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Early home visitation in families at risk for child maltreatment

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Citation

Bouwmeester-Landweer, M. B. R. (2006, May 18). *Early home visitation in families at risk for child maltreatment*. Retrieved from <https://hdl.handle.net/1887/4396>

Version: Publisher's Version

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Note: To cite this publication please use the final published version (if applicable).

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PREVALENCE OF RISK FACTORS FOR CHILD MALTREATMENT IN THE NETHERLANDS

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Submitted for publication

1 ABSTRACT

Various studies have informed us about the relationship between child maltreatment and risk factors. Less information is available on the prevalence of individual risk factors in the general population. Nurses in Dutch Well Baby Clinics (WBC) have a primary function in identifying families at risk. This study investigates the gender-specific prevalence of risk factors and the association between family risk factors and the nurses' identification of families at risk.

For this study, based on theoretical and empirical research of risk factors for child maltreatment, a brief questionnaire was developed for both nurses and parents. By means of this questionnaire a large cross-sectional study was conducted in part of the province South Holland, the Netherlands. During 13 months all 8899 parents of newborns and their WBC-nurses were approached. Parental response was 55%. The 83 nurses responded about 80% of the families approached. Childhood maltreatment or violence was reported by 16.4% of the mothers and 10.2% of the fathers. Current family violence was reported by 1.9% - 2.3% of parents. Social isolation was found in 8.1% - 7.6%. Nurses were concerned about 4.3% of all families, which is 16.6% of those reporting risk factors. Single parenthood and mothers' parenting ambivalence proved the best determinants for concern.

In general the prevalence of risk factors found through this study is higher for mothers than for fathers. Nurses identified a low percentage of the parents reporting risk factors, possibly due to the fact that nurses based their findings on specific domains of risk factors. Results of this study can help influence policy and cost-estimations of preventive programs regarding child maltreatment.

2 INTRODUCTION

Child maltreatment is a serious problem. The third National Incidence study in the United States estimated that 40 out of every 1000 children experience some form of maltreatment every year ⁽⁴³⁾. Willems (1999) estimated that at least 80.000 children, 23 out of each 1000 children below 18 years of age, are maltreated each year in the Netherlands ⁽⁵⁸⁾. Child maltreatment has many consequences. Approximately 40 children in the Netherlands die of the inflicted maltreatment each year ⁽³⁵⁾. In surviving children serious physical, neurological, emotional, cognitive and social damage is caused ⁽¹⁵⁾. Long-term consequences include somatic problems, psychiatric problems, problems regarding employment and criminal behavior as well as intergenerational transmission ^(23; 56). As a result a higher appeal is made for medical and psychological care, as well as for judicial interventions. Thus child maltreatment has many consequences: on individual, societal and financial levels.

Ever since the presentation of the Battered Child Syndrome ⁽³⁰⁾ efforts have been made to develop adequate programs for the prevention of child maltreatment. One of the focal points of discussion within this field has been the question of universal versus indicated prevention efforts. It has been argued that screening families based on risk factors is neither specific nor sensitive ⁽⁴⁸⁾ and that the inevitable high rates of 'false alarms' ^(2; 9; 27) will cause harm due to mislabeling of parents as future child maltreaters ⁽³⁷⁾. Practicality often prevails over science and ethics as to this day governments simply cannot afford the implementation of universal prevention ^(16; 27; 39). As a result most preventive efforts resort to screening families at risk. A number of studies have been conducted to determine which factors adequately predict the risk of child maltreatment. These studies have been prospective in nature ^(e.g. 7; 32; 49) as well as retrospective ^(e.g. 3; 8). Most of these studies have been conducted to determine the predictive value of a risk-factor or combination of risk factors. Some studies were conducted to assess the proportion of at-risk families ^(e.g. 2; 20; 39), resulting in findings ranging from for example 6.7% ⁽⁹⁾ to 39.1% ⁽⁴⁾. While some (long-term or retrospective) studies determined their "at-risk" label based on eventual maltreatment-related outcomes in the families studied ^(e.g. 1; 26), others failed to publish their reasoning regarding the composition of their "at-risk" label ^(e.g. 4; 9). Aside from the prevalence of families at risk found in the general

population, little is known about prevalences of families presenting particular risk factors in screening.

In the Netherlands a system of *consultatiebureaus*, generally known as the OKZ (Ouder- en KindZorg, translated as Parent- and Childcare) monitors and promotes the health and development of children between the ages of zero and four years. Consultatiebureaus are the first portal to Child Health Care in the Netherlands. They are similar to Well Baby Clinics (WBC's), with the exception that they continue to monitor the child until the age of four years, and will from here on be referred to as such. The nurses and doctors working at these WBC's regularly examine nearly all infants and young children in the Netherlands (95-98% of all infants aged 0-1 years). They have a primary function in screening for the first signs of child maltreatment. The importance of the role of (WBC-)nurses in the assessment of the risk for or actual presence of maltreatment has been stressed in some early publications (e.g. 17; 29). Although some research has been conducted on the association between Health Care Professionals' assessments and demographic family characteristics (see 19; 28; 57), little is known about any association to socio-demographic or psycho-social family characteristics.

This chapter presents the results of two ways of screening families: through parental questionnaires and through WBC-nurses' assessment. The three central questions answered in this chapter are: 1) what is the self-reported prevalence of risk factors among the general population, 2) what is the prevalence of families at risk, based on nurses' screening and 3) what is the association between the nurses' assessment and parental self-reported risk factors. The results of this study may be useful in several ways. Knowledge of the prevalence of certain risk factors can contribute to the design of screening studies and the design of prevention plans. Furthermore the relationship between the WBC-nurses' assessment and the risk factors reported by parents can demonstrate the basis for this assessment as well as its possibilities in screening.

