. The contextual elements of a new mother's life may be modulated by psychological and biological vulnerabilities, and influence depressive symptoms. Recently, the association between socio-environmental factors and depressive symptoms has been the subject of meta-analytic studies, who found strong evidence for a link between postpartum depression, social support, relationship with spouse and the presence of stressful events (Beck, 1996; O'Hara & Swain, 1996; Wilson et al., 1996). Indicators of socio-economic status, such as education and income, have also been identified as risk factors. Marital status, age, parity, health problems and whether or not the pregnancy was wanted, have been related to depressive symptoms, but with less consistent re-

sults (Beck, 1996; O'Hara & Swain, 1996; Wilson et al., 1996).

Since many socio-environmental factors are linked with new mother's psychological health, questions can be raised concerning the relationship between employment status and depressive symptoms. However, evidence on this subject remains scarce. Working has usually been associated with good health (Hibbard & Pope, 1992; Martikainen, 1995; Ross & Mirowsky, 1995; Weatherhall, Joshi, & Macran, 1994) but this association is less clear when it comes to mothers of children under two years old (Romito, 1994). The situation of women in the first postpartum year is unique in many ways, because of the intense amount of care required by new-borns. Furthermore, employment status is often stratified into oversimplified categories of homemakers versus working mothers, which is truly not representative of the diversity of today's employment situations, especially during the postpartum period. In the year following childbirth, "non-working" mothers may find themselves in various situations, depending on their short-term plans and relationship to employment: being on maternity leave, planning on staying at home for the next few years or actively seeking employment are all common situations shared by women routinely categorized as non-workers.

While the presence of an association between employment and health is not clear, the mechanisms by which employment status could affect health are even less understood. Figure 1 presents three possibilities that can be proposed concerning links between employment status and depressive symptoms. Employment status could be related to depressive symptoms in a way that would be independent of other risk factors (independent link: a). However, proposing an isolated effect of work on psychological health has yet to be proven. The conceptual basis for such a link is not obvious since models created to describe the relationship between working and health do not usually present employment status as affecting health in a way that could be independent from the context. Two models have been developed to explain these links: the job stress model, in which the negative effect of work-related stress is emphasized, and the health benefits model, presenting work as facilitating the access to sources of gratification, leading to health benefits (Guyon, 1996; Pugliesi, 1992; Sorensen & Verbrugge, 1987). These two models appear contradictory because they focus on the negative and positive effect of working on health, but in each case, employment status is seen as creating a contextual situation (presence of stressors or access to support, income and other gratification) that affects women's health. In the current state of knowledge, it is not possible to totally exclude the possibility that employment could have an independent effect on postpartum depressive symptoms. However, it seems likely that employment status could affect health by creating a contextual situation linked to risk factors for depressive symptoms, such as income, social support or stressors. These risk factors would then play an intermediary role in the relationship between employment status and postpartum

FIGURE 1. Links Between Employment Status and Depressive Symptoms



- a: Independent link. The relationship between employment status and depressive symptoms is unrelated to other risk factors for depressive disorders.
 b: Intermediary link. Employment status is at the origin of risk factors for depressive disorders.
 c: Confounding relationship. The risk factors for depressive disorders are at the origin of the employment status of new mothers.

depressive symptoms (intermediary link: b). Such a relationship would not be revealed by a multivariate analysis.

A third possibility to an independent and intermediary relationship can, finally, be considered: employment status could be associated with depressive symptoms simply because it is influenced by the same factors (confounding link: c). New mothers' decisions concerning employment are often seen as based on personal convictions about their baby's upbringing and well being. However, historical and sociological evidence indicates that social circumstances play a major role in women's employment relationship. Staying at home, even when perceived as a deliberate "choice," may be related to difficulties in access to employment, such as poor qualifications, or limited access to affordable day care (Dandurand & Ouellette, 1992; Pascual et al., 1995; Saurel-Cubizolles et al., 1999; Walzer, 1997). This type of indirect, or confounding, association is often presented as an unimportant "false association," not in the causal pathway between work and depressive symptoms. However, confounders can be important to the understanding of the relationship between employment and depressive symptoms. It can be useful, for example, to know that some risk factors for depressive symptoms, such as poor education, are more commonly found in certain employment situations.

