Original Article

Self-Reported Psychosocial Stress in Parents With Small Children

Results From the *Kinder in Deutschland*—KiD 0–3 Study

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Summary

Background: Psychosocial stress in early childhood can impair children's health and development. Data on the prevalence of psychosocial stress in families with infants and toddlers in Germany are lacking. Such data could be used to determine the need for prevention and to plan the appropriate preventive measures.

Methods: In 2015, a representative cross-sectional study called *Kinder in Deutschland*—KiD 0–3 was conducted by questionnaire in pediatricians' practices across Germany. Parents taking their children to the U3–U7a child development checks were asked to self-report information about stress in their families. The data were analyzed with descriptive statistics and chi-square tests.

Results: Data from 7549 families went into the analysis. Stressful situations commonly reported by the parents included unplanned pregnancy (21.3%), parenthood-related stress (e.g., self-doubt as to parenting competence, 29.6%), and lack of familial and social support for problems and questions arising in relation to the child, as well as for temporary child care (19.7%). Most types of psychosocial stress varied as a function of the child's age group, as categorized by the particular examination for which the child was presenting at the time of the survey (U3–U7a). Couple distress, lack of social support, signs of depression or anxiety symptoms, or inner anger were more commonly reported by parents attending the later examinations. Such problems could be addressed by supportive measures (e.g., parent counseling, early child intervention).

Conclusion: Psychosocial stress affects a large percentage of the parents of small children. A large proportion of parents of small children suffer from psychosocial stress. This should be monitored for accumulation and stability across child development checks and addressed as appropriate. Family practitioners and pediatricians are important partners for effective cooperation between the social system and the health-care system, and for the provision of preventive measures where appropriate.

Cite this as:

Lorenz S, Ulrich SM, Sann A, Liel C: Self-reported psychosocial stress in parents with small children: results from the *Kinder in Deutschland*—KiD 0–3 study. *Dtsch Arztebl Int* 2020; 117: 709–16. DOI: 10.3238/arztebl.2020.0709

Psychosocial stress, especially adverse childhood experiences, is disproportionately likely to influence child development in negative ways and often leads to risky health behavior, such as substance abuse, increased burden of disease and increased healthcare costs (1). In Germany, a retrospective survey showed that difficulties in the parental home as well as violence and deprivation experiences were associated with an increased likelihood of depression, anxiety, physical aggression, and low life satisfaction as an adult (2). While international studies identified several additional types of psychosocial stress associated with an increased risk of developmental abnormalities (3–8), reliable prevalence estimates for Germany are available only for a few of these stressors and risks (9).

Knowledge of the significance of individual adverse psychosocial factors in the highly sensitive first period of life may be useful to develop approaches to prevention strategies. Currently, there is no reliable data on how many of the families with children who participate in the statutory child development checks suffer from psychosocial stress. On the side of the child, these characteristics can, for example, include negative emotionality, and on the side of the parents, parenting stress or, with regard to the family, frequent quarrels. In terms of targeting prevention services to young parents, this is important information. Parents' subjective experience of psychosocial stress is a key criterion when it comes to taking the initiative for participating in prevention programs; thus, prevalence rates can be used to estimate the need for prevention. Over 99% of parents attend the child development checks (10), reflecting their high level of trust in pediatricians. Therefore, child development checks do not only provide an opportunity to detect biomedical diseases and monitor progress in the child's development, but also to gain a first impression of the overall situation in the family (11–14). While in the United States an overall concept for pediatricians has already been developed and evaluated which is designed to enable early identification and support of families experiencing psychosocial stress (15), in Germany a pediatric assessment form for the evaluation of psychosocial support needs ("pädiatrischer Anhaltsbogen") is available to be used during the U3 to U6 child development checks

The clinical perspective

Exposure to psychosocial stress early in life can result in lifelong diminished quality of life, health risks, disease burden, and increased healthcare costs (1). The child development checks (U screening) offer pediatricians the opportunity to access the health, development and overall situation of the family and take preventative action if imminent medical or psychosocial problems are detected. Knowledge of the prevalence of psychosocial stress can help to frequently identify such problems more frequently. Understanding the distribution of psychosocial stress across the child development checks can facilitate monitoring the overall situation of a family in relation to the age-driven child development. Difficulties in the family background, such as couple distress and lack of social support, are more common in later child development checks; here, counselling in a child guidance center and Early Childhood Prevention (Frühe Hilfen) in form of a long-term home-visiting family midwife can have a beneficial effect. At least one quarter of parents constantly report of stress experienced in the parenting role which is an expression of a general uncertainty about parenting; this problem should be addressed. Subjective stress experiences related to crying behavior of the child are reported with the same frequency across the child development checks, despite the fact that crying dysregulation, identified using objective criteria, is less common in later child development checks. The Crying Clinic can be a suitable outpatient service to which pediatricians can direct affected parents. The pediatrician can be an observer, a contact person and, if necessary, an agent directing parents to suitable prevention services, because parents are especially open to medical advice as they have a high degree of trust in physicians. Internationally, an evaluated concept how pediatricians can systematically support families experiencing psychosocial stress from early on is already available (15). In Germany, a pediatric assessment form (pädiatrischer Anhaltbogen) was developed for the evaluation of psychosocial support needs (U3–U6) (16). In Interprofessional Quality Circles for Early Childhood Intervention (IQZ FH), physicians can present difficult cases and receive advice and support (17).

(U screening) (16) as well as Interprofessional Quality Circles for Early Childhood Intervention (IQZ FH, Interprofessionelle Qualitätszirkel Frühe Hilfen) for physicians to anonymously share information about patients with psychosocial stress (17).

In our study, psychosocial stress was assessed using self-reports of parents. These reports were obtained during the child development checks (U3–U7a screening) in community-based pediatric practices. Our study is based on data of the “Children in Germany” national prevalence survey (*Kinder in Deutschland*—KiD 0–3). It was conducted within the framework of the scientific support for the German federal initiative “Networks for Early Childhood Intervention and Family Midwives” (Netzwerke Frühe Hilfen und Familienhebammen) within the German National Center for Early Prevention (Nationales Zentrum Frühe Hilfen, NZFH), a collaboration between the Federal Center for Health Education (Bundeszentrale für gesundheitliche Aufklärung) and the German Youth Institute (Deutsches Jugendinstitut e. V.). It was financially supported by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ, Bundesministerium für Familie, Senioren, Frauen und Jugend). At

the interface between health system and social system, Early Childhood Intervention (Frühe Hilfen) is intended to provide non-stigmatized access to support for families experiencing psychosocial stress. The goal is to enable every child to grow up healthy and without violence. This study has the following aims:

- To present frequencies of sociodemographic data and prevalence rates of psychosocial stress for families with children aged 0 to 48 months, living in Germany.
- To show differences in the prevalence rates of individual stress characteristics and of three or more cumulative characteristics between age groups corresponding to the U3 to U7a screening examinations.