3 METHODS

This cross-sectional study is part of a large Dutch project named Project OKé (an abbreviation of *Ouder- en Kindzorg extra*, meaning Parent and Childcare extra). The aim of this project was to provide parents at increased risk of child maltreatment with a preventive intervention by means of home-visits during the first 18 months of life of their newborn baby. The project entailed a close co-operation with local WBC's. The WBC-routine provided a useful setting to apply two ways of screening families, first through parental self-report of risk factors and second by registering the subjective assessment of the family by the WBC-nurse. Although a number of instruments for the screening of families at risk for maltreatment has been developed internationally (e.g., 20; 38; 45), no adequate instrument for screening was available in the Netherlands. Therefore it was decided to develop a questionnaire.

3.1 Instrument

The development of the instrument for this study was based on a review of the available literature (see chapter 3), where several factors were identified as important determinants for maltreatment. Following the ecological model introduced by Belsky (1989) as well as the concept of parental awareness introduced by Newberger (1980) and elaborated on by Baartman (1996) (5; 6; 40) these factors have been categorized within three domains: 1) the parental developmental history and personality (*ontogenic system*), including factors related to parental awareness; 2) child and family characteristics (*microsystem*) and 3) characteristics of the social context (*exosystem*). Within each domain several items were identified which constituted the basis for the questions as formulated in the questionnaire.

In the *ontogenic system* the identified items are: the childhood experience of physical (1; 21; 49), emotional (42; 53) or sexual abuse, both intra- and extra-familial (21; 41; 49) and being witness of parental violence during childhood (33). Further items are strong belief in physical punishment (7; 9), ambivalent feelings about getting a child (7; 21) and ambivalent feelings about parental competence (13; 42). Other items are low parental age (7; 49), the experience of any psychiatric or psychological problems (i.e. depression, summarized by the term dysphoria) during the last three years (32; 34; 49), substance- or alcohol dependency (32; 46; 49) and impaired temper inhibition (9; 13; 42)

are also classified into the ontogenic system. In the *microsystem* the identified items are the tendency to solve partner-conflicts with physical force ^(7; 9; 13), single parenthood ^(7; 9; 42), child prematurity and dysmaturity (small for gestational age) ^(9; 50). Finally the *exosystem* holds the items social isolation ^(34; 46; 51) and low spousal support expectancy ^(13; 34).

To improve response-rate, it was decided to create a short questionnaire that could be answered in relatively little time. Therefore most items were targeted with one question only, with the exception of social isolation. This item was covered by four questions, addressing the inability to ask for help if needed, the need for more people to rely on, insufficient acceptance from family-members and a sense of alienation from the neighborhood. These decisions as well as the choices in phrasing of the questions were accomplished through several expert-meetings with experts in theory (scientists) and practice (nurses). Two questionnaires were developed. The first questionnaire was a three-page self-administered instrument for parents in which mother and father answered 17 non-demographic questions individually. The second one-page questionnaire was designated for the WBC-nurse. She was asked to provide some demographics as well as her assessment of each particular family, expressed as ‘concern’. This concern is the nurses’ subjective estimation of need for support in a family. Both questionnaires as well as the introductory letter to parents were tested for comprehensiveness in a small pilot-study, involving 74 families of which 90.5% responded ⁽⁵⁵⁾. Based on the results of this pilot the phrasing of several questions was ameliorated and the answering options were changed. For the full questionnaire, see appendix.

3.2 Population

The sample is situated in the semi-urban northern part of the province South Holland, containing approximately 4% of the Dutch population and providing for 3.9% of the annual births in the Netherlands. Table 1 shows some demographic data comparing the population in the sample-region to the general Dutch population.

As is shown in table 1, the differences for these demographic variables are very small. Although specific proportions are not available for our sample region, on a

national level we know that 0.7% of all mothers giving birth to their first child is 18 years of age or younger. Furthermore, from Dutch population research we know that 12% of the population indicates feeling socially isolated and 10% of all people between the ages of 15 and 65 report feeling upset, worried or depressed (¹²).

Table 1. Comparison of demographic background for the sample-region and the Netherlands in percentages
(Source: CBS, 2001)

	Sample-region	Netherlands
Households with children	38.2	36.3
Single parent households	5.5	5.7
Women <20 giving birth	0.9	1.3
Newborns deceased in first year	0.2	0.5
Newborn is firstborn	45.4	46.2
Newborn is second child	36.9	36.3
Newborn is third or higher ranked child	17.7	17.5

Within the regional population, all parents of newborns were approached with the aforementioned questionnaire during a 13 months period. There were two exceptions for participation. First, parents who indicated the intention to move away from the region within 18 months after the birth of their child were excluded. Nationwide, each year 8.9% of all households move to another municipality. Within the region this percentage is 10%. This is the maximum percentage to be expected with regards to relocations, as many households relocate to a municipality nearby and therefore remain within the region. Second, parents who could not fill out the questionnaire without assistance due to linguistic incapability were excluded. Of the entire Dutch population 18% is of non-Dutch origin. Within the region this is 17.8%. This percentage provides a maximum estimate of the number of parents that will be excluded for this reason, since it can be assumed that part of these foreigners are fully capable of reading and writing the Dutch language.

3.3 Procedure

Throughout the region, 42 WBC's can be found, assembled within 3 organizations and employing a total of 83 nurses. With all 3 WBC-organizations a cooperation was set up. All nurses agreed to participate, both by filling in their part of the questionnaire and by explaining the project to parents when needed. All nurses in the project region were female and had received a training-program on child

maltreatment within two years prior to the start of the project. Due to the increased attention to the problem of child maltreatment this training-program was offered to Well Baby Clinics nationwide. Data on nurses' age-range were not collected. There are no reasons to assume nurses in the project region are not comparable to their colleagues throughout the Netherlands with regards to age, sex and level of education. Prior to the start of the project a specific training-program was provided to all nurses, in order to ensure a homogeneous presentation of the project. The training addressed ways to explain the project and the questionnaire to parents and targeted communication-skills in case of aversive parental reactions by means of role-play. During this training reasons for the nurses' 'concern' were stipulated, such as problematic family interactions, lack of hygiene or safety in the house, parental unsteadiness or parental distrust of (mental) health care institutions. Because more nurses would possibly be employed during the study this training was registered both by video-recordings and by a written instruction in order to enable new personnel to be trained as well, again to improve a homogeneous procedure.

