

## Research

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# The Identification of Pregnant Women at Risk for Child Abuse: Methodology

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## ABSTRACT

**Background:** The prevention of child abuse should start as early as possible in the life of children living in families at risk for abuse. We describe a two-stage selection procedure to identify those pregnant women who are at risk for child abuse. The procedure was developed to guide these mothers to VoorZorg, the Dutch adaptation of the Nurse-Family Partnership program.

**Methods:** In the first stage of the selection, professionals, most often midwives, apply five inclusion criteria: maximum age of 25 years, low educational level, maximum gestational age of 28 weeks, no previous live births and understanding of the Dutch language. In the second stage, trained nurses interview the selected pregnant women by applying a checklist with risk factors for child abuse. To identify the appropriateness of the two-stage selection procedure trained interviewers measured risk behaviour of the selected participants with validated questionnaires.

**Results:** 460 high risk pregnant women were selected through the two-stage selection procedure. The prevalence of risk factors for child abuse in this sample is: single parent: 76%, drug or alcohol use: 25%, history of abuse: 50%, no current job and/or education: 74%. In total, 98% of the selected women had  $\geq 4$  risk factors for child abuse.

**Conclusions:** The two-stage selection procedure adequately identifies pregnant women with multiple risk factors for child abuse.

**KEYWORDS (MESH):** Child abuse; Patient selection; Risk factors; Home care services; Primary prevention; Randomized controlled trial.

**Dutch Trial Register:** NTR854, <http://www.trialregister.nl/trialreg/admin/rctview.asp?TC=854>

## INTRODUCTION

Health and societal problems occurring during adulthood can be consequences of adverse experiences during childhood (ACE).<sup>1</sup> Child abuse and neglect belongs to the most important examples of ACE leading to a range of physical and mental problems, like high blood pressure, organ malfunction as well as cognitive impairment and depression.<sup>2,3</sup> In families with more than three risk factors for abuse and neglect, like abuse in the past, substance abuse and low socioeconomic status, the risk for child abuse is up to 24% whereas in families without any risk factors this risk is as low as 3%.<sup>4</sup> To prevent child abuse and neglect in childhood and the ensuing health problems in adulthood, families with multiple risk factors should be offered an effective intervention as early as pregnancy and the first years of life.<sup>5</sup>

The importance of targeted interventions at an early stage of pregnancy should not be underestimated.<sup>6-8</sup> During pregnancy and after birth women are susceptible and open to

learning and willing to stop negative behaviour that affects their unborn child.<sup>9</sup> To be able to do so, these high risk young women need someone to inform and empower them to stop negative behaviour and to encourage attachment with their child. Women in high risk groups often do not have those kinds of people in their environment. Olds et al. showed that high risk women benefited the most from the Nurse-Family Partnership (NFP) intervention starting early in pregnancy.<sup>2,10</sup> By intervening early in pregnancy, more health benefits for the unborn child as well as for the mother-to-be will be established. Therefore, a selection procedure is needed with strict criteria to identify women at increased risk of abusing their child as early as pregnancy.

Possible predictors of child maltreatment have been examined many times.<sup>11-14</sup> Berlin et al. showed, for instance, that intergenerational factors increase the risk of child maltreatment<sup>11,14</sup> and Begle found that a low attendance rate in a parenting program (PACE) predicted child abuse.<sup>12</sup> However, the researchers did not develop a specific tool to identify high risk families during pregnancy to guide them to a program for the primary prevent of child maltreatment.<sup>12-14</sup>

The overall aim of this research is studying the effectiveness of VoorZorg by means of an RCT. In the present study, we describe a two-stage procedure to identify, to select and to include high risk pregnant women in a preventive intervention by combining key components of successful selection procedures with components considered to be necessary, such as trained nurses conducting the interview with the pregnant women. Also, we will examine whether the two-stage selection procedure identifies those pregnant women who are at increased risk for abusing their child.