Employment status cannot easily be taken out of its context. Multivariate analysis, by revealing independent links only, gives limited information on the relationship between employment status and depressive symptoms. This information, however, can be completed by other analysis revealing the context in which new mothers of different employment status are found. Looking at the relationship between employment status and the socio-environmental factors that are likely to influence psychological health constitute a first step to unravel the relationship between employment status and postpartum depressive symptoms.

METHODS

Population

This study was developed as a part of a larger research project on the mental and physical health of women in their first postpartum year, which involved three periods of data collection. The first data collection phase, which was conducted through face-to-face interviews few days after birth, was carried out in four hospitals in Montreal, Canada, between April 10 and October 23, 1996. Participants were recruited, on a voluntary basis, by a research assistant. Women who accepted to participate filled out a consent form. Participants needed to have a mastery of oral and written French and be eighteen or older. Mothers of stillborns were excluded, for obvious reasons, as well as mothers of twins who were considered to be in a special situation. The second and third data collection periods, which took place respectively six months and one year later, was done by mail. Data analyzed for this study comes from the second period of data collection. A questionnaire was mailed to the 616 participants interviewed in the first phase of the study. Two postal and one telephone reminder were planned in order to boost participation.

Eighty percent of women approached accepted to fill the first questionnaire. The participation rate for the second (six months) questionnaire was also very good. Four hundred and eighty-six mothers (78.9%) completed the questionnaire. Analysis shows some significant differences between the 130 women who did not complete the questionnaire and the other participants. They were more likely to have been born outside Canada, to have low education and income level and to be single. They were also less likely to have worked during pregnancy. However, their age, number of children as well as their physical and mental health during pregnancy were similar to those of the other participants.

Thirty-nine mothers were excluded from the analysis: 19 mothers whose main occupation was being a student and 3 mothers on sick leave. Eight women presently not working, but planning on taking contractual work were also excluded,

as well as 9 workers on leave of absence (waiting to be recalled). This decision was made in order to avoid difficulties related to evaluating the degree of certainty these women had concerning their current and upcoming employment situation. A final sample of 447 was used for the analysis.

Materials and Procedures

Employment status: Womens' employment status was classified in a four-category variable, including one working and three non-working situations. Women working part- and full-time were classified together. Preliminary analysis showed no significant differences between these two groups concerning CES-D score and socio-demographic characteristics (age, education, and number of children). Three categories of presently non-working mothers were made: women on maternity leave, non-working mothers with no intention to work during the first year postpartum, describing themselves as homemakers, and non-working mothers actively seeking employment.

Depressive symptoms: Depressive symptomatology was measured with the 20-question Center for Epidemiological Studies-Depression (CES-D) Scale (Radloff, 1977). This scale was developed to measure depressive symptoms in the general population, but has been used and proven valid for use during postpartum period (Collins, Dunkel-Schetter, Lobel, & Scrimshaw, 1993; Leathers, Kelley, & Richman, 1997; Neter et al., 1995). The French version of this scale, validated by Fuhrer and Rouillon (Fuhrer & Rouillon, 1989), was used. Validity and reliability properties for the French version were good, with an alpha coefficient of 0.85. In order to allow for the study of a wide range of problems in terms of severity, the score was treated as a continuous variable in a multiple regression analysis.

Risk factors for depressive symptoms: Twelve socio-environmental variables suspected to be related to depressive symptoms were measured. The choice of these factors was based on the results of a meta-analysis on risk factors for postpartum depression (O'Hara & Swain, 1996), and on the plausibility of links between these factors and the employment status of new mothers. The chosen factors can be classified in two large categories: characteristics of the immediate environment and individual characteristics of new mothers. The characteristics of the immediate environment are social support (2 measures), presence of husband or boyfriend, family income, number of children and presence of stressors (3 measures). The individual characteristics of the mother are her perceived health, education, age and wantedness of the pregnancy.

Characteristics of the environment: A translated validated form of the Arizona Social Support Interview Schedule (ASSIS) by Barrera (Barrera, 1981; Lepage, 1984) was used to evaluate the new mother's social support network. Answers to series of questions concerning five functions of support (instrumen-

tal, emotional, informational, positive feed-back and companionship) allowed us to create a continuous variable of number of people in the social support network, with a range of 0 to 28. Similar questions were at the basis of the second social support variable, "lack of support when needed," also treated as continuous. For each function of support, participants were asked, firstly, if they had needed help during the two previous weeks, and, secondly, if they had found someone to help them. Women were considered as lacking support when they indicated that they did not find anyone when help was needed. The variable created varies from 0 (no support needed or lacked) to five (lacked in the five types of support measured).