Through the cooperation with all Well Baby Clinics data on families with newborns became available enabling the investigators to send out the questionnaire within approximately five days after birth of the newborn. All WBC's provide one standard home-visit to parents of newborns around the 14th day after birth. In theory, when sending out a questionnaire immediately upon receipt of the necessary data on a newborn, parents would have two to six days to fill out their questionnaire. Thereby the visiting nurse would be able to answer all possible questions about the project or the questionnaire during the standard home visit, complete it and send it back. Nurses were encouraged to fill out their questionnaire in the presence of the family. In case of multiple children in the family the visiting nurse may have been acquainted with this family through prior visits. In these cases she was allowed to include knowledge from the family-history in her 'concern'. Parents who needed more time to fill out their questionnaire could take it to the WBC at their first visit, approximately one month after the birth of their child, or send it straight back to the project bureau (without interference of the nurse) by means of freepost.

To increase response-rate several actions were deployed. First, nurses were asked to indicate if parents were interested in filling out the questionnaire. If this was the case the administration was crosschecked in order to determine whether or not the questionnaire was sent out after the home visit. If necessary a new questionnaire was sent. Also the nurse was asked to indicate if the parents were willing to return the questionnaire themselves. This was registered and three weeks after receiving this information a reminder was sent to the parents. Second, if a family had responded but their visiting nurse had not, the name of this family was sent to the WBC as a reminder to fill out the nurses' questionnaire. With regard to the content of the questionnaire another method of increasing response-rate was conducted. Any nurses' response indicating a concern about the family was flagged in order to call the nurse in question. If no parent-response was received yet the nurse was asked to request the parents (again) to fill out their part of the questionnaire and send it in.

This study was approved by the Ethics Committee of the Leiden University Medical Center. In the letter accompanying the questionnaire it was explained that the program concerned parenting support specifically aimed at families facing various difficulties. It was emphasized that all response was appreciated, even from families who felt the program was not applicable to them. Furthermore it was stressed that participation was strictly voluntary.

3.4 Statistical analysis of data and definition of at-risk label

Apart from establishing the prevalence of risk factors and nurses' concern about the family as well as exploring the association between these data a notion of 'families at risk' was developed for the preventive purposes of the Project OKé-study. For the development of this notion the items as used in both questionnaires were divided into a group of primary criteria and a group of secondary criteria as displayed in table 2. This division was based on multiple meetings with an expert-panel. The decisions made by this panel were based on several reflections such as the predictive value of each criterion as empirically determined in various studies, the likelihood of maltreatment in the presence of each single criterion, and the chances for reliable responses on each question as it was phrased. As a result of the expert-meetings it was decided that a family would be considered 'at-risk' if either mother or father individually scored on at least one primary criterion or at least two

secondary criteria or any combination of primary and secondary criteria. The definition of ‘at-risk’ status has not been previously used. Validation of this definition will have to take place based on long-term results of the project. For the exact weight of each question see the appendix.

Table 2. Primary and secondary criteria for screening offamilies at risk

Primary criteria	Secondary criteria
Childhood experience of physical, serious emotional or sexual maltreatment	Moderate emotional maltreatment Single parent
Childhood witness to parental violence	Addiction to drugs or alcohol
Experience of psychological problems (dysphoria) during the last three years	Age of 18 years Low spousal support expectancy
Major social isolation	Minor social isolation
Tendency to solve partner-conflicts with physical force	Ambivalence about getting a child Ambivalence about parental competence
Strong belief in physical punishment	Pre- and/or dysmaturity of the child
Age below 18 years	
Nurses’ concern	

Two criteria, emotional maltreatment and social isolation, are divided into a major and minor aspect, depending on the responses. Major emotional maltreatment was considered to be the complete absence of a sense of safety in the presence of parents, whereas minor emotional maltreatment was applied to the infrequent absence of a sense of safety. Social isolation was the only criterion for which more than one question was formulated as explained in paragraph 3.1. The four questions could be responded to on a four-point frequency scale ranging from always to never. Since the most positive answer got a score of 0 points and the most negative answer got a score of 3 points, these answers could amount up to 12 points. A total of six points was considered minor social isolation. A total of seven points or more was considered major social isolation. Upon the closure of the study the internal consistency of the four questions about social isolation was determined by means of the calculation of a Cronbach’s Alpha, which turned out to be 0.60 for mothers and 0.56 for fathers. These Alphas are just over 0.5, which means that these four questions each measure a different aspect of social isolation.

Data gathered from this study were analyzed statistically in several ways. First of all frequencies of all variables were obtained, as well as frequencies of several non-

quantitative responses, such as reasons for non-response and comments on parts of the questionnaire. In all cases valid percentages are displayed in text and tables. Secondly a Principal Components Analysis was conducted in order to determine the presence of coherent clusters of items. The internal consistency of these items was subsequently checked by means of a Cronbach's Alpha calculation. Third, to explore the relationship between the nurses' assessment and parental risk factors, these items were correlated, compared by means of an independent sample T-test and finally a multivariate, binary logistic regression-analysis was conducted stepwise in order to determine which parental self-reported items increased the likelihood of the presence of a nurses' concern most.

4 RESULTS

During the 13 month study a total number of 9458 newborns were reported to the project. After conclusion of the study a double-check was performed on all data from the study, which demonstrated that 5.8% of the addresses was not received in time to send out a questionnaire. Therefore 8899 families were approached. Figure 1 shows the population-sample and how it was processed during the study.

