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# Reproductive health peer education for multicultural target groups

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## Abstract

**Purpose** – The purpose of this paper is to study the characteristics of the participants and the success of the recruitment methods and increase in knowledge of participants in reproductive health peer education. Dutch perinatal mortality rates are relatively high compared to other European countries. Non-Western ethnic minorities show particularly adverse outcomes. They seem to have low health literacy and less access to health care.

**Design/methodology/approach** – These groups were specifically targeted, and reproductive health education covering the full spectrum of obstetric care was developed, led by specifically trained female peer educators coming from the targeted communities.

**Findings** – “Active” recruitment methods were the most successful methods; 1,896 women and 275 men were recruited and participated in the intervention. Sixty-five per cent of the total female participants had a first-generation immigrant background. Significant knowledge improvements were found on all five measurements of reproductive behaviour and antenatal and postnatal health care system knowledge (24 per cent average knowledge increase in already knowledgeable participant group and 46 per cent in the not knowledgeable group). Active interpersonal recruitment methods were most successful in reaching the target groups. Peer education resulted in knowledge increase in these groups.

**Practical implications** – Invest in training of educators for peer education reproductive health. Organize recruitment by verbal advertising by community organizations and social networks of peer educators.

Data collection and recruitment of participants for the educational sessions for this study was carried out by the reproductive health peer educators. In cooperation with the community organizations in the deprived neighbourhoods of Rotterdam, two of the recruitment strategies were performed. “Zorgcampus” was, together with the Erasmus MC, responsible for coaching, training and employing the peer educators.

The authors would like to thank the Rotterdam Centre for Research and Statistics (COS, [www.cos.rotterdam.nl](http://www.cos.rotterdam.nl)) for their cooperation.



**Originality/value** – To the authors' knowledge, no studies have been conducted combining investigation of the results of specific recruitment methods, the characteristics of reached participants in a multi-ethnic population and their increase in knowledge about reproductive health and care.

**Keywords** Education, Ethnicity, Recruitment, Social networks, Multicultural, Reproductive health, Multilingual, Peer led education, Non-Western ethnic minorities

**Paper type** Research paper

## Introduction

Perinatal mortality rates are relatively high in The Netherlands when compared to all other European countries (Peristat II, 2004). This is particularly the case for large cities where perinatal mortality rates are 20-50 per cent higher than those in rural areas (De Graaf *et al.*, 2012; Poeran *et al.*, 2010). Within large cities, substantial inequalities can be found. For instance, in Rotterdam, neighbourhood perinatal mortality rates range from 2 to 34 per cent (Poeran *et al.*, 2010). Inequalities can also be found when considering the perinatal health of different ethnic groups. Among non-Western ethnic minority women, the perinatal mortality rates are higher than those of Western minorities and the native Dutch (Poeran *et al.*, 2010). Non-Western ethnic minorities represent 11.4 per cent of the population of The Netherlands and 32 per cent of the inhabitants of the four largest cities in The Netherlands (BOS, 2012). Many studies have shown that ethnicity and socio-economic deprivation are strongly related to adverse perinatal outcomes such as preterm birth and too small for gestational age (Agyemang *et al.*, 2009; Goedhart *et al.*, 2008; De Graaf *et al.*, 2013). These trends are not unique to perinatal outcomes, but can also be seen when considering the general health of non-Western ethnic minorities in a socio-economic disadvantaged position (Mackenbach *et al.*, 2013).

When compared to Dutch natives and Western minorities, non-Western ethnic minorities groups not only show poorer general health but are also underserved by health care (Waelput and Achterberg, 2007). This means that they have insufficient access to health care, as evidenced by not timely use of health services which can affect their health outcomes (Andrulis, 1998). Ample studies have indicated a relationship between access to health care and general health (Stronks *et al.*, 2001; Lindström *et al.*, 2001). Some studies even claim that limited access to health care resources is the most important contributing factor for ethnic disparities in health (Burnes *et al.*, 2004; Alderliesten *et al.*, 2007). In the area of reproductive health, one-third of Moroccan and Antillean women book their first antenatal visit with an obstetric caregiver after 14 weeks of pregnancy, which is often too late to allow for routine first trimester prenatal screening and provision of other prenatal health care (Alderliesten *et al.*, 2007; Choté *et al.*, 2010). Health literacy is also problematic, as these groups have, e.g., low awareness of folic acid supplementation and of the negative effect of smoking during pregnancy (Timmermans *et al.*, 2008; Temel *et al.*, 2012). Limited knowledge of health services in general and reproductive health services specifically can be major barriers to use health care services (Stronks *et al.*, 2001; Fransen *et al.*, 2009).