Methods

The representative KiD 0–3 main study, designed as a cross-sectional survey, is embedded in an extensive study program (18). For sample recruitment, a two-step selection procedure was used: In the first step, a stratified random sample was drawn from community-based pediatric practices in Germany. In the second step, all mothers and fathers taking their children to any of these practices for a child development check (U3–U7a screening) were invited to complete a written questionnaire. Altogether, 271 medical practices participated in the study (response rate of 15% of the gross sample). They handed out the questionnaires and documented the participating and non-participating families. The participating parents (altogether 8063; response rate of 75%) completed the questionnaire independently and in an anonymized form. Further information about the study design is provided in the *eMethods* section.

The questionnaire included questions about biological and perinatal characteristics as well as psychosocial stress characteristics. The characteristics were selected based on English systematic reviews on risk factors for abnormal child development and child maltreatment (5). Data were collected using established survey instruments, if available. In the *eTable*, the operationalization of all measures of stress is described, including, for example, couple distress (e4), parenting stress (e6) and signs of depression or anxiety symptoms (e8).

Data analysis was performed using the statistical software package STATA 15.1. The measured stress characteristics, if available, were dichotomized based on clinical cut-off values to differentiate between families exposed and non-exposed to psychosocial stress (risk definition). The analysis comprised descriptive statistics and Chi-square testing. The measures of stress were then added up to show the proportion of families with three or more risk factors, who were more likely to experience psychosocial stress. The cut-off value of three stress characteristics is commonly used in the literature (6, 7). Based on the complex, clustered sampling strategy, design weighting to adjust for German federal states (“Bundesländer”) was applied.

and a post-stratification procedure were used. By using this strategy, the sample was adjusted for age, citizenship, education, and vocational training of the mother as well as household constellation to the German Microcensus (own calculations based on [19]). Frequencies of psychosocial stress measures (point prevalence rates) are presented taking into account the survey weighting and excluding missing values. The no-response rate was generally below 5%, with the exception of a rate of 6.7% found for negative emotionality of the child. Only questionnaires completed by biological parents were included. Children with missing age information and children aged older than 48 months were excluded from the calculations for this study. Children were allocated to the child development checks based on self-defined age limits (Table 1).

Results

Altogether 7549 families with children aged between 0 and 48 months were included in the analyses. The mean number of participating families per practice was 14 (min = 3, max = 36). In 90.5% of cases, the biological mother answered the questions (age in years: mean [M] = 31.6; standard deviation [SD] = 5.1), in 7.3% of cases the biological father (age in years: M = 35.0; SD = 6.6) and in 2.2% of cases mother and father jointly completed the questionnaire (mean age of the primary carer: M = 31.6; SD = 6.5). Of the included families, 19.5% reported that they had received social welfare benefits during the last 12 months. 14.5% of the primary carers had no vocational qualification and no higher educational attainment than an intermediate secondary school ("Realschule") leaving certificate. By contrast, 31.5% had a university degree or a master craftsman's certificate. The mean age of the children was 14.3 months (M = 11; SD = 12.3). 50.4% of the children were male and 49.6% female. In 30.5% of cases, the child had a migration background (pursuant to Sec. 6 of the German Migration Background Survey Ordinance: if the child has no German citizenship, one parent immigrated to Germany or was born abroad).

The psychosocial stress situation of the parents at the time of the child development check may be influenced by events and adverse perinatal characteristics which date back some time (Table 2). In 7.4% of families, the mother was not older than 21 years at the time of giving birth. In 21.3% of families, the pregnancy was unplanned. Altogether, 4.5% of parents stated that they had considered abortion. One in ten families reported regular maternal smoking during pregnancy (9.8%). In 3.0% of families, the parents reported that the antenatal check-ups by a gynecologist or midwife were only irregularly attended. 8.8% of the parents reported a preterm birth before the completion of 37 weeks' gestation; 7.1% low birth weight <2500 g; 2.1% multiple birth; and 1.5% a disability or severe disease of the child. With regard to their own biographical characteristics, 10.8% of parents reported adverse experiences as a child (e.g. not much

TABLE 1

Distribution of the sample by age group and child development check

Child development check (U screening)	Age of the child (in months ^{*1})	Proportion of the sample (%; weighted ^{*2})
U3	0–2	13.3
U4	3–4	15.7
U5	5–8	17.6
U6	9–19	18.6
U7	20–32	18.2
U7a	33–48	16.7

^{*1} The children were allocated to the child development checks based on self-defined age limits.

^{*2} The weighting consists of design weighting to adjust for differences in the federal states (Bundesländer) and a post-stratification procedure to adjust for social characteristics (age, citizenship, education, and vocational training of the mother as well as household constellation).

love, harsh punishment) and 9.0% violence experienced in a partnership. In 2.4% of the families, indications of present or past addiction problems of a parent are found.

The current psychosocial stress experienced by the parents at the time of the survey is presented by child development checks, from U3 through to U7a (Table 3): Only few parents stated that they are not in a partnership (6.0%) or that the current partner is not the biological parent of the child (1.8%). Lack of support from the family/social environment regarding questions in relation to the child, couple distress, and lack of partnership were reported more frequently during later child development checks.

Parental characteristics regarding psychosocial stress (Table 3) included signs of depression or anxiety symptoms (overall: 4.3%), frequent inner anger (overall: 12.6%). Here, an increased proportion is seen at the U7a child development check compared to earlier U screening examinations. The frequency of parenting stress is differentiated by the subscales of the Parenting Stress Index (German version) and varies between 15.6% and 30.1% (e6).