A total of 173 families (1.9%) were excluded, of which 26 families for reasons of relocation, 141 families for reasons of insufficient comprehension of the Dutch language and 6 families for both reasons. In 26 families the newborns were stillborn or died perinatally. Considering the non-response, during the entire study nurses indicated that 1232 families would return their questionnaire separately. 36.8% did so without further reminding. As was explained in paragraph 3.3 several methods were deployed to increase response. One of these methods was to ask nurses to indicate which families intended to return their questionnaire on their own, in order to enable the investigators to send these families a written reminder to return their questionnaire. This method was entered in the study 7 months after the start. As of this point, all families (617) not returning their questionnaire within 3 weeks after the nurses' visit got a reminder. As a result of this letter 31.4% of these families complied, thus increasing the response. Reasons for parental non-response as obtained from the nurses' questionnaire (in 2520 cases) or from contact with the WBC (in 1480 cases) are displayed in table 3.

Eventually 4899 out of 8899 parents responded (55.1%). Nurses responded about 7135 families (80.2%). No data on risk factors are available about a total of 1480 families (16.6%). Of the responding families, 8 parents decided to only fill out the general questions. Nine mothers and 187 fathers did not fill out their part of the questionnaire while their partners did. For 87 fathers parents not living together explained this. Nevertheless, of all single parent families (125) 38 fathers did fill out their part of the questionnaire.

Figure 1. Recruitment and screening of families at risk of child maltreatment

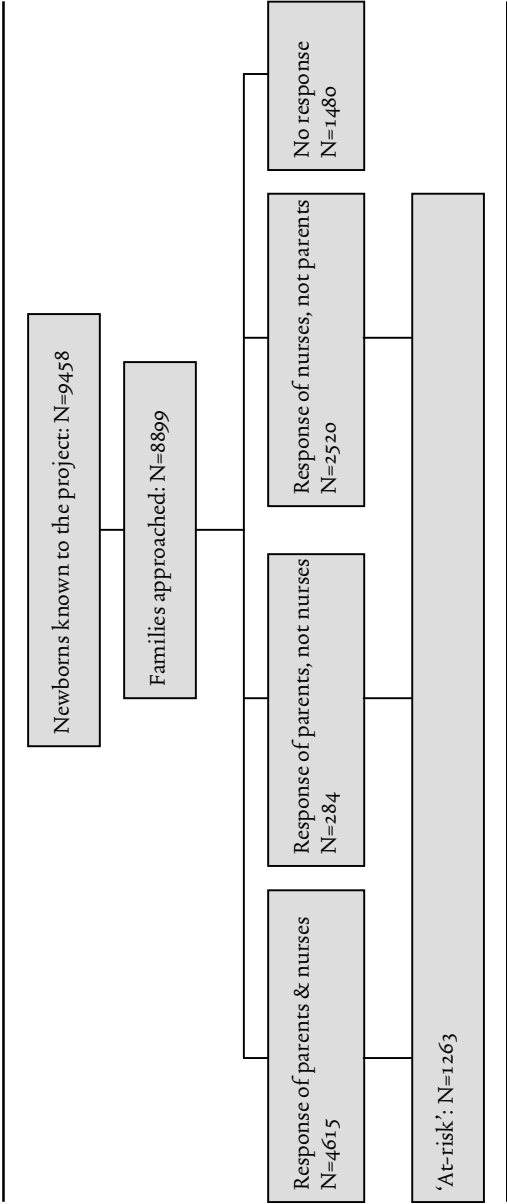


Table 3. Reasons for parental non-response (N=4000)

Reason	Percentage
No reason provided	65.9
Family refuses participation or questionnaire was returned blanc	18.7
Family has relocated or did not visit the WBC	8.9
Insufficient comprehension of Dutch language	5.9
Newborn deceased after questionnaire was sent	0.6

4.1 Prevalence of risk factors

First, simple descriptive analysis was performed on the data-set generated from the overall response. Tables 4 and 5 display the percentages found on each item in the questionnaire.

Table 4. Prevalence of each item in the questionnaire in percentages

Item	Child (N=7135)	
Duration of pregnancy < 37 weeks	5.4	
Birth weight < 2500 grams	4.3	
Female gender	48.1	
Nurses' concern	4.3	
Item	Family (N=4899)	
Parents not living together	1.3	
Single parent	1.3	
Item	Mother (N=4882)	Father (N=4704)
Age 17 years or below	0.06	0.0
Age 18 years	0.1	0.02
Insufficient support expected from spouse	2.8	0.5
Ambivalent about parental competence	0.6	0.5
Ambivalence during pregnancy	0.7	0.4
Moderate emotional maltreatment during childhood	3.8	3.4
Serious emotional maltreatment during childhood	0.8	0.6
Witness of parental violence during childhood	4.5	3.1
Physical maltreatment during childhood	3.0	2.3
Sexual abuse before the age of 16	4.3	0.8
Dysphoria	6.1	2.5
Impaired inhibition with regards to temper	0.1	0.3
Spousal violence	0.9	0.8
Addiction to alcohol/drugs	0.3	1.9
Belief in physical punishment	1.0	1.5
Major social isolation	1.5	1.3
Minor social isolation	6.6	6.3

Table 5. Specific responses on social isolation questions in percentages.

	Always		Often		Sometimes		Never	
	M*	F*	M	F	M	F	M	F
Alienated from neighborhood	3.3	3.6	11.6	12.7	36.0	33.9	49.1	49.8
Insufficiently accepted by family	0.6	0.6	2.9	3.3	15.1	15.3	80.3	79.4
Needing more people to rely on	1.3	1.7	3.3	2.4	29.0	26.0	66.4	69.9
Unable to ask for help if needed	2.6	3.0	21.0	19.9	37.3	31.1	39.1	45.9

*M = Mother, F = Father.

The overall percentages found for each item are low and in almost all cases larger for mothers than for fathers. Minor social isolation is found most in the sample (6.6% for mothers and 6.3% for fathers). Mothers tend to experience more dysphoria than fathers (6.1% versus 2.5%). The experience of parental violence during childhood ranks highest (4.5%) for mothers among all forms of maltreatment, for fathers emotional maltreatment during childhood ranks highest (3.4%).

