

# Parents in the neonatal unit: how to prevent stress, anxiety and depression

This study assesses the effectiveness of an individualised psychological intervention programme for parents of infants admitted to the neonatal intensive care unit. Parents, who received the special psychological intervention aimed at reducing stress, anxiety and depression levels, are compared to parents who received the normal standard of care.

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Infants who are born prematurely, develop an illness or are born with serious birth defects can be immediately admitted to the neonatal intensive care unit (NICU). Very few parents are prepared in advance for this possibility and this falls within the category of an undesirable situation, riddled with excess tension that can trigger parental stress, anxiety and possibly depression.<sup>1,2</sup> Parents who find themselves unexpectedly in this situation are taken over by fear and confusion at the same time as experiencing uncertainties about the health of their child and the possibility of their child not surviving.

Parents of an infant in the NICU can endure separation (lack of physical contact with their newborn infant) and witness invasive and painful medical procedures and other complications. Parents must adapt to a different environment, a specialised language and sometimes they have to move away from home. As a result, they may lose control of their role as a parent and have to change their established routine, eg responsibilities for other children, household tasks, their jobs.<sup>3,4</sup>

In some NICUs parents may still be denied initial access to their newborn infant. In addition to this, hearing the cries of other babies in rooms close to their own may intensify feelings of anxiety. This is a common cause of stress and can impact on decision-making, especially when the parents are poorly informed of new developments. Furthermore, it has been shown that separation from one's child following birth impedes doctor-parent communication, which of course can be harmful to a child in the short and medium term. It is common for this

emotional trauma to lead to parents feeling overwhelmed, which further harms bonding between parent and child.

A common cause of stress, according to affected parents, is the constant reminder via toys, cots, etc of the healthy child they were imagining. Facing awkward and impossible questions from the newborn infant's siblings also causes stress, as does the necessity for expressing breast milk, the baby not being present, and the obvious emotional difficulties that come with this.

According to Holditch-Davis and Miles,<sup>5</sup> the major sources of stress in parents of premature infants and infants with other disorders during the first months of life are:

- personal and family factors
- prenatal and postnatal experiences
- the illness
- concern about the infant's health improvements
- loss of parental role
- the health care provided.

In view of these emotional circumstances, which may have short-term and long-term impact, it is necessary to develop effective interventions to offer targeted support to parents of newborn infants admitted to the NICU.

It is important that all people who are attending to an infant also deliver comprehensive care to the parents. Therefore healthcare professionals need to ensure that the personal circumstances of every family dealt with are viewed in just that manner, personally, as opposed to simply reverting to a 'one size fits all' solution. Healthcare professionals must examine the backgrounds, concerns, fears, etc of every mother-to-be in order to intervene effectively when it is required.

## Keywords

stress, anxiety and parental depression; NICU; individualised intervention programme; family-centred care

## Key points

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1. The admission of an infant to the neonatal unit immediately after birth, results in high levels of stress, anxiety and possible depression in the parents.
2. An individualised intervention programme was effective in reducing anxiety and depression in parents.
3. The intervention was performed by a specialist psychologist who acted as a mediator in the relationships between the parents, nurses and medical staff.

From the beginning, it is necessary to create a climate of trust and understanding to make parents feel protected and understood. To this end, professionals must engage closely with family members from the moment of admission to the moment of discharge.

The objective of this investigation was to assess the effectiveness of an individualised psychological intervention programme comprising five stages, to reduce or eliminate stress, anxiety and depression in parents of infants admitted to the NICU. The parents who received the intervention were compared to parents who received the normal standard of care.

## Patients and methods

### Study design and participants

The study was conducted over a nine-month period, with parents whose infants were admitted to the NICU of a level III university-affiliated hospital in Madrid, Spain. Parents who participated in the study had a child who was immediately admitted to the NICU because of a prematurity-related disease or any other severe problem, with an anticipated stay in the NICU of greater than two weeks, in order to allow enough time to apply the intervention programme.