Child stress characteristics were found as follows (Table 3): The prevalence of negative emotionality (e.g. difficult to comfort or frequent tantrums) is with 2.8% and 2.4% at the U4 and U5, respectively, lower and with 7.0% and 7.8% at the U7 and U7a higher compared to the overall prevalence of 4.8% across all child development checks. The objective stress caused by the child's crying behavior, i.e. if a child is crying more than three hours a day, three times per week for three weeks ("rule of threes") (e10), is found reduced at later child development checks (e.g. 1.4% at the U7a) compared to earlier examinations (e.g. 5.3% at the U3). The parents reported no age-dependent differences in their subjectively perceived stress caused by the child's crying behavior (overall: 12.8%). In the other child regulation areas, differences in the parental stress experience were found between the child development checks, peaking at the

TABLE 2

Prevalence rates of adverse biographical and perinatal characteristics

	% (weighted*)	[95% CI]	n
Adverse biographical characteristics			
Young maternal age (up to 21 years)	7.4	[6.56; 8.27]	7326
Adverse childhood experiences	10.8	[9.91; 11.79]	7282
Experiences of intimate partner violence (lifetime)	9.0	[8.20; 9.77]	7343
Alcohol/drug problems (lifetime)	2.4	[2.00; 2.78]	7265
Concerns in pregnancy			
Pregnancy was unplanned	21.3	[20.01; 22.56]	7507
Thoughts of abortion or adoption	4.5	[4.01; 5.07]	7472
Mother smoked regularly	9.8	[8.86; 10.75]	7311
Pregnancy check-ups were not regularly attended	3.0	[2.51; 3.50]	7305
Adverse perinatal characteristics			
Preterm birth before the completion of 37 WG	8.8	[8.06; 9.57]	7475
Low birth weight (<2500 g)	7.1	[6.42; 7.85]	7478
Multiple birth	2.1	[1.76; 2.59]	7491
Disability or serious disease	1.5	[1.20; 1.86]	7473

* The weighting consists of design weighting to adjust for differences in the federal states ("Bundesländer") and a post-stratification procedure to adjust for social characteristics (age, citizenship, education, and vocational training of the mother as well as household constellation).
CI, confidence interval; n, sample size; WG, weeks' gestation

U3 examination for sleeping behavior (14.3%) and eating behavior (6.0%).

Three or more stress characteristics are shown by 10.1% of the families based on the cumulative biographical and perinatal characteristics and by 29.1% of the families based on cumulative psychosocial stress (Table 4). Due to the static character of the adverse biographical and perinatal characteristics, differences between the child development checks are found only in the area of psychosocial stress. The proportion of families with three or more psychosocial stress characteristics is with 33.1% increased at the U7a examination compared to a proportion of 26.6% and 26.3% at the U4 and U5 examinations, respectively. As already shown for the individual stress characteristics, the level of psychosocial stress is higher with later child development checks. When all 20 biographic, perinatal and psychosocial measures are added up, 40.4% of the families have a cumulation of three and more stressors. At this total value, no differences are found between the child development checks.

Discussion

In Germany, data of a nationwide survey of psychosocial stress in families has until now only been collected during child development checks, using the pediatric assessment form for the evaluation of psychosocial support needs, in a small sample (16). According to the participating pediatricians, 37 children (7.2% of the total sample) were exposed to psychosocial stress (20).

The author herself noted that the prevalence rates of the clinically relevant symptoms (4.5% sleeping difficulties, 2.9% feeding difficulties, 1.4% excessive crying) were significantly lower compared to previous estimates (12.8% sleeping difficulties, 15.9–19.1% feeding difficulties and 9.7–16.3% excessive crying) (9, 21, 22). Health-related comparative data from the literature are in line with the findings of the KiD 0–3 study. These include, for example, self-reported maternal smoking during pregnancy in about 10% (23, 24), preterm birth before the completion of 37 weeks' gestation in about 9% (25, 26) and low birth weight <2500 g in about 7% (27).

The results presented here focused on age-specific differences in the prevalence rates of various psychosocial stress measures at the time of the U3–U7a child development checks. Age-specific differences were found for almost all stress characteristics, except for loud quarrels (7.3%), constraints due to parenting role (26.1%) and subjective experience of stress due to crying behavior (12.8%). The cross-sectional findings indicate temporal variability of parental challenges as the result of the child's development. The results of the KiD 0–3 study are in line with longitudinal study results which show that parents increasingly express dissatisfaction with their partnership with increasing age of the child (28). The results indicate that 19.7% of the families have a growing need for social support with increasing child age. This need may be explained by changes in the child's developmental requirements or the parents' circumstances (e.g. return of the

TABLE 3

Prevalence rates of psychosocial stress characteristics (% weighted*) by U3-U7a child development checks

	Total [95% CI]	U3	U4	U5	U6	U7	U7a	Design-based Chi statistics	p value	n
Family background										
No partnership	6.0 [5.27; 6.72]	4.6	4.7	5.1	5.5	7.0	8.6	F(4.84; 1292.03) = 3.80	0.0023	7520
New partnership	1.8 [1.49; 2.24]	0.9	1.1	0.8	1.8	2.3	3.9	F(4.65; 1241.74) = 7.50	0.0000	7400
Couple distress	10.7 [9.79; 11.64]	9.4	7.8	10.4	11.1	11.3	13.8	F(4.86; 1297.49) = 3.73	0.0026	6749
Loud quarrels	7.3 [6.58; 7.97]	5.9	6.1	6.8	7.6	8.2	8.5	F(4.87; 1299.53) = 1.60	0.1593	7235
Lack of social support	19.7 [18.66; 20.86]	14.8	18.4	16.4	21.4	22.8	23.2	F(4.94; 1319.62) = 7.17	0.0000	7310
Parenting stress										
Lack of parental intuition/sensitivity (PSI)	15.6 [14.65; 16.55]	24.9	17.5	13.5	14.5	12.5	13.3	F(4.84; 1291.80) = 13.43	0.0000	7210
Doubt about parenting competence (PSI)	29.6 [28.36; 30.86]	25.8	22.9	26.6	31.4	33.4	35.8	F(4.88; 1303.68) = 11.76	0.0000	7377
Feeling of social isolation (PSI)	30.6 [29.38; 31.91]	29.8	27.4	29.3	32.0	33.6	31.0	F(4.91; 1311.20) = 2.37	0.0385	7308
Constraints due to parenting role (PSI)	26.1 [24.86; 27.46]	24.9	23.1	27.4	28.2	25.3	27.4	F(4.82; 1286.97) = 1.91	0.0926	7293
Inner anger	12.6 [11.74; 13.45]	6.8	7.6	10.4	14.0	15.8	18.9	F(4.86; 1296.73) = 20.04	0.0000	7288
Signs of depression or anxiety symptoms	4.3 [3.81; 4.87]	2.6	3.2	2.4	5.1	5.7	6.2	F(4.80; 1281.39) = 6.03	0.0000	7272
Stress due to the child										
Negative emotionality	4.8 [4.28; 5.38]	4.2	2.8	2.4	4.3	7.0	7.8	F(4.83; 1290.57) = 10.07	0.0000	7038
Stressful crying behavior ("rule of threes")	2.1 [1.73; 2.49]	5.3	2.6	1.7	1.5	1.0	1.4	F(4.63; 1237.31) = 9.21	0.0000	7416
Subjective stress experience due to crying behavior	12.8 [11.89; 13.79]	14.8	11.6	13.2	13.2	10.8	13.7	F(4.77; 1274.35) = 1.85	0.1033	7187
Subjective stress experience due to sleeping behavior	11.6 [10.63; 12.56]	14.3	7.6	12.6	12.9	11.3	10.8	F(4.91; 1311.72) = 4.60	0.0004	7193
Subjective stress experience due to eating behavior	4.6 [4.07; 5.28]	6.0	4.9	2.9	3.9	4.9	5.7	F(4.72; 1259.35) = 3.295	0.0069	7333