## PARTICIPANTS AND METHODS

The two-stage selection procedure to identify pregnant women in the Netherlands at increased risk for abusing their child (high risk pregnant women) was designed as part of a Randomized Controlled Trial (RCT) studying the effectiveness of VoorZorg. The two-stage selection procedure took place before inclusion ( $\leq 28$  weeks of pregnancy) and the interviews were conducted after including women into the study. This study was approved by the Committee of Ethics on Human Research of the VU University Medical Center (Amsterdam, the Netherlands). All participants signed forms acknowledging informed consent.

### VoorZorg

The VoorZorg program is described elsewhere.<sup>15</sup> In short, VoorZorg is the Dutch translation and cultural adaption of the Nurse Family Partnership (NFP) by David Olds. The NFP is an effective program for the prevention of child maltreatment. VoorZorg is the first study on the effectiveness of NFP outside the United States. Women with an increased risk of maltreating their child receive 40 to 60 home visits by trained and certified

VoorZorg nurses from pregnancy until the child's second birthday. The structured and well-described home visits address six domains: health status of the mother, child's health and safety, personal development of the mother, the mother as a role model, relation of the mother with her partner, family and friends, and use of regular services.

### The two-stage selection procedure

Ten health care organisations in different regions in the Netherlands agreed to participate in the study. Experienced nurses working in these organisations were trained by the Netherlands Youth Institute in how to perform the two-stage selection procedure. The nurses visited all (health care) professionals (midwives, general practitioners, gynaecologists or street corner workers) in their region to inform them about the program. If the professional decided to participate, the nurses explained the first stage of the selection procedure which the professionals had to perform in their respective services. The first stage was designed to be simple and not time consuming for the professionals. It was therefore expected to be a rough selection of possible high risk women. The nurses performed the second stage of the selection; this stage was more specific and time consuming because the nurses had separate interviews with each possible participant about the presence of risk factors for child abuse.

### First stage selection

Professionals applied the following criteria to pregnant women: (1) maximum age of 25 years, (2) low educational level, (3) maximum 28 weeks of gestation, (4) no previous live birth and (5) understanding the Dutch language. These criteria are based on a literature study and were also used in the NFP.<sup>15,16</sup> Low educational level was defined as primary school or secondary school on a low level (pre-vocational education). The maximum gestational age was applied to allow for a longer intervention time during pregnancy. Only women with no previous live births were included because women with a previous child already have a personal parenting style that will interfere with the benefit that can be reached. Because the program material is in Dutch we applied the criterion "having some understanding of the Dutch language". Women who fulfilled each of these criteria were offered a contact with a nurse for the second stage selection.

### Second stage selection

The second stage selection was an interview by specially educated and trained nurses. The nurse visited these women at home. For this interview a checklist was developed consisting of several risk factors of child abuse based on a literature search: (1) no or little social support, (2) a history or (3) present situation of domestic violence or neglect, (4) psychological symptoms, (5) financial problems, (6) unemployment, (7) housing difficulties, (8) alcohol use, smoking

or drug use during pregnancy, or (9) having a non-realistic approach and expectations about motherhood. At least one of these risk factors was necessary for inclusion in the VoorZorg intervention. The nurse could also register a “gut feeling” that this woman is at risk for abusing her child. Gut feeling is widely used by health care professionals and is defined as a specific kind of intuitive feeling, where the professional senses alarm even though there is no specific indication that there is something wrong.<sup>17</sup> In the conversation between the nurse and the participant all these criteria were discussed. Furthermore, the nurse checks if the woman has protective factors, like for example a good social network, to determine whether she needs help or not. The nurses excluded women if they had very severe psychological or psychiatric problems. Women with cognitive impairment or other problems that made them inadequate to learn from an intervention program were also excluded.