A variable was created to measure marital status: women living with a boyfriend or spouse were considered as "living in couple," the others being classified as "single." Grouping cohabiting and married women was chosen in order to isolate women who are placed in the specific situation of raising their child without a partner. A three-level variable was created to classify family income in very low (60% of poverty level as defined by Statistics Canada), low (between 60% and poverty level), and other (equal to or higher than poverty level). The number of children was classified in three categories: mothers of one child, mothers of two children, and mothers of three children or more.

Three measures of stressors were created. For the first one, a two-category variable was created from the answers to a question containing a list of 11 stressors that could have occurred since the baby was born: health problems (of the husband, children or relatives), money problems, problems related to housing or moving, work-related problems (own or husband's), separation or divorce, and death of a relative. When at least one of these stressors was present and qualified as significant, the women were categorized as experiencing stress. The second measure focused on a particular type of stressor: the baby's health problems. This stressor was considered present when the baby's health was perceived by the mother as fair or poor. Finally, the third measure of stressors concerned unpleasant relationships: a continuous variable was created to measure the number of people with whom the new mother indicated having conflict, that is to say people that makes her feel bad or sad, or aggressive. This measure was taken from the translated form of Arizona Social Support Interview Schedule (ASSIS) by Barrera (Barrera, 1981; Lepage, 1984).

Characteristics of the mother: Perceived physical health was measured with a multiple-choice question used in the Santé Québec Survey (Bellerose, Lavallée, Chénard, & Levasseur, 1995). Health could be rated as excellent, very good, good, fair or bad. Health problems were considered present when the women rated their health as fair or bad. Education was first classified in a three level variable corresponding to a high school, college and university education. After preliminary analysis, the last two categories were collapsed. Age was treated as a continuous variable. Finally, a two-category variable for desire of pregnancy was

also created: pregnancy was classified as not desired when the baby was considered as not wanted, or wanted later.

Statistical Analysis

Three main analyses were done. The first one described the direct (univariate) link between employment status and depressive symptoms, using ANOVA. Post-hoc tests were used to identify the significant differences when the variables analyzed had more than two levels.

In a second analysis, multivariate models on depressive symptoms were created by adding the 12 chosen socio-environmental factors to employment status. Using multiple linear regression analysis (stepwise backward method), the isolated effect of employment status on the CES-D score was explored (link a, Figure 1). The psychologically healthier group, women on maternity leave, was chosen as the reference for employment status. In order to test the possibility of an interactive relationship, interaction terms (employment status and each of the three following variables, lack of social support, education and presence of stressors) were added to the final model using a stepwise forward method, and the variable of employment status was forced (“enter” method). None of the interactive variables could be added to the model.

Finally, a third analysis was performed in order to elucidate links between the 12 chosen socio-environmental risk factors and the employment status of new mothers (links b and c, Figure 1). Three multiple logistic regressions were done (stepwise backward method). Workers, homemakers and women seeking employment were in turn compared to women on maternity leave. All socio-environmental variables were entered in the models except “income.” The presence of this variable led to statistical problems, probably because of its high correlation with the “education” variable. Education, significant in the model on depressive symptoms, was chosen.

SPSS software was used for all statistical analysis, with a 0.05 significance level for variables entered, and 0.10 for variables removed from the model. With a total sample size of 447 distributed across 4 groups (163; 142; 112; 30), and a standard deviation of 9.5 on the CES-D scale, it is possible to detect a minimum difference in means of 5.4 between the groups with $n = 142$ and $n = 30$ and of 3.1 between the $n = 142$ and $n = 163$ groups with a power of 80%, and a level of significance of 0.05 (two-sided test).

RESULTS

Characteristics of the Sample

Of the 447 women of the sample, the largest proportion, 36.5% ($n = 163$), were on maternity leave when they completed the questionnaire. A proportion almost

as high, 31.8% (n: 142), were back to work. Twenty-five percent (25%, n: 112) called themselves “homemakers.” Only 30 women (6.7%) indicated that they were unemployed and seeking employment. Data indicate that most workers return to work around the sixth month after giving birth: of the 142 women who had resumed working when they completed the questionnaire: 23 (16.2%) were back to work before the second postpartum month, 29 (20.4%) between the second and fourth month, and 90 (63.5%) between the fifth and seventh month.