* The weighting consists of design weighting to adjust for differences in the federal states ("Bundesländer") and a post-stratification procedure to adjust for social characteristics (age, citizenship, education, and vocational training of the mother as well as household constellation).
 PSI, Parenting Stress Index; CI, confidence interval; n, sample size

TABLE 4

Cumulative stress characteristics (% weighted*) by U3–U7a child development check

Child development check	Three or more adverse biographical, prenatal or perinatal characteristics (n = 6833; weighted*)		Three or more psychosocial stress characteristics (n = 5498; weighted*)		Three or more adverse biographical, prenatal or perinatal characteristics and psychosocial stress characteristics (n = 5270; weighted*)	
	%	[95% CI]	%	[95% CI]	%	[95% CI]
U3	10.2	[8.10; 12.76]	29.3	[25.23; 33.82]	41.3	[36.75; 45.98]
U4	9.6	[7.80; 11.85]	26.6	[23.65; 29.69]	37.0	[33.64; 40.54]
U5	10.3	[8.40; 12.44]	26.3	[23.38; 29.50]	38.4	[35.14; 41.80]
U6	10.3	[8.29; 12.76]	29.8	[26.85; 32.89]	40.7	[37.38; 44.10]
U7	9.3	[7.46; 11.64]	29.6	[26.73; 32.71]	41.7	[38.41; 45.10]
U7a	11.0	[8.98; 13.41]	33.1	[29.69; 36.77]	43.2	[39.62; 46.88]
Total	10.1	[9.20; 11.12]	29.1	[27.70; 30.53]	40.4	[38.75; 41.99]
χ value	F(4.86; 1296.55) = 0.30		F(4.84; 1292.78) = 2.25		F(4.82; 1285.89) = 1.59	
p value	0.9063		0.0492		0.1624	

* The weighting consists of design weighting to adjust for differences in the federal states ("Bundesländer") and a post-stratification procedure to adjust for social characteristics (age, citizenship, education, and vocational training of the mother as well as household constellation).
CI, confidence interval; n, sample size

mother to the workforce) (29). This underlines the importance of universal prevention services for families aimed at extending the social networks of families (e.g. parent cafes, parent-child groups).

The results of the KiD 0–3 study provide evidence that parents—especially mothers—feel to some extent more stressed by the behavior of their child in three regulation areas if the child is breastfed (30). Furthermore, the study shows that the perceived stress due to a child's screaming and crying is less dependent on the age of the child compared to the stress associated with the child's sleeping and eating behavior. With regard to the child's crying, the subjective stress also appears to be less age-dependent than it would be expected based on the objective measurement obtained using the "rule of threes". The prevalence of objectively stressful screaming and crying (5.1% and 2.1% in children aged <3 months and <6 months, respectively) measured in the KiD 0–3 study is lowered compared to the findings of a nationwide telephone survey in Germany for the birth cohorts 1999 to 2003 (5.8% and 2.5% among children aged <3 months and <6 months, respectively) (21). These prevalence rates from the KiD 0–3 study deviate from the data presented in Table 3 because the age limits are located within the age groups of the U4 and U5 examinations, respectively (Table 1).

The data reported here provide evidence that there is a relevant variation in psychosocial stress caused by individual stressors depending on the respective child development check-up. If one looks at the cumulative psychosocial stress data, it can be seen that the level of psychosocial stress is higher in later child development checks. Consequently, the pedia-

trician's role as a support person is an ongoing requirement.

From a methodological perspective, it should be noted that just adding up stress characteristics only allows limited conclusion about the type of stressor or specific support needs (31). In international comparative studies, usually an additive risk index was used to screen for child maltreatment and to determine support needs. Studies conducted in Florida and Alaska found that families with three and more risk factors accounted for 13% (7) and 18% of the families, respectively, in the 0–3-month age group (6). A pilot project of the German Early Childhood Prevention (Frühe Hilfen) found a proportion of 21% (32). The findings of the KiD 0–3 study related to the assessment of support needs and the links between psychosocial stress and child abuse and neglect have already been reported elsewhere (31, 33). The comparatively high proportion of 29% presented here can be attributed to the fact that the KiD 0–3 study incorporated a relatively high number of risk factors in order to broadly cover the overall psychosocial situation of the families.

The field access via medical practices to the families has proven useful since the U screening program for children in Germany is accepted by much of the population. The pediatricians' response rate to study participation was with 15% relatively low; however, the comparison of the KiD 0–3 sample with the German Microcensus shows no loss of representativeness on the family level (33). A mild middle class bias showing as a more frequent participation of better educated families compared to the lower participation rate of less educated families could not be avoided. The insights into the families' psychosocial

stress are based on information self-reported by parents. Underestimation of sensitive issues, such as alcohol and drug abuse, is likely since a socially desirable response behavior can be assumed. Measures of psychosocial stress at the time of the child development checks were reported stratified for the respondents' age, but not gender. Designed to cover a broad range of psychosocial stress characteristics and to systematically collect these data, the KiD 0–3 study can provide deep insight into the psychosocial situation of families with infants and toddlers in Germany.