In 2009, an urban perinatal health programme called "Ready for a Baby" was initiated in Rotterdam, the second largest city of The Netherlands (Denktaş *et al.*, 2011). Rotterdam has a population of more than 600,000 citizens (Hoppensteijn, 2014). Fifty-two per cent of the inhabitants have a native Dutch background, 11 per cent have

a Western minority background and 37 per cent have a non-Western minority background (Hoppensteyn, 2012 and 2014). The largest minority groups are from Suriname (9 per cent), Turkey (8 per cent), Morocco (7 per cent), the Dutch Antilles (4 per cent) and Cape Verde (3 per cent) (Hoppensteyn, 2014).

The aim of the city-wide Ready for a Baby programme is to tackle perinatal health inequalities and to improve perinatal health outcomes. Timely reaching of women with a high-risk profile is an important aim of this programme. Therefore, we developed – as a part of this programme – an intervention aimed at improving the low reproductive health (care) literacy of non-Western ethnic minority groups in socially disadvantaged neighbourhoods.

We hypothesized that active recruitment methods based on interpersonal interaction are more effective methods in reaching the target groups for reproductive health education than passive methods, and for the target groups customized peer education is an effective method to increase knowledge about reproductive health and the healthcare system.

## Methods

### *Reproductive health peer education: theoretical framework*

Health-related peer education is an approach whereby community members are supported to promote health-enhancing change among their peers. A more conventional method would be to train (non-peer) health professionals to address the needs of specific target groups. Proponents of peer education argue that specifically trained lay people are in a better position to encourage healthy behaviour amongst their peers. Turner and Shepard, 1999 listed 10 commonly cited and review based arguments for the use of peer education.

- (1) peer education can be used to educate those who are hard to reach through conventional methods;
- (2) it utilizes an already established means of sharing information and advice;
- (3) education presented by peers may be acceptable when other education is not;
- (4) peer education is beneficial for those involved;
- (5) peer educators act as good role models;
- (6) it is more cost-effective than other methods;
- (7) peers are more successful than professionals in passing on information because people identify with their peers;
- (8) peer education is empowering for those involved;
- (9) peers are a credible source of information; and
- (10) peers can reinforce learning through an ongoing contact.

### *Phase I: Training peer educators*

The first phase of the intervention started in September 2010. Sixteen bilingual women with a non-Western ethnic minority background and a high school diploma were trained during a full-time six-month course (intermediate vocational educational level 4) to become peer educators. The course covered a wide range of topics, including communication and health education skills, basic knowledge about diseases and the Dutch health care system. The focus of the course was on

reproductive health. The students were trained to lead four educational meetings: preconception, antenatal, intrapartum and postpartum health and care. During the course, the students were also trained to translate the (biomedical) messages of caregivers into the language and cultural framework of an ethnically diverse target group. In 2011, 12 students graduated as peer educators in perinatal health. The educators had different backgrounds: Moroccan (Dutch/Arabic/Berber language proficiency [LP], Turkish (Dutch/Turkish LP), Antillean (Dutch/Papiamentu/Spanish LP), Surinamese-Creole (Dutch/Scrantango LP), Brazilian (Dutch/Portuguese LP) and Cape Verdean (Dutch/Portuguese LP). Peer education modules and topics are as follows:

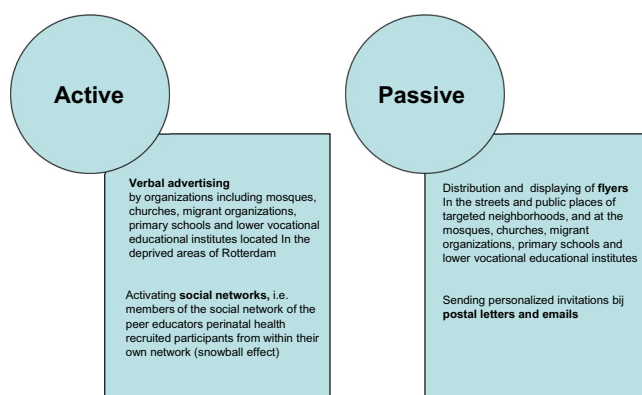
- *Preconception health and care*: Folic acid, alcohol, drugs, cigarette use, healthy nutrition intake, sexual transmitted diseases, medication, lifestyle of male partner, preconception health care system;
- *Antenatal health and care*: Healthy lifestyle, the three trimesters of pregnancy, pregnancy symptoms, necessity of pregnancy checks and preparation for childbirth, organization of antenatal care;
- *Intrapartum health and care*: Starting of the delivery, contractions, rupture of membranes, child-bearing process, placenta, complications and painkillers; and
- *Postpartum health and care*: The delivery, risk signals, a healthy start for mother and child, motherhood, infant and youth centres, postpartum health care system.