The nurse completed the checklist and added additional remarks if necessary. After the conversation the nurse could decide to:

1. Include the woman in the study c.q. intervention
2. Exclude the woman from the study c.q. intervention (severe psychological problems, cognitive impairments or woman declines to participate)
3. Refer the woman to an expert committee to make a final decision on whether to include the woman (if the woman does not meet all criteria).

#### Expert committee

As part of the selection procedure the nurses must consult an expert committee in case of doubt. For example when the woman does not meet all inclusion criteria, but she had other (severe) child abuse risk factors. The committee consisted of a youth health care doctor (member of the VoorZorg implementation group), a child psychiatrist (initiator of VoorZorg) and a trainer of the nurses. To submit a case to the expert committee, nurses filled in a special form, where they specified which risk factors and protective factors women had and which criterion the women did not meet. The members of the committee studied each case independently and based the final decision on weighing up all arguments. They contacted the nurses to inform them about including or excluding the woman from the study.

Women selected by the nurses were appointed as high risk pregnant women and were interviewed by trained female interviewers, which will be described in the next paragraph.

#### Number of risk factors of child abuse

#### Questionnaires

For this part of the study, participants were interviewed two times between 16 and 28 weeks (T0) and at 32 weeks of

pregnancy (T1). The questionnaires described in this study were used to investigate the presence of nine child abuse risk factors among selected women (no or little social support, a history or present situation of home violence or neglect, psychological symptoms, financial problems, unemployment, housing difficulties, alcohol use, smoking or drug use during pregnancy, having a non-realistic approach about motherhood). In this way we investigated whether participants were correctly appointed as a woman at increased risk of abusing her child (high risk pregnancy). Four items in the checklist used by the nurse were not exactly defined in the same way as the corresponding items in the validated questionnaires (1. no partner *vs.* no or little social support, 2. depressive complaints *vs.* psychosocial problems, 3. unwanted pregnancy *vs.* non-realistic approach about motherhood, 4. receiving help from organization to find a home *vs.* housing problems)

All interviews were performed by female interviewers, usually at the participant's home. Most interviewers were medical students. We trained all interviewers several times and interviews were conducted in private in order to minimize socially desirable answers. In addition, participants were reassured that all answers would be handled confidentially.

We used four questionnaires:

1. We assessed at T0 Demographic characteristics of women like ethnical background and whether women received housing assistance. Additionally, we assessed whether they had planned their pregnancy. These questions were translated from the registration forms used in the NFP.
2. We obtained whether women were depressed at T1 with the Edinburgh Postnatal Depression Scale (EPDS), an effective tool to measure postnatal depression. The EPDS is validated for use during pregnancy.<sup>17</sup> If a participant scores higher than 13 on the total EPDS score it indicates she is suffering from depression. A score  $\geq 10$  indicates that the participant is possibly suffering from depression.<sup>18</sup>
3. Self-reported domestic violence at T0: To measure whether participants had a history of abuse we asked the following question: “*Have you ever been abused by your partner or a significant other?*” Abuse was defined as being physically maltreated (being hit, punched, kicked, cut, and burned) with or without a weapon and with or without injury. Sexual abuse was defined as forced sexual contact. To determine whether participants had been abused in the present relationship we asked: “*Have you been hit, punched, kicked or in another way abused which resulted in physical injury, this year?*” If a woman answered this question positive, detailed questions were asked about the perpetrator and frequency of the abuse. This questionnaire was from the same as those used by the NFP.
4. Self-reported substance use at T0. At the gestational window of 16 to 28 weeks and at 32 weeks of pregnancy, we asked the women whether they used alcohol or drugs and the quantity of these substances.

**DATA ANALYSIS**

We used software SPSS 15.0 for data analysis.<sup>19</sup> For comparing the percentage of women with risk factors selected for the study with those in a reference group we used the Chi-square test. To calculate means and prevalence's we used cross-tabs and T-test.

**RESULTS**

From 2007 to 2009, a total of 460 high risk pregnant women were included in this study by using the two-stage selection procedure. The nurses presented a total of 110 cases to the expert committee because they did not fully meet the selection criteria, and 77 of these were enrolled in the study (figure 1).