Acknowledgement

The KiD 0–3 study is a team effort with the further collaboration of Dr. Christian Brand, Prof. Dr. rer. nat. Andreas Eickhorst, Dr. Birgit Fullerton, Dr. phil. Katrin Lang, Dr. phil. Ulrike Lux, Dr. phil. Daniela Salzmann, Dr. rer. nat. Andrea Schreier, Caroline Seilbeck, and Prof. Dr. phil. Sabina Walper of the German Youth Institute (DJJ) in Munich and Dr. phil. Anna Neumann, Ilona Renner and Mechthild Paul of the Federal Center for Health Education (BZgA) in Cologne. We would like to thank them all for their support and the families in this study for their readiness to provide information.

Financial support

The KiD 0–3 study was supported with funds of the federal initiative "Networks for Early Childhood Intervention and Family Midwives" by the Federal Ministry for Family Affairs, Senior Citizens, Women and Youth (BMFSFJ).

Conflict of interest statement

The authors declare that no conflict of interest exists.

Manuscript received on 6 December 2019, revised version accepted on 6 April 2020

Translated from the original German by Ralf Thoene, MD.

References

- Felitti V, Anda R: The relationship of adverse childhood experiences to adult medical disease, psychiatric disorders and sexual behavior: implications for healthcare. In: Lanius R, Vermetten E, Pain C (eds.): The hidden epidemic: the impact of early life trauma on health and disease. Cambridge University Press 2010; 77–87.
- Witt A, Sachser C, Plener PL, Brähler E, Fegert JM: The prevalence and consequences of adverse childhood experiences in the German population. *Dtsch Arztebl Int* 2019; 116: 635–42.
- Zeanah CH, Boris NW, Larrieu JA: Infant development and developmental risk: a review of the past 10 years. *J Am Acad Child Adolesc Psychiatry* 1997; 36: 165–78.
- Egle UT, Franz M, Joraschky P, Lampe A, Seiffge-Krenke I, Cierpka M: Gesundheitliche Langzeitfolgen psychosozialer Belastungen in der Kindheit – ein Update. *Bundesgesundheitsbl* 2016; 59: 1247–54.
- Stith S, Liu T, Davies L, et al.: Risk factors in child maltreatment: a meta-analytic review of the literature. *Aggress Violent Behav* 2009; 14: 13–29.
- Parrish J, Young M, Perham-Hester K, Gessner B: Identifying risk factors for child maltreatment in Alaska: a population-based approach. *Am J Prev Med* 2011; 40: 666–73.
- Wu SS, Ma CX, Carter RL, et al.: Risk factors for infant maltreatment: a population-based study. *Child Abuse Negl* 2004; 28: 1253–64.
- Laucht M, Esser G, Schmidt MH: Längsschnitterforschung zur Entwicklungsepidemiologie psychischer Störungen: Zielsetzung, Konzeption und zentrale Befunde der Mannheimer Risikokinderstudie. *Z Klin Psychol Psychother (Gott)* 2000; 29: 246–62.
- Kindler H, Künster AK: Prävalenz von Belastungen und Risiken in der frühen Kindheit in Deutschland. In: Nationales Zentrum Frühe Hilfen (eds.): Datenreport Frühe Hilfen: Ausgabe 2013. Köln: Nationales Zentrum Frühe Hilfen 2013; 8–13.
- Schmidtke C, Kuntz B, Starker A, Lampert T: Inanspruchnahme der Früherkennungsuntersuchungen für Kinder in Deutschland – Querschnittergebnisse aus KiGGS Welle 2. *Journal of Health Monitoring* 2018; 3: 68–77.
- Altenhofen L: Gesundheitsförderung durch Vorsorge. *Bundesgesundheitsbl* 2002; 45: 960–3.

Key messages

- In the representative KiD 0–3 study, more than 8000 parents in pediatric practices were asked about the psychosocial situation of the family during a child development check (U3–U7a screening). The results were meant to give impulses for the orientation of preventive strategies in early childhood.
- Most psychosocial stress characteristics, both on the part of the children and of the parents, are more common at later child development checks and with older age of the children.
- Cumulative occurrence of psychosocial stress characteristics is more common at later child development checks (especially U7a) compared to earlier screenings (U4, U5). However, no differences were found with regard to stress cumulation for adverse biographical characteristics of parents and adverse prenatal or perinatal characteristics.
- Parenting stress and the subjective stress experience partly exceeds the objectively measured stress levels (for example, associated with the child's crying behavior). The pediatrician could take this as an opportunity in the discussion with the parents to early on direct them to suitable support offerings.
- Field access via pediatric practices has proven useful because of the high participation rate in child development checks and the successful access to population groups with higher psychosocial stress levels. A comparison of self-reports of the families with objective data (for example, from the U screening examinations) could not be undertaken.

- Barth M: Das pädiatrische Elterngespräch und Frühe Hilfen. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz* 2016; 59: 1315–22.
- Renner I: Zugangswege zu hoch belasteten Familien über ausgewählte Akteure des Gesundheitssystems. *Bundesgesundheitsbl* 2010; 53: 1048–55.
- Renner I, Saint V, Neumann A, et al.: Improving psychosocial services for vulnerable families with young children: strengthening links between health and social services in Germany. *BMJ* 2018; 363: k4786.
- Dubowitz, H: The safe environment for every kid (SEEK) model: helping promote children's health, development, and safety: SEEK offers a practical model for enhancing pediatric primary care. *Child Abuse Negl* 2014; 38: 1725–33.
- Bart M, Renner I: Kindermedizin und Frühe Hilfen: Entwicklung und Evaluation des pädiatrischen Anhaltsbogens. Köln Nationales Zentrum Frühe Hilfen – Serie Kompakt 2014: www.fruehehilfen.de/fileadmin/user_upload/fruehehilfen.de/pdf/Publikation_NZFH_Kindermedizin_und_Fruehe_Hilfen.pdf (last accessed on 7 May 2020).
- Nationales Zentrum Frühe Hilfen (NZFH). Interprofessionelle Qualitätszirkel – Ziele und Umsetzung. www.fruehehilfen.de/qualitaetsentwicklung-fruehe-hilfen/kooperationen-in-den-fruehen-hilfen/interprofessionelle-qualitaetszirkel/ziele-und-umsetzung (last accessed on 7 May 2020).
- Eickhorst A, Brand C, Lang K, et al.: Die Prävalenzstudie „Kinder in Deutschland – KiD 0–3“ zur Erfassung von psychosozialen Belastungen und Frühen Hilfen in Familien mit 0–3-jährigen Kindern: Studiendesign und Analysepotential. *Soz Passagen* 2015; 7: 381–7.
- FDZ der statistischen Ämter des Bundes und der Länder. Mikrozensus Scientific Use-File 2011.
- Friedmann A: Frühe Hilfen in der Pädiatrie: Die Evaluation psychosozialer Belastungsfaktoren im Rahmen der pädiatrischen Früherkennungsuntersuchung anhand eines Instruments zur Entscheidungsfindung (Dissertation). München: Technische Universität München 2018.
- Kries R von, Kalies H, Papousek M: Excessive crying beyond 3 months may herald other features of multiple regulatory problems. *Arch Pediatr Adolesc Med* 2006; 160: 508–11.
- Schmid G, Schreier A, Meyer R, Wolke D: A prospective study on the persistence of infant crying, sleeping and feeding problems and pre-school behaviour. *Acta Paediatr* 2010; 99: 286–90.