Exclusion criteria for this study were:

- parents under the age of 18
- parents of a baby with a very severe disease that needed a special psychological approach or absence of physical contact
- non-Spanish speakers
- parents whose infant had died during the hospitalisation period.

The hospital ethics committee approved the study and written informed consent was obtained from all participants.

The control group consisted of 40 mothers and 29 fathers who were all parents of infants receiving the standard care provided in the unit, while the intervention group comprised 40 mothers and 25 fathers. The intervention programme began on the third day following admission when the parents first had contact with the psychologist.

Prior to this study, the following four hypotheses were postulated:

1. Parents from the control and intervention groups would show the same levels of stress after three days in the NICU.
2. After seven days in the NICU, mothers from the control group would have higher levels of depression than mothers from the experimental group.

3. After 15 days in the NICU, mothers from the control group would have higher levels of anxiety than mothers from the experimental group.

4. Mothers from the control group would have higher levels of depression after hospital discharge than mothers from the intervention group.

### Procedures

The implemented intervention programme was adapted to the conditions of the NICU so that a series of measures according to the specific needs of infants, parents and healthcare professionals in this particular environment were developed. The intervention was performed by a specialist psychologist who acted as a mediator in the relationships between the parents, nurses and medical staff.

This is an interdisciplinary programme taking into account the participation and collaboration of all of the staff of the NICU, including doctors, nurses, nurse assistants and a counsellor/psychologist. The intervention addresses many factors because it not only focuses on the parents, but also on parent-infant interaction and parent-healthcare staff interaction.

The programme consists of five phases. Each phase was defined by the infant's development and the psychological state of the parents, beginning with the child's admission and ending with their discharge from the ward.

*Phase 1.* This phase was developed to provide detailed information on the NICU and the routine procedures in the unit; to explain the reasons for the admission; to resolve any queries, to detect possible risks and protective factors necessary to implement the intervention programme.

*Phase 2.* To promote the capacity to identify and foresee possible changes in the infant's condition; to allow the parents and relatives to recognise their own needs.

*Phase 3.* To teach parents to recognise their child's needs and to develop activities that facilitate interaction with their baby.

*Phase 4.* To create a homely environment and to answer any queries.

*Phase 5.* Dedicated to planning discharge from hospital and family dynamics; to guide the parents if there are more children in the family and explain the importance of follow-up postnatal care.

### Assessment and questionnaires

To assess parental stress, anxiety and depression at the time of their infant's

admission and to assess the effectiveness of the individualised intervention, self-report questionnaires were used, as follows.

*A validated Spanish version of the PSS:NICU (parental stressor scale) questionnaire.*<sup>6</sup> This questionnaire measures a parent's stress related to the health status of their son or daughter, the role of the mother, staff behaviour and communication, and the overall stress put upon the parents. Each item is evaluated on a five-point Likert scale ranging from 1 = not stressful, to 5 = very stressful. When stress was not experienced, items could be scored as 0 = not applicable.

*The Edinburgh postnatal depression scale (EPDS).*<sup>7</sup> This has 10 questions with four response options for each. Responses are scored from 0 to 3 points. With a maximum score of 30, higher scores indicate greater symptoms of depression. The results were classified into three groups:

1. An EPDS score <10 = low risk for postpartum depression
2. An EPDS score of 10-12 = risk of depression
3. An EPDS score ≥13 = probable depression.

*The BDI-II Beck depression inventory.*<sup>8</sup> One of the most widely used instruments for measuring the severity of depression, categorises the respondent as having no level of depression (0-9 points), mild (10-18 points), moderate (19-29 points) and severe (30-63 points).

*The inventory of situations and responses of anxiety (ISRA).*<sup>9</sup> This includes three different scales according to different types of responses: cognitive, physiological and motor. Results are scored as absence of anxiety, moderate or marked anxiety, and severe anxiety.