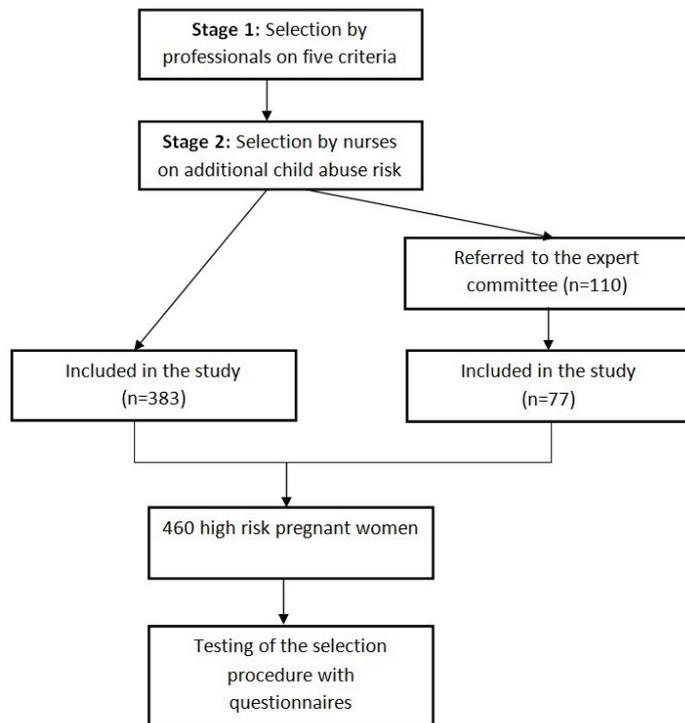


Figure 1: Flow of participants during the two-stage selection procedure

The expert committee excluded participants because they had too many protective factors or too few risk factors and were therefore not eligible for the study.

The percentage of high risk women selected by the professionals at the first stage was equally distributed over the ten participating regions. Demographic characteristics are shown in Table 1.

The mean age of the participants was 19 ± 2.5 years (range from 14 to 27). Approximately 50% of the participants are Dutch; the other 50% has a “non-Dutch” background: Surinamese, Antillean, Moroccan, Turkish or other. Most participants (76%) were single at inclusion. Almost all participants

<b>Age in years (Mean, SD)</b>	19 ± 2.5
<b>Ethnicity (%)</b>	
Dutch	49
Surinamese/Antillean	27
Moroccan	1
Turkish	4
Other	19
<b>Marital status (%)</b>	
Married/living together	24
<b>Educational Level (%)</b>	
Primary school	5
Pre-vocational secondary education	93
Other	2
<b>Employed (%)</b>	25

Table 1: Demographic Characteristics of the Women at Inclusion (n=460)

met the first stage inclusion criteria. 100% of the women met the criteria “no previous live births”. The criteria “age” and “gestational age below 28 weeks”, were applicable for respectively 99% and 96% of the participants. And 93% had a Prevocational secondary education. These percentages are not 100 % because they were included after consultation with the expert committee. Participants were included on average at 19.1 ± 5.9 weeks of gestation. 60% of the participants were included before 21 weeks of pregnancy.

Table 2 shows the prevalence of the risk factors obtained from questionnaires conducted by interviewers during 16 to 28 weeks of pregnancy and from an interview by nurses during the second stage of selection. Most participants had financial problems during inclusion (70%). A higher percentage was reported by the nurses (95%), while only 4% of the common population go through financial problems. Fifty percent of the participants had a history of abuse and almost one fifth (18%) of the participants experienced domestic violence during the previous year. The nurses reported percentage of 69% (history of abuse) and 57% (actual domestic violence) among participants. In the general population, 3% experienced domestic violence during pregnancy. One third (31%) of the pregnancies was unwanted, in the general population this prevalence is 11%. Depression (according to the EPDS) occurred in 19% of the participants. The nurses reported that 90% of the participants had psychosocial problems. In the general population this percentage is 12%. From the questionnaires 77% of the participants had more than three risk factors, while nurses reported that 98% of the participants had more than three risk factors.