The average number of people in the social support network was 7.3 and women have lacked an average of 1.2 type of help, when needed. The great majority of women were living with a husband or boyfriend (91.1%). Thirty percent of the women in our sample had an income below the poverty level. Most women were first time (41.6%) and second time mothers (38.0), respectively 12 and 3.8% being mothers of three children or four and more. The presence of stressors was quite common among women in the sample: as high as 40.9% indicated living with at least one stressor that they considered major. However, baby’s health was rarely a concern since only 4% of the sample described their baby’s health as fair or poor. Finally, on average, the women indicated having a unpleasant relationship (that makes them feel bad, sad or aggressive) with one person.

The personal characteristics of the new mothers appear quite consistent with those found in the general population. Most women perceived their health as good: only 11.4% of participants described it as fair or bad. Education level is evenly distributed among the three categories: 33.3% have a high school degree or less, 37.6% a college level education and 29.1% a university degree. The mean age of the respondents was 28.7. The only result that may appear somewhat surprising concerns whether or not the pregnancy was wanted: as high as 25.1% (n: 112) of respondents described their pregnancy as unwanted or mistimed (wanted later).

The average score on the depression symptom scale (CES-D) was 12.68. Fifteen point nine percent (15.9%) of the sample had a score of 23 or more on the CES-D scale, an indicator of clinical depression, according to the cut-off recommended by the author of the French version. A cut-off of 16, recommended by the authors of the original scale which is used in most American studies, would raise the percentage to 26.4%.

Direct Link Between Employment Situation and Depressive Symptoms

According to the ANOVA analysis, employment status is significantly related to depressive symptomatology ($p < 0.01$) (see Table 1). Women on maternity leave constitute the psychologically healthier group, with an average score of

TABLE 1. Association Between Employment Status and Depressive Symptoms

ANOVA			
(n = 447)		Average CES-D score (s.d.)	p
Employment status			0.009
Women on maternity leave (n = 163)		10.95 (8.49)	
Workers (n = 142)		12.89 (10.01)	
Homemakers (n = 112)		13.29 (9.90)	
Women seeking employment (n = 30)		16.93 (11.13)	
Post-hoc Tests			
		Mean difference	(LSD)
Women on maternity leave	Workers	-1.94	0.077
	Homemakers	-2.34	0.046
	W. seeking employment	-5.98	0.002

10.95, followed by workers, who have the second lowest average score, 12.89. The score of homemakers is slightly higher (13.29). The last group, women seeking employment, present the highest average score, 16.93, four points higher than the average for all the women in the sample.

Post-hoc tests indicate a significant difference between women on maternity leave and homemakers, as well as between women on maternity leave and women seeking employment. The difference between workers and women on maternity leave does not reach the level of significance, whether workers are taken together or classified by categories of time since returning to work.

Multivariate Model: Risk Factors for Depressive Symptoms

The 12 depressive symptomatology risk factors commonly reported in the literature were analyzed. Univariate analysis showed significant association with the CES-D score for 11 of them: the two variables of social support (number of people in the social support network and lack of help when needed), the four variables of stressors (stressing events, number of people the women is in conflict with, mother's and baby's health problems), the two socio-economic status variables (education and income), parity (average score being lower with each children) as well as whether or not the pregnancy was wanted were, as expected, related to the CES-D score. Only mother's age was not associated with the depression score.

The results of the final analysis are shown in Table 2. They indicate that none of the employment status categories remain significantly related to a higher

TABLE 2. Multivariate Model: Risk Factors for Depressive Symptoms

Adjusted $r^2 = 0.293$

Variable (n = 447)	b	se (b)	p
<i>Characteristics of the environment:</i>			
Number of people in the social support network	-0.32	(0.123)	0.009
Lack of support when needed	2.11	(0.276)	< 0.0001
Number of children			
First and second time mothers vs. mothers of 3 and more	2.42	(1.063)	0.023
Stressing events			
At least one stressing event vs. no stressing events	4.87	(0.823)	< 0.0001
Number of people in conflicts	1.14	(0.386)	0.003
<i>Characteristics of the mother:</i>			
Education			
High school vs. University/College	2.19	(0.848)	0.010

CES-D score when the other socio-environmental variables are in the model. The model included six variables, with an adjusted r^2 of 0.293. Two social support variables (a low number of people in the social support network and lack of help when needed) and two variables of stressful events (stressors identified as major and the number of people the mother indicated having conflicts with), as well as education (having no more than a high school level) and the number of children (being the mother of three children or more has a protective effect) were significant.

