

BRIEF REPORT

Psychological problems in parents of children with bronchiolitis following paediatric intensive care unit (PICU) admission

Survival rates of children admitted to the Paediatric Intensive Care Unit (PICU) improved due to advanced medical care. As mortality declined, new issues of morbidity emerged. As a result of PICU admission psychological problems, like Post-traumatic Stress Disorder (PTSD), anxiety and depression could arise in families and persist years after critical illness.^{1,2} For optimal physical and emotional recovery of both children and parents, identification of risk factors for psychological problems might be helpful. Previous studies showed prior parental mental health concerns and parents' perceived disease severity during PICU admission to be risk factors for psychological problems.^{2,3} These previous studies were mainly conducted in heterogeneous groups of children, regarding age, disease severity and disease course.¹⁻³ This heterogeneity precludes drawing strict conclusions concerning the relation between PICU admission and the development of psychological problems after discharge. The evaluation of a homogeneous patient group in which the PICU admission is a relatively isolated event, might clarify this relation. The primary aim of this study was to determine the prevalence of psychological problems in a homogeneous group of children

regarding age, clinical course and disease management. Parents or caregivers of children admitted to the PICU with bronchiolitis were selected as study group. Children with bronchiolitis have homogeneous characteristics and admission is often an isolated event. The secondary aim was to identify risk factors for the development of psychological problems in parents.

This prospective cohort study was conducted at the 10-bed PICU of the Radboudumc Hospital, a tertiary hospital in the Netherlands. The study protocol was approved by the Medical Ethics Review Committee. All parents of children admitted to the PICU due to bronchiolitis between November 2019 and March 2020 were eligible to participate. This time window comprises one 'bronchiolitis season' in the Netherlands.

Validated questionnaires were used to evaluate parents' symptoms of PTSD (PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders-5, PCL-5) anxiety and depression (the Hospital Anxiety and Depression Scale, HADS) and were completed three to seven months after discharge. Based on previous literature on this subject, the following potential risk factors were separately analysed conducting

	PTSD ^d	Anxiety ^a	Depression ^b	Distress ^c
Total <i>n</i> = 49 (100%)	3 (6.1%)	9 (18.8%) ^e	3 (6.1%)	7 (14.6%) ^a
Mother <i>n</i> = 32 (100%)	3 (9.4%)	7 (22.6%) ^f	3 (9.4%)	6 (19.4%) ^f
Father <i>n</i> = 17 (100%)	0 (0%)	2 (11.8%)	0 (0%)	1 (5.9%)

TABLE 1 Post-traumatic stress disorder, anxiety, depression and distress in fathers and mothers three to seven months after Paediatric intensive care discharge

Note: All analyses were performed in SPSS (version 26.0)

Abbreviations: PTSD, Post-traumatic stress disorder.

Abbreviations: Hospital Anxiety and Depression Scale (HADS); Paediatric Intensive Care Unit (PICU); Paediatric Risk of Mortality (PRISM); Post-traumatic Stress Disorder (PTSD); PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders-5 (PCL-5)

^a≥8 points on the HADS anxiety subscale.

^b≥8 points on the HADS depression subscale.

^c≥13 points on the HADS total scale.

^dA diagnosis of PTSD is indicated if the total score is >31 or if ≥1 intrusion (the event uncontrollably invades the parents' thoughts) item, ≥1 avoidance item, ≥2 negative alterations in cognitions and mood and ≥2 arousal symptoms were present in the past month.

^e*n* = 48, one subject was excluded due to missing questionnaire values on the anxiety subscale.

^f*n* = 31, one subject was excluded due to missing questionnaire values on the anxiety subscale.

Abbreviations: HADS, hospital anxiety and depression scale; PCL-5, PTSD checklist for diagnostic and statistical manual of mental disorders-5; PICU, paediatric intensive care unit; PRISM, paediatric risk of mortality; PTSD, post-traumatic stress disorder.

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logistic regression: parents' perceived disease severity, readmission to the hospital, previous medical history of the child, treatment for psychological problems prior and not related to PICU admission and the highest level of education completed by the mother.

In total, 33 of 42 eligible families (78.6%) participated in the study (Table S1). The current study revealed a prevalence of PTSD of 6.1%, anxiety 18.8%, depression 6.1% and distress 14.6% in parents three to seven months after PICU admission of their child with bronchiolitis (Table 1). Treatment for psychological problems prior and not related to PICU admission increased the odds of having anxiety ($B = 2.862$; $OR = 17.50$; $CI = 3.10-98.65$; $p = 0.001$) or distress ($B = 1.992$; $OR = 7.33$; $CI = 1.298-41.420$; $p = 0.024$). Additional analyses for other potential confounders, Paediatric Risk of Mortality (PRISM) III score and length of PICU stay did not change the results.

The prevalence rates of psychological problems in parents in this study seem higher than the prevalence rates found in studies concerning the general Dutch population, which estimated anxiety disorder at 10.1% and depression at 5.2%.⁴ Compared to previous studies in parents following PICU admission, psychological problems in the current study are slightly lower.¹⁻³ This discrepancy could be explained by the inclusion of heterogeneous age and child groups in previous studies, compared to our homogeneous study group. Similar levels of PTSD in parents after PICU admission were seen in a population of children admitted to the PICU due to severe acute asthma. This patient group could also be considered a homogeneous group with low mortality rates.⁵

Parents with prior psychological problems which required treatment were at risk for psychological problems after discharge, which was also seen in previous studies.² This underlines the relevance of screening families for preadmission psychosocial problems, in order to identify parents at risk for these problems.

A notable limitation of the current study is its small sample size. However, due to the high response rate we believe this low number is a good reflection of parents with children admitted to a PICU with bronchiolitis. Furthermore, as bronchiolitis mainly affects very young children, the impact of the recent childbirth might play a role in vulnerability for psychological problems. Third, the expression of symptoms could fluctuate due to the time range of data collection after discharge. In conclusion, the current study is one of the first studies to examine long-term psychological problems after PICU admission among parents in a homogeneous group of children. Prevalence rates indicate that psychological problems in parents after PICU discharge are common in this group of children with bronchiolitis. Early identification of these problems in parents might be helpful to initiate timely intervention. This especially applies for parents with prior psychological problems.

KEYWORDS

bronchiolitis, pediatric intensive care, parents, psychological problems

CONFLICT OF INTEREST

All authors declare that they have no conflict of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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