**DISCUSSION**

In this manuscript we describe a two-stage procedure to select high risk pregnant women for inclusion in a primary

Inventory items	VoorZorg women		Gen- eral female population
	Interview by VoorZorg nurs- es	Interview by using ques- tionnaires	
1.No partner (single)	97%	76%	8% <sup>20</sup>
2.Alcohol- and/or drug use	45%	25%	15%, 5% <sup>a 21</sup>
3. History of abuse and violence	69%	50%	30% <sup>22</sup>
4. Actual domestic violence	57%	18%	3% <sup>23</sup>
5.Depressive complaints	90% <sup>b</sup>	20%	12% <sup>24</sup>
6.Unwanted pregnancy	91%	31%	11% <sup>25</sup>
7.Housing problems	94%	14% <sup>c</sup>	--
8.Financial problems	95%	70%	4% <sup>26</sup>
9.Occupation			
no education	91%	75%	22% <sup>27</sup>
no employment	--	74%	12% <sup>28</sup>

Note: References are presented in brackets.

A dash means that no data was available.

The questionnaires were conducted at T0 except for "depressive complaints" which was conducted at T1

<sup>a</sup>The prevalence of alcohol use and drug use are presented separately.

<sup>b</sup>This percentage does not illustrate the prevalence of depression but the prevalence of psychosocial problems.

<sup>c</sup>This is the amount of women who say to get help from organisations and is an underestimation of the actual number.

**Table 2:** The Prevalence of the Inclusion Criteria at the Second Stage of VoorZorg Inclusion Procedure Derived from Interviews by VoorZorg Nurses and by Questionnaires (T0 and T1)

prevention program targeting child abuse and neglect. Subsequently, the construct validity of this procedure was examined by measuring the number of risk factors in selected women with validated questionnaires. In this procedure, the first stage is conducted by (health care) professionals and the second stage by trained nurses. Furthermore, an expert committee is involved in the selection procedure in case of doubt. Participants were included at an average age of 19 years and were on average 19 weeks pregnant at inclusion. The questionnaires show that a high percentage of the participants was single, had domestic violence in the past or in their current relationship, had financial problems or no occupation. Furthermore, most participants had multiple risk factors. These results indicate that by using the two-stage selection procedure women with an increased risk of abusing their child were selected early in pregnancy.

This study showed that a higher prevalence of risk factors was reported during the interview conducted by the nurse, than by using validated questionnaires. A methodological explanation is that not all items were defined the same way in the questionnaires as in the interview by the nurse, which is a limitation of this study. For example, the nurse tried to detect if there were psychosocial problems while in the questionnaire the occurrence of depression was measured. More women could be

having stress and/or anxiety rather than depression. Another explanation could be that participants were more open to the nurse than to the interviewers. The nurses are trained to create a trusting relationship and because they have two to three years experience in daily practise as a nurse, they are very capable of conducting such an interview. Furthermore, participants were given the opportunity to discuss their problems. This is also found by Kelly, where he described that women wanted to be asked about their problems if they received help.<sup>29</sup> It is therefore important to consider selecting women with multiple risk factors by a trained nurse.

A limitation of this study is that recruiters at the first and second stages did not register data of women who dropped out at each stage of the selection procedure. As a result we have no data on the number of women who were not selected by recruiters or who declined from participation in the VoorZorg intervention themselves. However, from the pilot study of VoorZorg and by personal communication with researchers conducting a similar RCT in Great-Britain, we know that approximately 50% of the women who were initially identified as possible high risk for abusing their child during the first stage were excluded during the second stage. To verify this percentage we conducted a retrospective study among 2,913 women living in Amsterdam who gave birth between January and March 2008. Demographic data of these women were available. A percentage of 1.3% of these women met the first stage selection criteria and was categorized as high risk. Of the total births in the time range mentioned before, 0.6% actually received the VoorZorg program and therefore met the second stage selection criteria (Mejdoubi 2010, unpublished data). This indicates that around 50% of participants drop-out during the second stage.