#### *Phase II: Recruiting participants and execution of the peer educational meetings*

Phase II started in July 2011 and ended in April 2012. Primarily, women were targeted, but men who were interested to participate were not excluded. Inspired by previous studies (Lee *et al.*, 1997), the participants were recruited by two active and two passive methods (Figure 1).

#### *Peer educational meetings*

After recruitment of the participants, the meetings were organized. The meetings always had the same structure:



**Figure 1.**  
Active and passive  
recruitment methods

- *Start*: acquaintance and fill in pre-test questionnaires by participants;
- *Peer Education*: customized knowledge transfer using presentations, role-play, discussions, images (e.g. in case of very low educated groups), educational video clips and games (e.g. in case of an adolescent group).
- *End*: verbal evaluation and fill in post-test questionnaires by participants.

To create a safe and open atmosphere, women's and men's groups were separated.

### *Measurements*

To collect data on the characteristics of the individuals reached by this pilot, participants were asked to fill in questionnaires. Twenty-five per cent of the 2,171 individuals who filled in the questionnaire received assistance from the peer educators because of their low language proficiency level. The questionnaires were specifically adjusted for the four aforementioned peer education meetings.

The questionnaires obtained information about the participants' socio-demographic characteristics: age [year of birth]; ethnic background [participant's country of birth and that of his or her parents]; generation [first-generation immigrants are born outside The Netherlands, second-generation immigrants are born in The Netherlands and have at least one parent born abroad] (CBS, 2000); marital status [yes/no]; children [yes/no]; educational attainment level [from low: not completed education, primary school to high: higher vocational education, university; and other: residual category], place of residence [four-digit zip code]. Information about residence made it possible to infer their neighborhood social-economic classification by using the "social index". This index is calculated annually for the Rotterdam municipal authorities by the Centre for Research and Statistics, Rotterdam. The social index is a composite multidimensional variable indicating neighborhood social quality on a 1-10 scale (Poeran *et al.*, 2013; Municipality of Rotterdam, 2012). Self-reported information about the Dutch LP of the participants was also obtained ["When you have a conversation in the Dutch language, do you have difficulty with it?" [low: often/always difficulty, intermediate: frequently but not always difficulty, high: never have difficulties].

Information was also obtained about the way participants were recruited by the open-ended question "How were you recruited for this meeting?" Answers were categorized into "verbal advertising by organizations", "flyers", "mailing" and "social network". Furthermore, participant's preferences for health care providers or other caregivers when seeking advice about preconception, antenatal, intrapartum and postpartum health and care were asked. Finally, information was obtained about knowledge of reproductive health and the health care system before and after the meeting. For example, before the meetings on preconception, we asked whether the participant knew what preconception care is, and after the meetings, we asked whether she/he had learned new information about preconception care.

### *Analysis*

First, we described the participants by socio-demographic and socio-economic status, according to the ethnic background. Chi-square testing was performed to detect significant differences. To evaluate whether reproductive health (care) knowledge had increased, the non-parametric statistical McNemar test was used. All analyses were performed using IBM SPSS Statistics 20.

## Results

### Response

In less than 10 months, 1,896 women and 275 men were recruited and participated in the intervention (Table I). Eighty four participants were excluded from the analyses