23. Scholz R, Voigt M, Schneider K, et al.: Analysis of the German perinatal survey of the years 2007–2011 and comparison with data from 1995–1997: maternal characteristics. *Geburtshilfe Frauenheilkd* 2013; 73: 1247–51.
24. Kuntz B, Zeiher J, Starker A, Prütz F, Lampert T: Rauchen in der Schwangerschaft – Querschnittergebnisse aus KiGGS Welle 2 und Trends. *Journal of Health Monitoring* 2018; 3: 47–53.
25. Schleußner E: The prevention, diagnosis and treatment of premature labor. *Dtsch Arztebl Int* 2013; 110: 227–36.
26. Pressemappe: Bundesverband „Das frühgeborene Kind“ e. V. Bundesverband DfK (ed.). Frankfurt a.M. 2018. www.fruehgeborene.de/sites/default/files/field_page_file/pm_2018_web.pdf (last accessed on 7 May 2020).
27. Robert Koch-Institut: AdiMon-Themenblatt: Geburtsgewicht. Bevölkerungsweites Monitoring adipositasrelevanter Einflussfaktoren im Kindesalter. Berlin 2018: https://www.rki.de/DE/Content/Gesundheitsmonitoring/Studien/Adipositas_Monitoring/Vor_und_nach_Geburt/PDF_Themenblatt_Geburtsgewicht.pdf?__blob=publicationFile (last accessed on 7 May 2020).
28. Fthenakis WE, Kalicki B, Peitz G: Paare werden Eltern: Die Ergebnisse der LBS-Familien-Studie. Opladen: Leske + Budrich 2002.
29. Diener K, Berngruber A: Die Bedeutung öffentlicher Kinderbetreuung für die Erwerbsentscheidung und den Erwerbsumfang von Müttern beim beruflichen Wiedereinstieg. *Z Fam Forsch* 2018; 30: 123–50.
30. Lorenz S, Fullerton B, Eickhorst A: Zusammenhänge des Stillverhaltens mit der familiären Belastungssituation: Faktenblatt 7 zur Prävalenz- und Versorgungsforschung der Bundesinitiative Frühe Hilfen. www.fruehehilfen.de/fileadmin/user_upload/fruehehilfen.de/pdf/faktenblaetter/Faktenblatt-7-NZFH-Praevalenzforschung-Zusammenhaenge-des-Stillverhaltens-mit-der-familiaeren-Belastungssituation.pdf (last accessed on 7 May 2020).
31. Lorenz S, Ulrich SM, Kinder H, Liel C: Wie viele Familien in Deutschland sind in welchem Ausmaß psychosozial belastet? *Kindh Entwickl* 2020; in press.
32. Ziegenhain U, Thurn E, Künster A, et al.: Frühe Risiken für eine potenzielle Kindeswohlgefährdung. Eine Untersuchung in den Geburtskliniken des Ortenaukreises. *Das Jugendumt* 2011; 84: 377–82.
33. Liel C, Ulrich SM, Lorenz S, Eickhorst A, Fluke J, Walper S: Risk factors for child abuse, neglect and exposure to intimate partner violence in early childhood: findings in a representative cross-sectional sample in Germany. *Child Abuse Negl* 2020; in press.

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Cite this as:
 Lorenz S, Ulrich SM, Sann A, Liel C:
 Self-reported psychosocial stress in parents with small children:
 results from the *Kinder in Deutschland—KiD* 0–3 study.
Dtsch Arztebl Int 2020; 117: 709–16. DOI: 10.3238/arztebl.2020.0709

► **Supplementary material**

For eReferences please refer to:
www.aerzteblatt-international.de/ref4220
 eMethods, eTable:
www.aerzteblatt-international.de/20m0709

CLINICAL SNAPSHOT

Dichorionic-Diamniotic Twin Pregnancy after Elective Single-Embryo Transfer of a Blastocyst

After intracytoplasmic sperm injection (ICSI), a 33-year-old woman underwent the transfer of a frozen-thawed blastocyst (*Figure 1*) within an an ovulatory thaw cycle with exogenous hormone substitution (estradiol and dydrogesterone in sequence). Ovulation was ruled out with certainty (serum progesterone levels in gestational weeks 5 and 6: 0.11 and 0.22 ng/mL, respectively). A dichorionic, diamniotic twin pregnancy ensued (*Figure 2*). Most twin pregnancies arise from two separate fertilized ova (dizygotic twins). Most monozygotic twins arise by the division of an embryo; there are then two fetuses in separate sacs, with a shared placenta. The present case illustrates a rare event in human beings that is somewhat more common after assisted reproduction (in particular, assisted hatching, blastocyst culture, and/or cryoconservation), namely, a very early, complete division/duplication of the embryo, so that monozygotic twins each have their own placenta and their own membranous sacs (i.e., they are dichorionic and diamniotic). Noninvasive prenatal diagnostic checks and sonographic examinations were normal over the course of the pregnancy. Both fetuses are female; the pregnancy comes to term on 15 November 2019.

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Conflict of interest statement: The authors declare that no conflict of interest exists.

Translated from the original German by Ethan Taub, M.D.

Cite this as: Neumann K, Weichert J, Griesinger G: Dichorionic-diamniotic twin pregnancy after elective single-embryo transfer of a blastocyst. *Dtsch Arztebl Int* 2020; 117: 716. DOI: 10.3238/arztebl.2020.0716

a) Elective single-embryo transfer (without assisted hatching) on day 5 of embryonic development (Gardner morphological grade 3BB).
b) Dichorionic-diamniotic twin pregnancy with lambda sign in gestational week 8 + 6.