Another limitation is that the actual prevalence of child abuse was not taken into account in this study, because participants were still pregnant from their first to be born child. Therefore sensitivity and specificity of the two-stage selection procedure were not calculated. It is known, however, that families with multiple risk factors have an increased risk of abusing their child. As 98% of the women had at least four or more risk factors we assume that the procedure leads to the inclusion of a high prevalence of women with an increased risk of abusing their child.

A strength in this study is that the nurses had the possibility to present a case to an expert committee. Approximately 15 percent of this study population is enrolled after consultation of the expert committee. A reason for nurses to consult the committee could be the difficultness of excluding a participant with a high prevalence of risk factors based on one formal criterion. In that case the independent expert committee can make a decision and it is therefore an important part of the selection procedure. Another strength is that nurses could make a decision based on

objective risk factors but also on a subjective factor that is a high suspicion of being at risk for abusing the child in the future (gut feelings). Professionals in the Youth Health Care in the Netherlands are trained and experienced enough to suspect child abuse or whether a patient is at higher risk during a conversation with subjects. Several studies make use of the suspicions of professionals and this factor was also effective in selecting high risk families.<sup>30</sup> A tool that includes this subjective factor is therefore more adequate in screening for families at risk for child abuse than objective factors only.

In this study a very low number of Turkish and Moroccan were included. According to the Dutch Central Bureau of Statistics 14% of the adolescent pregnancies in the Netherlands is of Turkish or Moroccan origin.<sup>31</sup> No data were available on the number of Turkish and Moroccan women who refused to participate in the program. However, other researchers have studied this and noted that these ethnic minorities are less open for outside support. They do not like interference from outside or they feel ashamed about their situation.<sup>32</sup> Ethnic minorities also have strong social networks which provide support.<sup>33</sup> Another explanation could be that these women have the assumption that VoorZorg does not match their cultural standards.<sup>32</sup> It is also possible that these women did not understand the Dutch language. Because the low percentage of Turkish and Moroccan participants, the results of this study might be less generalizable for these women.

The two-stage selection procedure can be used by health care professionals to select high risk pregnant women. However, for the aim of the VoorZorg study program we included two inclusion criteria that are not necessary to be used by health care professionals: “No previous life births” and “maximum gestational age of 28 weeks”. In addition, the inclusion criteria “not understanding the Dutch language” can be excluded because this is not a risk factor for child abuse.

#### RECOMMENDATIONS FOR FUTURE RESEARCH

A recommendation is to study how more Moroccan and Turkish women can be included in the study. The researchers of the VU University Medical Center are studying this at the moment.

#### CONCLUSIONS

In conclusion, the two-stage selection procedure with five strict inclusion criteria during the first stage, a risk inventory by trained nurses during the second stage, and an expert committee to be consulted, successfully selected young high risk women. Of all selected women, 98% had 4 or more risk factors, indicating a high risk of abusing their child.

#### COMPETING INTERESTS

The author(s) declare to have no competing interests.

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#### AUTHOR'S CONTRIBUTION

AC had the original idea for the study, brought the stakeholders together, and organized the design of the study. ES, AC and FL were responsible for the translation and cultural adaption of the study and were involved in preparations for the study. AC was responsible for acquiring the grants for the first two phases; AC, RH and FL were responsible for acquiring the grant for the RCT. SH, FL, ES, AC and RH helped to coordinate the study and provided input during the study. JM was responsible for the data collection, data analysis and writing the manuscript. All authors revised the manuscript for intellectual content. All authors read and approved the final version of the manuscript. And agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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