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health peer  
education

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Variable	Women		Men	
	<i>N</i>	(%)	<i>N</i>	(%)
Total	1896	87	275	13
<i>Age (years)</i>	1658		267	
<19	449	27	236	88
20-29	252	15	10	4
30-39	412	25	7	3
40-59	412	25	11	4
>60	133	8	3	1
<i>Ethnic origin</i>	1807		263	
Native Dutch	181	10	90	34
Surinamese	180	10	41	16
Antillean	74	4	30	11
Cape Verdean	55	3	5	2
Turkish	452	25	36	14
Moroccan	669	37	31	12
Other	192	11	30	11
<i>Generation</i>	1803		264	
First-generation immigrant	1172	65	50	19
Second-generation immigrant	444	25	124	47
Native Dutch	187	10	90	34
<i>Married</i>	1767		220	
Yes	1096	62	20	9
<i>Children</i>	1719		224	
Yes	1230	72	29	13
<i>Educational attainment level</i>	1692		442	
Low	795	47	151	62
Intermediate	718	38	88	36
High	67	4	1	1
Other	112	7	2	1
<i>Social index score</i>	1906		166	
Problematic 3.9-4.9	204	13	10	6
Vulnerable 5.0-5.9	932	58	33	20
Sufficient 6.0-7.0	449	28	107	65
Strong >7.1	24	1	16	10
<i>Language proficiency</i>	1519		221	
Insufficient	250	17	21	10
Sufficient	593	39	28	12
Good	676	44	172	78

**Table I.**  
Background  
characteristics of  
participants in  
reproductive health peer  
education *N* = 2171



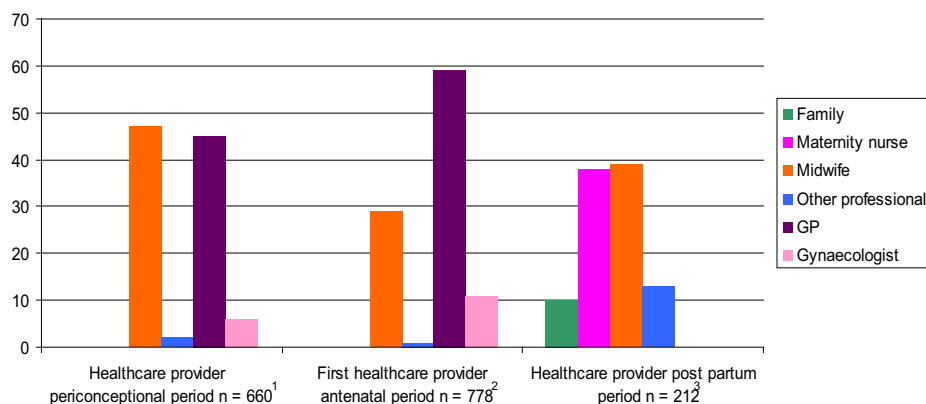
because of missing or incomplete questionnaires, e.g. missing gender variable. Eighty-eight per cent of the male participants were adolescents (less than 19 years). Ninety per cent of the female and 66 per cent of the male participants had an ethnic minority background. Seventy-one per cent of the female participants lived in a neighbourhood classified as “problematic” or “vulnerable” by the social index. Relatively more men (65 per cent) lived in a neighbourhood classified as social “sufficient”. Only 17 per cent of the female participants had “insufficient” LP.

#### *Preferences of participants for health care professionals*

Figure 2 shows the preferences of female participants for health care professionals or other caregivers with respect to the various reproductive stages. The results indicate the predominant preference for the midwife and the general practitioner during the periconceptional and antenatal periods. In the postpartum period, midwives and maternity nurses are reported as the preferred care providers followed by the family. Most men preferred the general practitioner (GP) during the preconception period, and the GP and the gynaecologist during the antenatal period. Because of the small size of the male participants, results are not shown in the figure.