Supplementary material to:

Self-Reported Psychosocial Stress in Parents With Small Children

Results From the *Kinder in Deutschland*—KiD 0–3 Study

by Simon Lorenz, Susanne Marlene Ulrich, Alexandra Sann, and Christoph Liel

Dtsch Arztebl Int 2020; 117: 709–16. DOI: 10.3238/arztebl.2020.0709

eReferences

- e1. Engfer A: Entwicklung punitiver Mutter-Kind-Interaktionen im sozio-ökologischen Kontext. Arbeitsbericht zum Antrag an die Deutsche Forschungsgemeinschaft auf Gewährung einer Sachbeihilfe. Universität München 1984.
- e2. Schauer M, Ruf-Leuschner M: KINDEX: Pränatale Erfassung psychosozialer Risiken für die Entwicklung über die Lebensspanne – Der Konstanzer INDEX. Konstanz 2013. www.babyforum-landkreis-konstanz.de/de/aktuelles/KINDEX-Interview.pdf (last accessed on 7 May 2020).
- e3. Löwe B, Spitzer RL, Zipfel S, Herzog W: Gesundheitsfragebogen für Patienten (PHQ-D). Komplettversion und Kurzform. Testmappe mit Manual, Fragebögen, Schablonen. 2. Auflage. Karlsruhe: Pfitzer 2002. www.klinikum.uni-heidelberg.de/fileadmin/Psychosomatische_Klinik/download/PHQ_Manual1.pdf (last accessed on 7 May 2020).
- e4. Sabourin S, Valois P, Lussier Y: Development and validation of a brief version of the dyadic adjustment scale with a nonparametric item analysis model. *Psychol Assess* 2005; 17: 15–27.
- e5. Thönnissen C, Wilhelm B, Alt P, Walper S: Scales manual of the German Family Panel 2002. Waves 1 to 6. Release 6.0. 2015. www.pairfam.de/fileadmin/user_upload/redakteur/publis/Dokumentation/Manuals/Scales_Manual_pairfam_6.0.pdf (last accessed on 7 May 2020).
- e6. Tröster H: Eltern-Belastungs-Inventar (EBI): Deutsche Version des Parenting Stress Index (PSI) von R.R. Abidin: Manual. Göttingen: Hogrefe 2010.
- e7. Milner JS: The child abuse potential inventory: Manual. Webster, NC: Psytec Cooperation 1986.
- e8. Löwe B, Wahl I, Rose M, et al.: A 4-item measure of depression and anxiety: Validation and standardization of the Patient Health Questionnaire-4 (PHQ-4) in the general population. *J Affect Disord* 2010; 122: 86–95.
- e9. Kübber E: Aspekte seelischer Gesundheit im Kleinkindalter. Entwicklung und Validierung eines Screening-Instruments zur Früherkennung von Entwicklungsauffälligkeiten. Inaugural Dissertation. Ludwig-Maximilians-Universität (LMU) 2014.
- e10. Wessel MA, Cobb JC, Jackson EB, Harris GS, Detwiler AC: Paroxysmal fussing in infancy, sometimes called „colic“. *Pediatrics* 1954; 14: 421–35.

eMETHODS

In four substudies, the KiD 0–3 study program collects data on psychosocial stress of parents with small children and the use of various support offerings. The main study, from which the data presented here were obtained, comprises a representative nationwide survey of 8 063 families in Germany. Every family visiting the selected pediatric practices for a child development check was invited to participate in the study. The study design included a type of access to the sample population which was rather innovative in Germany and offered the advantage of a higher accessibility compared to the usual study design based on residence registration office data. Almost 99% of all families participate in the U screening program. Access via pediatricians had already proven useful compared to access via residence registration offices in a pilot study.

The pediatric practices were selected using a representatively drawn, proportional, stratified gross sample in two steps:

In the first step, a sample of 1 500 pediatricians was drawn from the database of the German Public Health Foundation (Stiftung Gesundheit), in proportion to the various Federal States (Bundesländer). A further stratification was performed proportionally with respect to four selection groups: a) solo practice and municipality size <100 000 inhabitants; b) solo practice and municipality size ≥ 100 000 inhabitants; c) group practice/other relationship (medical care center or employed physician) and municipality size <100 000 inhabitants; d) group practice/other relationship (medical care center or employed physician) and municipality size ≥ 100 000 inhabitants.

In the second step, public directories were searched for additional pediatric practices in hitherto underrepresented postcode areas. The extension of the gross sample comprised 372 medical practices. In order to increase the readiness of the medical practices to participate in the survey and to compensate for the time spent, a financial incentive was paid (30 euros per returned questionnaire and once 150 euros per practice for the documentation of all non-responding families). Altogether, 271 pediatric practices participated in the KiD 0–3 study, corresponding to a final participation rate of 14.5% of the gross sample. With regard to the stratification characteristics of the sampling, the distribution was found to be satisfactory: Among the practice types grouped by municipality size, only solo practices in large municipality showed a below-average response rate of 11.4%. In the regional stratification by Federal State, differences were also found. The participation rates of the invited practices ranged from 6.5% in Hamburg to up to 30% in Saarland. Among the large Federal States, only Brandenburg and Lower Saxony had a response rate below 10%. By contrast, Schleswig-Holstein and North Rhine-Westphalia were overrepresented. No distortion was noticed with regard to differences between rural and urban municipalities (measured using the BIK-7 class of municipality size).

The field research phase was conducted in two waves, depending on the time of response of the medical practices (start in April and June 2015, respectively). Families visiting a practice for a U3–U7 child development check of their child, were enticed by practice staff to participate in a written questionnaire-based survey. The study procedure was identical for the two waves. In wave 1, 35 questionnaires were handed out and in wave 2 only 30 questionnaires because of the very favorable recruitment progress and to reduce the time spent by practice staff (and consequently also potential sources of error). Prior to the start of the study, practice staff received training by the field research institute Kantar Health (www.kantarhealth.com) which was responsible for the conduct of the survey. In addition, a telephone hotline was set up for the

participating practices. For quality assurance purposes, the study procedure was reviewed on-site in 20% of practices. As the result of the quality assurance, both compliance with the study procedure and dealing with the participants in the study were rated as positive. The field research phase ended for both waves on 16 September 2015. Questionnaires were provided in German, English, Russian, Turkish, Polish, and Romanian. The participating parents completed the questionnaire independently, anonymously and without external interference or assistance; the questionnaire was subsequently sent by mail by the medical practices to the field research institute in a sealed envelope.