A substantial proportion of parents scored on more than one item. The number of items for both parents and for the nurse, as well as the total number of items per family (a combination of parent-items and nurse-items) is displayed in table 6.

Table 6. Number of risk factors reported by individual parents and by nurse including total number of items per family, in percentages of total N per column

	Mother (N=4882)	Father (N=4704)	Nurse (N=7135)	Total in family (N=7419)
0 items	77.9	83.8	89.4	72.8
1 item	13.8	11.3	7.5	13.8
2 items	4.3	3.0	2.6	7.2
3 items	2.4	1.1	0.5	2.9
4 items	0.9	0.6	-	1.6
5 items	0.4	0.1	-	0.7
6 or more items	0.4	0.1	-	1.0
'At-risk' in the study	16.1	10.5	4.3	17.0

Since the nurse can only indicate birth weight, gestational age and concern, some of the nurses' cells are empty. The total number of items found in a family is not simply the sum of mother, father and nurse in a particular row of the table since for instance six or more items in a family can be the sum of three items in mothers' response, two in fathers' response and one item in the nurses' response. The proportion of families found to be at risk in this study (17%) holds little relation to the other numbers in this table since not all items are weighed the same in the selection process. Of the 1263 families determined to be at risk, in 38.7% this was based on mothers' scores, in 21.5% this was solely based on fathers' scores and in 39.8% this was based on both parents' scores.

In order to determine if any items correlate group-wise a Principal Components Analysis (PCA) with varimax rotation was conducted. Missing values were pair-wise excluded. Choosing the number of components in the PCA is commonly based on either the number of components presenting Eigenvalues over 1 or the number of clusters before the kink in the scree-plot. The first method generated 15 components explaining 61.5% of the total variance. The second method provided 9 clusters explaining 47.2% of the total variance. For the results of both methods see appendix. Although both methods resulted in considerable variable-reduction (61% and 76% respectively), the corresponding loss of information of 38.5% with 15 components and 52.8% with 9 components was unacceptable. Moreover, the components found through both methods were difficult to label, which was confirmed by performing Cronbach's Alpha analysis on separate clusters: though some clusters scored well above the threshold of 0.5 others were unacceptably low.

4.2 Nurses' assessment of at-risk level in families

Nurses expressed concern about 4.3% of all families that were visited (306 in 7135, the total nurses' response). In 76.5% of these cases the parental report demonstrates maternal risk factors only and in the remaining cases both parents have reported risk factors. Nurses do not express concern on families in which only fathers reported risk factors (271 in 837 i.e. 32.4%). Nurses expressed concern about 174 in 1046 families reporting risk factors (16.6%) In families who did not report risk factors nurses expressed concern about 0.1% (4 in 3778) and in non-respondent families 5.1% concern is expressed. In table 7 the relationship between the at-risk

indication as derived from the parental response and the nurses' concern is displayed.

Table 7. Family-reported risk factors versus nurses' concern in absolute numbers

	Family at risk	Family at low risk	No parental response	Total
Nurses' concern	174	4	128	306
No nurses' concern	837	3470	2271	6578
Not specified	35	95	121	251
No nurses' response	75	209	-	284
Total	1121	3778	2520	7419

*: Since the nurses' concern in itself is considered a risk factor in this study, the nurses' concern in the columns 'family at low risk' and 'no parental response' should be added to the total number of families at risk to return to the number found in figure 1; with the exception of 12 families that were excluded.

Apart from expressing their concern, nurses were also asked to motivate their concern. The analysis of their responses is displayed in table 8. The most common reasons for concern are multiple problems in the family (21.0%), parental unsteadiness (11.1%) and parental insecurity or lack of developmental knowledge (9.8%).

Table 8. Reasons for concern as provided by nurses, in percentages (N=306)

Multiple problems identified in the family	21.0
Psychological unsteadiness in either or both parents	11.1
Parental insecurity or lack of knowledge about child's development	9.8
The newborn is disabled or has a health-problem	9.8
Problematic family interactions or single parent	7.2
Parental maturity	4.3
Family already receives additional mental health care	3.9
Social isolation	3.9
History of developmental problems in previous child(ren)	3.6
Serious or chronic physical problems in either or both parents	3.3
Developmental history of either or both parents	2.6
The newborn is part of a twin	2.0
No reason provided	17.4

When correlating the nurses' concern with the items filled out by parents, almost all items correlate significantly with the nurses' concern, except for insufficient acceptance from family, ambivalence about pregnancy and spousal support on

fathers' side and impaired temper-inhibition on mothers' side. Also, when comparing the presence of parental risk factors in the group of families on which nurses expressed concern versus the group with no nurses' concern through an independent sample T-test, most items (except for age, spousal support, temper-inhibition and belief in physical punishment) appeared to be significantly more often present in the group *with* nurses' concern, at least for mothers. Six items were also significantly more often present for fathers, being social isolation, dysphoria, ambivalence about raising the child, childhood experience of emotional maltreatment and witnessing parental violence as a child.

In order to determine which parental risk factors influenced the nurses' concern most, a multivariate, binary logistic regression-analysis was performed stepwise, including a total of 10 risk factors, two of which did not generate a significant odds ratio. In table 9 odds ratios with a 95% confidence interval are displayed for those items significantly influencing the nurses' concern, when controlling for all other items.

Table 9. Logistic regression equation to predict nurses' concern (N=3820)

	Odds R	95% Conf. Int.	Sign.
Single parent family	7.33	2.50 - 21.42	0.000
Mother ambivalent about raising the child	6.15	1.29 - 29.25	0.023
Mother ambivalent during pregnancy	5.60	1.69 - 18.57	0.005
Psychological problems (dysphoria) mother	5.37	3.38 - 8.53	0.000
Low birth weight child	3.61	1.87 - 6.94	0.000
Psychological problems father	2.35	1.11 - 4.93	0.025
Mother unable to ask for help if needed	2.01	1.35 - 2.98	0.001
Father feels alienated from neighborhood	1.92	1.26 - 2.95	0.003

The best predictor is a single parent family (OR 7.3 and CI 2.5-21.4), followed by mothers' ambivalent feelings about raising the child (OR 6.2 and CI 1.3-29.3) and during the pregnancy (OR 5.6 and CI 1.7-18.6), and mothers' psychological problems (OR 5.4 and CI 3.4-8.5).