Both fathers and mothers in the two different groups completed the questionnaires according to the following schedule:

- PSS:NICU questionnaire three days after their newborn infant's admission to the NICU
- EPDS questionnaire seven days after NICU admission
- ISRA questionnaire 15 days after NICU admission
- BDI-II and EPDS on the day of discharge.

### Statistical analysis

The results of this study were analysed using SPSS (the statistical package for the social sciences), version 11.0 for Windows. Statistical significance was set at  $p < 0.05$ .

Data were analysed as frequencies, percentages, means, results of participants' test and Pearson's chi-square test.

## Results

There were no significant differences in social and demographic variables between parents from both groups (TABLE 1). In line with the first hypothesis, there was no significant difference between the two groups after three days in the NICU before the intervention began: mothers and fathers from the control and intervention groups showed the same levels of stress.

With regard to the EPDS questionnaire, there were statistically significant differences between the two groups. At seven days post-admission to the NICU, all of the mothers from the control group had probable depression as did 89.7% of fathers, in comparison to 37.5% of mothers and 24% of fathers in the intervention group.

Fifteen days after admission, anxiety was measured using the ISRA questionnaire. All mothers and fathers in the intervention group demonstrated absence of anxiety compared to only 2.5% and 10.3%, respectively, among controls. The result was statistically significant ( $p=0.001$ ).

At the time of hospital discharge, depression was evaluated with BDI-II. Fifty per cent of mothers and 80% of fathers from the intervention group showed no

signs of depression whereas all parents in the control group did (statistically significant,  $P<0.001$ ).

## Discussion

On the basis of the results obtained, an individualised intervention programme for parents was effective at reducing levels of anxiety and depression. In accordance with the first hypothesis, the levels of stress in parents from both groups were similar three days after an infant's admission to the NICU, before the intervention began. Regarding the second, third and fourth hypotheses, there were significant differences between the control and intervention groups. Mothers and fathers from the control group showed greater levels of depression after seven days in the NICU; after 15 days, parents from the intervention group showed absence of anxiety, and on the date of discharge they showed absence of depression, compared to the control group.

As seen in this study, other research has shown that emotional stress is the most common initial state of parents whose infant is admitted to the NICU, irrespective of the cause of their child's admission. This is a consequence of the extremely difficult circumstance of coping with an unfamiliar and uncertain situation. Most of the research focuses on studying stress, depression and anxiety in parents of

premature infants in the NICU; in this investigation the subjects also comprised parents of infants with congenital cardiac abnormalities, hypoxic-ischaemic encephalopathy and other serious disorders.

## Conclusion

An individualised intervention programme designed to assist parents of infants on the NICU has been shown to be effective in reducing anxiety and depression. The authors believe such a programme is desirable for all neonatal units along with support for the development of specialised psychological care and assistance to detect and prevent problems relating to stress, anxiety and depression in parents. The programme may also have a beneficial effect on healthcare professionals, including nurses and doctors caring for infants in the NICU.

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Variable	Study group		P value
	Control	Intervention	
Father's age (years)	36.5 (6.4)	34.9 (6.5)	0.281
Mother's age (years)	32.6 (4.8)	33.9 (6.4)	0.322
Number of children	1.57 (0.81)	1.85 (0.92)	0.233
Infant's position in family (first-born, etc)	1.50 (0.68)	1.65 (0.77)	0.115
Education level, father	3.87 (1.07)	3.89 (1.14)	0.727
Education level, mother	4.05 (0.78)	4.05 (1.03)	0.437
Employment status, father	1.17 (0.38)	1.10 (0.31)	0.355
Employment status, mother	1.22 (0.43)	1.38 (0.49)	0.143

**TABLE 1** Sociodemographic characteristics of parents in the two study groups. Data expressed as mean (standard deviation). Education level categorised as 1: No education, 2: Education finished before 15 years old, 3: Education finished between 15 and 16 years old, 4: Secondary education, 5: University education. Employment categorised as 1: Active, 2: Unemployed.