Employment Status and Risk Factors for Depressive Symptoms

Almost all the selected risk factors for depressive symptoms show significant variations among the employment status groups. Univariate analysis revealed that all but two socio-environmental factors are significantly related to employment status at the 0.05 level. Social support and stressors, new mother's socio-economic status, personal characteristics and desire for pregnancy provide at least one significant difference between groups. Only mother's and baby's health problems are evenly distributed among the groups.

Workers vs. women on maternity leave: There were very few differences, in terms of socio-environmental risk factors, between the “workers” and the “maternity leave” groups. The final model, shown in Table 3, included only two variables. When compared to women on maternity leave, workers have a greater number of unpleasant relationships. They also tend to be more likely to have a university education level than a college one, but the difference is not significant at the 0.05 level.

Homemakers vs. women on maternity leave: The second model shows important differences between homemakers and women on maternity leave. Seven variables are included in the final model, shown in Table 4. Homemakers are more likely than women on maternity leave to have lacked social support when needed. They are also three times more likely to have no more than a high school level education. They are younger than women on maternity leave, more frequently in a single motherhood situation, less often mothers of one child and more often the mother of three or more children. Finally, homemakers are twice as likely as women on maternity leave to have had an unwanted or mistimed pregnancy.

Women seeking employment vs. women on maternity leave: The model comparing women seeking employment to women on maternity leave contains three variables. According to results shown in Table 5, this group lacked social support more often, and on average had fewer people in their social support network. Their pregnancy was also less often wanted.

DISCUSSION

According to the results of the univariate analysis, the employment status of new mothers is associated with depressive symptomatology. As compared to women on maternity leave, women seeking employment and, to a lesser degree, homemakers, are significantly more likely to have depressive symptoms at six months postpartum. Workers also tend to have more depressive symptoms than women on maternity leave, but the difference is not significant at the 0.05 level. However, multivariate analysis shows that when employment status is considered together with the most commonly found risk factors in the literature on depressive symptomatology, the association present at a univariate level is no more significant. This does not mean that employment status is not linked with depressive symptoms: as the conceptual models developed to explain the effect of work on health led us to expect, the association between a new mother’s employment status and her mental health state is simply not of an independent nature.

Results of the multivariate analysis between employment status and depressive symptoms corroborate the findings of most studies on this subject. Social support and stressors are the best known predictors of postpartum depressive

TABLE 3. Risk Factors and Employment Status: Workers vs. Women on Maternity Leave¹

	Chi-square	df	Significance
Goodness-of-fit test	3.6609	5	0.5992
Variable (N = 305)	b	p	Exp. (b) (95%CI)
Number of people in conflicts	0.3341	0.0028	1.40 (1.12-1.73)
Education			
University vs. College	-0.4517	0.0592	0.64 (0.39-1.01)

¹ Women on maternity leave as referenceTABLE 4. Risk Factors and Employment Status: Homemakers vs. Women on Maternity Leave¹

	Chi-square	df	Significance
Goodness-of-fit test	4.1184	8	0.8463
Variable (N = 275)	b	p	Exp. (b) (95%CI)
<i>Characteristics of the environment:</i>			
Lack of support when needed	0.2182	0.0275	1.24 (1.02-1.52)
Marital status			
Single vs. Live with boyfriend/spouse	1.0968	0.0453	2.99 (1.02-8.84)
Number of children			
First-time mothers	-1.3567	0.0001	0.26 (0.13-0.51)
Mother of three or more children vs. Mothers of two children	0.9344	0.0274	2.55 (1.12-5.75)
<i>Characteristics of the mother:</i>			
Education			
High School vs. College or University	1.2150	0.0001	3.37 (1.82-6.17)
Age	-0.1470	< 0.0001	0.86 (0.81-0.91)
Pregnancy wantedness			
Unwanted or mistimed pregnancy vs. Desired pregnancy	0.6996	0.0433	2.01 (1.02-4.01)

¹ Women on maternity leave as reference

TABLE 5. Risk Factors and Employment Status: Unemployed Women vs. Women on Maternity Leave¹