5 DISCUSSION

In this study families with newborns were approached with a mailed questionnaire in order to determine the prevalence of risk factors for child maltreatment in the general population. The response to this questionnaire was 55.1% (parents), or 83.4% (parents or nurses), which is a high rate for mail surveys. The overall prevalence of risk factors among the general population is low, ranging from 0% low paternal age to 8.1% maternal social isolation. Nurses expressed concern about 4.3% of all families visited. The highest prevalence is found for parental social isolation, maternal dysphoria, pre- and dysmaturity of the child, maternal witness of parental violence during childhood, maternal sexual abuse during childhood and nurses' concern. 1.7% of all mothers, 0.8% of all fathers and 3.3% of all families present with four or more items, which labels them as 'high-risk families' (7). Based on the weight that was attributed to the items in the questionnaire for this study, 17.0% of all parents were considered to be at risk for future child maltreatment, which was most frequently due to mother's scores.

A number of issues are worthy of discussion regarding the questionnaire used for parents. These issues are related to the prevalence of risk factors found in this study. First of all this prevalence needs to be compared to other findings. Secondly the possible influence of the contents of the questionnaire on the prevalence found needs to be taken into consideration. The third issue to be addressed is the non-response in this study.

Several risk factors show a lower prevalence when compared to national data, such as maternal age and single parenthood. Regarding maternal age, around 0.7% of all Dutch women become a mother before the age of 18 (11). No regional percentage is known for this age but, just like the percentage for mothers aged 20 years it may be lower than the national percentage. The discrepancy between this figure and the 0.2% found in this study might be explained by the fact that a number of nurses reported young maternal age in their response when no parental response was received (0.3%). Nurses indicated about these mothers that they were unwilling to receive support from the project. Thus it can be assumed that a portion of young mothers can be found amongst non-respondent parents. Single parents constitute 5.5% of the regional population (11). In this study only 2.6% single parents are found.

Fifty-three percent of all marital separation involves children in the family, in 63% of these cases more than one child ⁽¹¹⁾. It can however be assumed that separation will generally not occur around the birth of a child, which may explain the lower prevalence of single parents in this study compared to the known averages. Furthermore, as young mothers often live with their parents, and not their partner, part of the single parents in this study may also be found amongst non-respondents.

The overall prevalence of any form of childhood maltreatment (physical, emotional or sexual) was 11.9% in mothers and 7.1% in fathers. The percentage of physical maltreatment found in this study (3.0% in mothers, 2.3% in fathers) can be compared to other findings such as a 3.6% prevalence of severe physical maltreatment found in the United States of America ⁽⁵⁴⁾ and a prevalence of 3.3% maltreated children according to the AAPC data of 1986 as discussed by Starr ⁽⁵²⁾. Little is known about the incidence of emotional maltreatment. Glaser (2002) presented an estimate of 6%, somewhat comparable to the numbers found in this study (4.6% in mothers, 4% in fathers) ⁽²⁴⁾. The incidence of sexual abuse ranges from 7-62% among women and 3-8% among men, depending on research methods, response rates, countries of origin and definitions ^(18; 25; 41; 52). These figures are all higher than the percentages found in this study (4.3 in mothers and 0.8 in fathers). Straus et al reported 3.8% of American men and 4.6% of American women admitting violent acts towards their spouse ⁽⁵⁴⁾. These numbers should be related to the findings in this study regarding the spousal violence in the current family (0.9% in mothers and 0.8% in fathers) as well as parents witnessing parental violence as a child (4.5% in mothers and 3.1% in fathers). Particularly the prevalence of current spousal violence is clearly a lower prevalence compared to the findings of Straus et al. However, one of the many predictors of spousal violence is family stress ⁽⁴⁷⁾, a factor that is likely to increase after family-expansion. Thus the timing of the questionnaire (within 14 days after birth of the newborn) might explain the lower prevalence of spousal violence found.

With regards to the comparison of all these numbers it needs to be taken into consideration that little information is available on the prevalence of violence and maltreatment in the Netherlands, which may in fact be lower than the prevalence found in studies in other countries. Another issue to be considered is the

possibility of socially desirable responses. Carlin, Kemper, Ward, Sowell, Gustafson and Stevens (1994) reported a substantial difference between objective and subjective definitions of physical maltreatment (28% versus 11%) (¹⁰). Straus et al discussed several reasons for under representation that apply to this study as well: subjects may fail to report their experiences because they consider them to be normal, and subjects may not report their experiences for reasons of shame or guilt (³⁴). Both the findings of Carlin et al and the conclusions of Straus et al may also constitute a partial explanation for the gender-related differences in the reporting of risk factors as found in this study. For instance in relation to maltreatment-related risk factors there are indications that males are more reluctant to report on their experiences (⁴⁴) and that the impact of experiences is more pervasive in females (²²). Therefore the phrasing of the questionnaire, emphasizing the subjective experience of risk factors, may cause females to report on their experiences more often than males.

The contents of the questionnaire developed may also influence the prevalence found. Regarding the comprehensiveness of the questionnaire, 0.5% of all responding parents had remarks about parts of the questionnaire being unclear and 1.9% of all parents felt the need to make additional comments to specific items. With numbers this low it is fair to say a comprehensive questionnaire was developed. However, it is likely that the phrasing used in the questionnaire leads to a somewhat different representation of risk factors compared to other studies, which may partially explain the different prevalence found in this study. The items in the questionnaire used have no mutual overlap: any combination of clusters found through PCA did not explain a satisfying amount of variance between clusters, hence it should be concluded that each item addresses a different domain. However, the low prevalence found in for instance the domain of addiction might be caused by the fact that this domain is insufficiently targeted by one item only, which may be the case for other domains as well. Thus the condensed nature of the questionnaire may influence the prevalence found in this study.