The medical practices documented the reasons for refusal given by families not wanting to complete the questionnaire. According to the documentation sheets, the parental response rate was 75%. No participation differences between the various child development checks were found for migration status ($F[4.87; 1299.23] = 0.27$, non-significant [n. s.]), educational attainment ($F[9.06; 2418.97] = 1.55$, n. s.) and welfare benefit receipt ($F[4.86; 1298.50] = 0.77$, n. s.). Nor was there a pattern in the distribution of child development checks across the practices. The validation of plausibility comprised the exclusion of duplicate cases, correction or exclusion of cases without information about age and the allocation to medical practices (also manually, if necessary). The plausibility validation found no evidence of multiple participation by the same family; thus, independence of data can be assumed. The data quality proved to be good. On the level of individual questions, a no-response rate of more than 10% was not observed with any of the characteristics assessed. The majority of characteristics had missing values in the order of 3% to 4%, with the only exception being a rate of 6.7% for the assessment of negative emotionality of the child.

The comparison of the sociodemographic characteristics of the KiD 0–3 samples with the Microcensus (presented in 33) revealed a high degree of consistency. This suggests a representative sample and a very successful sample access via pediatricians compared to study designs traditionally used in social science.

eTABLE

Operationalization of the psychosocial stress characteristics

Characteristic	Instrument/question(s)	Risk definition (cut-off values)	Cronbach's alpha	Reference
Adverse biographical characteristics				
Young maternal age	Difference between maternal age and the child's date of birth	≤ 21 years		
Adverse childhood experiences	Q1: "I was given a lot of love in my childhood" [0; 3] Q2: "I was often treated unfairly at home" [0; 3] Q3: "My parents often punished me severely" [0; 3]	≥ 5	0.78	(e1)
Experiences of intimate partner violence	"Have you ever been in a relationship with violent attacks?" [0; 1]	Yes	–	(e2)
Alcohol/drug problems	Q1: "Was there any occasion in the last year where you or the other parent struggled to meet an obligation due to alcohol or drug use (e.g. going to work or caring for your child)?" [0; 1] Q2: "Have you or the other parent ever sought help for or been treated for alcohol or drug problems?" [0; 1]	Yes (Q1) or yes (Q2)	–	(e3)
Concerns in pregnancy				
Pregnancy was unplanned	"Was the pregnancy planned?" [0; 1]	Yes	–	–
Thoughts of abortion or adoption	"Did you consider abortion or adoption at any time during your pregnancy?" [0; 1]	Yes	–	–
Mother smoked regularly	"During pregnancy, have you/has the birth mother smoked regularly?" [0; 1]	Yes	–	–
Pregnancy check-ups were not attended	"During the pregnancy, have you/has the birth mother attended health checks with the obstetrician/the midwife regularly?" [0; 1]	No	–	–
Adverse perinatal characteristics				
Preterm birth	"Was your child born prematurely, i.e. before the completion of the 37 th weeks of pregnancy?" [0; 1]	Yes	–	–
Low birth weight	"Was the birth weight of your child under 2500 grams?" [0; 1]	Yes	–	–
Multiple birth	"Is your child a multiple birth sibling, i.e. a twin, a triplet, etc.?" [0; 1]	Yes	–	–
Disability or severe disease	"Has your child been diagnosed with a disability or severe illness?" [0; 1]	Yes	–	–
Family background				
No partnership	"Do you currently live in a relationship?" [0; 1]	No	–	–
New partnership	Q1: "Do you currently live in a relationship?" [0; 1] Q2: "Is your partner the biological parent of your child?" [0; 1]	Yes (Q1) & no (Q2)	–	–
Couple distress	Dyadic Adjustment Scale-4 (DAS-4) [0; 21]	≥ 8	0.72	(e4)
Loud quarrels	"How many severe arguments have you and your partner had during the last six months?" [0; 5]	≥ 3	–	(e2)
Lack of social support	Q1: "There are enough people who would look after my child from time to time." [0; 3] Q2: "If I am worried about my child or if there are problems with my child I have enough people who I can ask for advice." [0; 3]	≥ 4	0.64	(e5)
Parenting stress				
Doubt about parenting competence	Parenting Stress Index (PSI) subscale: Parenting competence [4; 20]	≥ 11	0.80	(e6)
Lack of parental intuition/sensitivity	PSI subscale: Attachment [4; 20]	≥ 11	0.82	(e6)
Feeling of social isolation	PSI subscale: Social isolation [4; 20]	≥ 11	0.69	(e6)
Constraints due to parenting role	PSI subscale: Role Restriction [4; 20]	≥ 13	0.80	(e6)
Inner anger	Q1: "I often feel angry inside." [0; 3] Q2: "There are quite a few things that bother me about my life." [0; 3]	≥ 4	0.73	(e7)
Depression/symptoms of anxiety	Patient Health Questionnaire-4 (PHQ-4) [0; 12]	≥ 6	0.81	(e8)

Characteristic	Instrument/question(s)	Risk definition (cut-off values)	Cronbach's alpha	Reference
Stress due to the child				
Negative emotionality	"How would you describe your child?" "My child... (Q1) ... is mostly happy and content." [1; 4] (Q2) ... is often very stubborn." [1; 4] (Q3) ... often has temper tantrums." [1; 4] (Q4) ... often works up great levels of excitement until he/she is completely exhausted (e.g. when he/she is angry)." [1; 4] (Q5) ... is frequently grumpy during the day, he/she e.g. cries or whines a lot." [1; 4] (Q6) ... is difficult to comfort." [1; 4]	≥ 15	0.76	(e9)
Stressful crying behavior ("rule of three")	Q1: "Is your child sometimes screaming and crying for more than 3 hours a day?" [0; 1] Q2: "Does your child scream/cry (for more than 3 hours a day) on 3 or more days per week?" [0; 1] Q3: "Have you already noticed the screaming/crying for 3 weeks or more?" [0; 1]	Yes (Q1) & yes (Q2) & yes (Q3)	–	(e10)
Subjective stress due to crying behavior	"How much of a burden is your child's screaming/crying?" [0; 3]	≥ 2	–	–
Subjective stress due to sleeping behavior	"How much of a burden is your child's sleeping behavior?" [0; 3]	≥ 2	–	–
Subjective stress due to eating behavior	"How much of a burden is your child's eating behavior?" [0; 3]	≥ 2	–	–