	Chi-square	df	Significance
Goodness-of-fit test	2.3487	8	0.9684
Variable (N = 193)	b	p	Exp. (b) (95%CI)
Lack of support when needed	0.4302	0.0021	1.54 (1.17-2.01)
Number of people in the social support network	-0.1681	0.0410	0.85 (0.72-0.99)
Wantedness of the pregnancy			
Unwanted or mistimed pregnancy vs. Desired pregnancy	0.9719	0.0320	2.64 (1.09-6.37)

¹ Women on maternity leave as reference

disorders, and in this study, the two measures of social support (number of people in the social support network and lack of support when needed), as well as two out of three measures of stressors (stressful events and number of unpleasant relationships), were associated with the score on the depressive symptoms scale. The impact of education, the fifth significant variable, has been subject of more conflicting results (O'Hara & Swain, 1996). However, since numerous studies have shown that people of low socio-economic status have a high risk for physical and mental health problems (Guyon, 1996; Lynch, Kaplan, & Salonen, 1997; Marmot, Ryff, Bumpass, Shipley, & Marks, 1997; Power, Manor, & Matthews, 1999), this result does not seem very surprising. The impact of the number of children, the last significant factor in our study, has been identified previously, but results concerning this factor have not always been consistent (O'Hara & Swain, 1996).

If the risk factors for depressive symptoms are now relatively well known, the associations between the employment status of new mothers and these risk factors (links b and c) had rarely been studied in the fields of public health and epidemiology. Our results confirm the findings of studies carried out from a sociological perspective that have shown that employment status is closely related to the characteristics of mothers and their immediate environment. As compared to women on maternity leave, homemakers were less educated, more likely to have lacked social support when needed, and a large proportion of them, as much as 60%, had an income below the poverty level. Unemployment is also known to be linked with difficult conditions. The results of this study, which corroborates findings of a similar study carried out in France (Saurel-Cubizolles, Romito, Ancel, & Lelong, 2000), show that seeking employment is a difficult situation for new mothers. This situation is linked with a low social support network, which is a strong predictor for depressive disorders. Working, or being on

maternity leave, at six months postpartum, seems to be associated with a low risk for depressive symptomatology. It is not surprising, at this period of time, to find similarities between workers and women on maternity leave since many workers were on maternity leave a few weeks before, and most women on maternity leave will rejoin the work force in the weeks to come. The only significant difference between these two groups is the presence of unpleasant relationships, workers reporting the highest number of conflict of all groups. Our findings still indicates that having a job is associated with characteristics and living conditions likely to affect health in a positive way.

Results clearly indicate that the employment status of new mothers is related to specific characteristics and socio-environmental context, which constitutes a situation more or less likely to lead to the development of postnatal depressive symptoms. The analysis done do not give information concerning the direction of the observed links. However, looking at each factor studied, we can propose some hypotheses concerning the nature of these associations. One of the strongest socio-environmental predictors for depressive symptoms, social support, appears likely, according to our results, to play an intermediary role in the relationship between employment status and depressive symptoms. Being a homemaker or being unemployed seem to put women in an isolating situation that affects their psychological health (link "b" in Figure 1), even though the possibility that lack of social support reduces a new mother's access to employment cannot be excluded (link c). Another possible intermediary factor is the unpleasant relationship variable, more often present in the working mothers' group. Employment status is not likely to be determined by the presence of unpleasant relationships, but could be one of the factors at the origin of conflicts. Other socio-environmental factors linked with employment situation appear more likely to play a confounding role in the relationship with depressive symptomatology (link "c"). Education, which is highly correlated with qualification, salary, chances for promotion, social advantages, and independence, seems to affect psychological health as well as access to employment. In this study, the homemaker group had a very low average education level. It, therefore, seems likely that this low education played a role in the decision to stay at home. The number of children could also play a role in a new mother's decision concerning employment, and has an impact on depressive symptomatology.

Other studies need to be done in order to have a clear understanding of the links between employment status and postpartum depressive symptoms. More complex statistical tools, such as structural equation modeling, could clarify the causal pathway between these concepts. The correlational design of this study limits the possibility to draw definitive conclusions, and the population of the study may not be completely representative of the general population. However,

these results underscore the necessity to look at the links between employment and depressive symptoms in a new way, that is to say taking into account the characteristics and environment of new mothers. Employment status is linked to a specific life context, and, in order to understand its effect on health, it seems more useful to look at this context rather than trying to isolate employment from it.

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