The final issue to be addressed regarding the questionnaire used for parents is the non-response rate. The non-response caused by 8.9% of the parents in our sample due to relocation is consistent with the percentage of 8.9% found nationwide. The 5.9% families causing non-response due to linguistic incapability is considerably

lower than the percentage of foreigners in the Netherlands, even of non-western foreigners, which is 9.3%. A portion of these foreigners is probably capable of reading and writing the Dutch language. A further explanation may be found in the semi-urban region in which this study took place since concentrations of foreigners are mainly found in the larger cities in the Netherlands. Also, as no reason for non-response is known in 66% of non-respondents, an additional proportion of non-response may be due to linguistic incapability. In general, the non-response may be a cause of downward bias when comparing the prevalences found in this study to other research as it is conceivable that particularly families at risk declined participation. A separate study is dedicated to this topic and is presented in the next chapter.

Returning to the nurses' questionnaire, nurses considered 4.3% of all families to be at risk for future child maltreatment, this is 16.6% of all families reporting risk factors themselves. There are several discrepancies between parental self-reports and nurses' assessment that are worth discussing. Nurses expressed concern about 0.1% of parents who were not selected. This was however due to exclusion based on relocation or linguistic problems. The 5.1% nurses' concern expressed about non-respondent parents could indicate parental unwillingness to report on their situation to this study. This leaves the large number of parents reporting risk factors without the nurses' at-risk assessment (837 families). First of all it is remarkable that nurses never reported a concern about families in which only paternal risk factors are reported (accounting for one-third of this number of families). In part this may be due to fathers being absent at the home visit during which the assessment is being made. Furthermore, this coincides with the findings from the regression analysis, as six out of eight significantly contributing items were related to the present condition of mother and child. These findings suggest that nurses pay less attention to fathers, even if present. Second, these findings in the regression analysis also demonstrate that nurses apparently do not consider the parents' developmental history and barely touch on the subject of social isolation during their visit in spite of the training given to them prior to the start of this study. For the remaining portion of families reporting risk factors without the nurses' concern there may be several explanations. It may be that nurses weighed protective factors in their assessment, factors that are not identified through the questionnaire. Another explanation may be that "health professionals often tend to be frightened by their own concerns and regard them as stigmatizing rather than as an opportunity" (¹⁷).

Killén (1996) presents yet another point of view with the notion of 'over-identification', meaning that nurses are tempted to create a more favorable picture of parents based on hope and as such over-estimate their abilities and resources for further development ⁽³¹⁾. Regarding intrapersonal factors, Lagerberg (2001) found that the ability to identify families at risk is related to the amount of years a nurse has spent in her district, her personal interest in the subject as well as the amount of training she has had on the subject ⁽³⁶⁾. Several influences as identified by Cox (1986) are applicable to the nurses' assessment as well, especially difficulty differentiating between 'at-risk' and 'normal', fear of lacking the necessary knowledge about risk factors and lack of disclosure in parents ⁽¹⁴⁾.

A final matter to be addressed is the definition of a family at risk. Only in longitudinal studies data can be collected for the empirical determination of the optimal composition of an 'at-risk' label. As no long-term information on family-related outcomes is available to the current study as of yet, this option was not available, giving the definition of families at risk a somewhat pragmatic nature. It could be argued that, based on information about the prevalence of risk factors, a more thorough scientific operationalization of the 'at-risk' label is preferable. However, most information on prevalence of risk factors is of non-Dutch origin, which renders the local applicability of such information to the 'at-risk' label questionable as well. In spite of the lack of a validated at-risk label it was our contention that the gender-specified prevalence of parental self-reported risk factors as well as the relationship between these factors and the nurses' assessment were relevant issues to report on.

6 CONCLUSION AND IMPLICATIONS

Two methods of screening were used in this study to determine the prevalence of risk factors for child maltreatment: a questionnaire for parents relying on self-report and the subjective assessment of risk by nurses. Combined results lead to the conclusion that many parents, 17.0%, make a difficult start in raising their children. Nurses are concerned about 16.6% of these families. In general the prevalence of risk factors found is comparable to the results of other studies. However, neither method is infallible. The parental questionnaire is subject to socially desirable responses, non-response and under representation due to shame or guilt as well as subjective definitions of experiences, as was discussed in the previous section. In their assessments nurses seem to overlook fathers in general and more specifically information on social isolation and childhood experiences of maltreatment. This may be due to a lack of experience or expertise as well as lack of disclosure by parents. The discrepancy between the nurse's assessment and parental self-report may be explained by the nurse's fear to stigmatize parents, by her tendency towards over-identification or by her ability to weigh protective factors in a family. Both methods require further research. For the parental questionnaire long-term family outcomes are needed to validate the instrument as well as to determine the optimal at-risk classification. For a better understanding of the nurses' assessment it would be interesting to determine the influence of geographical and professional variables such as neighborhood and level of education. In such research outcomes should also be controlled for the presence of a learning-curve during the screening-period.

This study has several implications. First of all, knowledge of the prevalence of risk factors for child maltreatment in the Netherlands can prove useful for the development of local and national screening programs, for the estimation of sample-size in a prevention program, for the establishment of the main targets in prevention and for the calculation of budgets for prevention. The findings on the nurses' concern and the relationship between this item and other risk factors are quite novel in this field of research and can prove to be useful for future training of nurses and physicians working with families with young children.

7 ACKNOWLEDGEMENTS

The authors wish to thank Frédérique Tan of the Leiden University Medical Center, for her help in conducting and analyzing the pilot study of the questionnaire used for the selection of families at risk. Special thanks go to the Well Baby Clinics participating to this study, embedded in three organizations: Stichting Groot Rijnland, Stichting Valent RDB and Stichting ZorgRing Zoetermeer. This study was supported by Zorg Onderzoek Nederland, Stichting Kinderpostzegels Nederland, Stichting RvvZ, fonds 1818 and Stichting Zorg & Zekerheid.

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9 APPENDICES

Appendix 1. Complete questionnaire

General questions	
1 Are you and your partner living together?	Yes /No /No partner
2 What is your age?	17 or younger/ 18 /19 or older
3 What is your partners' age?	17 or younger/ 18 /19 or older
4 Do you have plans to move more than 50 kilometers from your current municipality in the next 18 months?	Yes/No/Unknown
Questions for the nurse	
1 Does mother master the Dutch language sufficiently to fill out questionnaires?	Yes /No / No mother
2 Does father master the Dutch language sufficiently to fill out questionnaires?	Yes /No / No father
3 The duration of the pregnancy was:	(number) weeks
4 The birth weight of the child was:	(number) gram
5 Would you be inclined to provide this family with extra WBC-support in the near future?	No /Yes

Questions for mother/father	
1	I expect to be getting enough support from my partner in the care for my child(ren). Always/Often/Somet./Never/ No partner
2	I dread raising this child. Always/Often/Somet./Never
3	Over the past nine months I have been distressful about getting a child. Always/Often/Somet./Never
4	As a child I generally felt safe in the presence of (one of) my parents/caretakers. Always/Often/Somet./Never
5	I feel my parents/ caretakers were very violent towards one another when I was a child. Yes/No/Not applicable
6	I feel I was spanked too much by my parents/ caretakers when I was a child. Yes/No
7	Looking back on the past three years I've been dysphoric (for a while). Yes/No
8	Whenever I am/was in a fight with my partner sometimes a smack is/was dealt. Yes/No /No partner
9	I should actually use less alcohol/drugs. Yes/No/Not applicable
10	In a good upbringing a child should get a regular spanking. Yes/No
11	I've had an awkward sexual experience forced on me before the age of 16. Yes/No
12	The experience from the previous question still troubles me. Always/Often/Somet./Never/ N.a.
13	I feel well accepted within my family. Always/Often/Somet./Never/ N.a.
14	I can get such a temper that I'm likely to smash something. Always/Often/Somet./Never
15	I feel alienated from my neighborhood. Always/Often/Somet./Never
16	I wish I had more people in my vicinity to rely on for support. Always/Often/Somet./Never
17	I find it easy to ask for help or advice when I need it.. Always/Often/Somet./Never

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Appendix 2. Weighing of questionnaire

General questions	
1	Yes=0 / No=0.5 / No partner=0.5
2	17 or younger=1 / 18=0.5 / 19 or older=0
3	17 or younger=1 / 18=0.5 / 19 or older=0
4	Yes=exclusion / No=0 / Unknown=0
Questions for mother/father*	
1	Always=0 / Often=0 / Sometimes=0.5 / Never=0.5 / No partner=see general question 1
2	Always=0.5 / Often=0.5 / Sometimes=0 / Never=0
3	Always=0.5 / Often=0.5 / Sometimes=0 / Never=0
4	Always=0 / Often=0 / Sometimes=0.5 / Never=1
5	Yes=1 / No=0 / Not applicable=0
6	Yes=1 / No=0
7	Yes=1 / No=0
8	Yes=1 / No=0 / No partner= see general question 1
9	Yes=0.5 / No=0 / Not applicable=0
10	Yes=1 / No=0
11	Yes=1 / No=0
12	Not weighed since answers aren't trustworthy
13	Always=0 / Often=0.1 / Sometimes=0.2 / Never=0.3 / Not applicable=0
14	Always=1 / Often=1 / Sometimes=0 / Never=0
15	Always=0.3 / Often=0.2 / Sometimes=0.1 / Never=0
16	Always=0.3 / Often=0.2 / Sometimes=0.1 / Never=0
17	Always=0 / Often=0.1 / Sometimes=0.2 / Never=0.3
Questions for the nurse	
1	Yes=0 / No=exclusion / No mother= see general question 1
2	Yes=0 / No=exclusion / No father= see general question 1
3	(≤ 37) weeks=0.5**
4	(≤ 2500) gram=0.5**
5	No=0 / Yes=1

A total score of 1 or higher leads to selection in this study.

*: the scores of mother and father are treated separately; they are never added to reach a number over one.

**: these questions form a 'and/or' combination. If both score 0.5 the total score for these two questions remains 0.5.

Appendix 3. *Clusters of items found through PCA based on Eigenvalues*

Witness to parental violence, emotional, physical or sexual maltreatment during childhood and lack of family-acceptance (mother)
Alienated from the neighborhood and unable to ask for help if needed (father and mother)
Witness to parental violence, emotional or physical maltreatment during childhood and lack of family-acceptance (father)
Spousal violence (father and mother)
Needing more people to rely on (father and mother)
Ambivalence about parental competence (father and mother)
Belief in physical punishment (father and mother)
Impaired temper-inhibition (father and mother)
Ambivalence during pregnancy (father and mother)
Insufficient spousal support (father and mother)
Birth weight and gestational age (child)
Dysphoria (mother) and nurses' concern
Age (father) and addiction to alcohol/drugs (father and mother)
Single parenthood, age (mother)
Dysphoria and sexual maltreatment during childhood (father)

Appendix 4. *Clusters of items found through PCA based on scree-plot*

Alienated from the neighborhood, needing more people to rely on and unable to ask for help if needed (father and mother)
Witness to parental violence, emotional, physical or sexual maltreatment during childhood and lack of family-acceptance (mother)
Witness to parental violence, emotional, physical or sexual maltreatment during childhood, dysphoria and lack of family-acceptance (father)
Ambivalence about parental competence (father and mother) and impaired temper-inhibition (mother)
Spousal violence (father and mother)
Addiction to alcohol/drugs, ambivalence during pregnancy, insufficient spousal support (father and mother) and impaired temper-inhibition (father)
Belief in physical punishment (father and mother)
Birth weight and gestational age (child)
Single parenthood, age of mother and father, dysphoria of mother and nurses' concern