#### *Results recruitment methods*

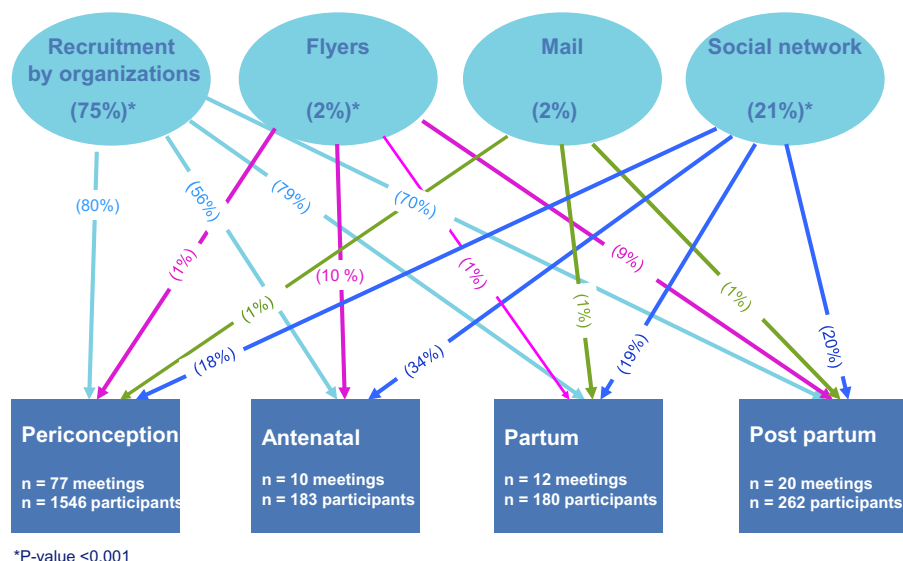
Figure 3 shows the results of the four recruitment methods for each of the reproductive health meetings. The coloured lines with percentages show the contribution of a method for recruitment of participants for each of the four educational meetings. The peer educators organized 105 network meetings together with community organizations to achieve cooperation of these organizations in the recruitment. Seventy-five per cent of these network meetings directly resulted in an inclusion of participants in the reproductive health meetings. Eight hundred flyers were distributed, and 350 mails via posts and emails were send which accounted for 2 per cent of the participants in the meetings. The interpersonal methods “verbal advertising by organizations” and “social network” were the most successful. Almost all participating men (91 per cent) had been reached by “verbal advertising by organizations” (not shown in figure).



**Figure 2.**  
Preferences of female participants for perinatal health care professionals

1 and 2 Answer options: GP, Midwife, Gynaecologist and Other professional  
3 Answer options: GP, Midwife, Maternity nurse and Family





**Figure 3.**  
Recruitment of  
participants for peer  
education by four  
methods

In addition to Figure 2, Tables II and III show ethnic and generational differences in recruitment. Native Dutch and ethnic minority women both were most effectively recruited by “verbal advertising by organizations”. The “social network” method was particularly successful in recruiting ethnic minority women. No major generational differences were found in recruitment except that the flyer method was more successful in reaching the second- than first-generation participants.

#### *Knowledge improvements of participants in reproductive health peer education*

Finally, Figure 4 shows significant improvements that were found on all five measurements of knowledge of adequate reproductive behaviour and the antenatal and postnatal health care system. For example, participants who did not know what folic acid and preconception care were before the reproductive health meeting had a significantly self-reported knowledge increase on these subjects of respectively 69 and 70 per cent.

## Discussion and conclusion

### *Discussion*

Non-Western immigrant women are commonly difficult to reach, especially the first generation. In our study, 65 per cent of the total female participants had a first-generation immigrant background. The recruitment results confirmed our first hypothesis that, active recruitment methods based on interpersonal interaction are more effective methods in reaching the target groups for reproductive health education than passive methods. Of all recruitment methods used, the active recruitment method “verbal advertising by organizations” and “social network” were most successful.

A comparison of demographic data of our participants with those from the general population confirmed that we reached our target group, i.e. participants with a non-Western minority background living in socially deprived areas with potentially

limited access to receive adequate antenatal and postnatal health care. A large majority (90 per cent) of the participants were from a female immigrant background and lived in a neighbourhood receiving a “problematic” or “vulnerable” social index score. These neighbourhoods are at an increased risk for adverse perinatal outcomes (perinatal

**Table II.**  
Recruitment results of female native Dutch and first- and second-generation minority group participants for RHPE  
 $N = 1.388$

Recruitment methods	Dutch $N = 172$	Surinamese $N = 122$	Antillean $N = 57$	CapeVerdean $N = 38$	Turkish $N = 337$	Moroccan $N = 510$	Other <sup>a</sup> $N = 152$
Verbal advertising by organizations	153 (89) <sup>b,c,d,e</sup>	95 (77) <sup>b</sup>	47 (82) <sup>f</sup>	31 (82)	236 (70) <sup>c</sup>	363 (70) <sup>d,f</sup>	107 (70) <sup>e</sup>
Flyers	2 (1)	1 (1)	0 (0)	4 (10)	9 (3)	18 (3)	6 (4)
Mailing	0 (0)	2 (2)	0 (0)	0 (0)	1 (0)	10 (2)	1 (1)
Social network	17 (10) <sup>b,c,d,e</sup>	24 (20) <sup>b</sup>	10 (18)	3 (8)	91 (27) <sup>c</sup>	119 (23) <sup>d</sup>	38 (25) <sup>e</sup>

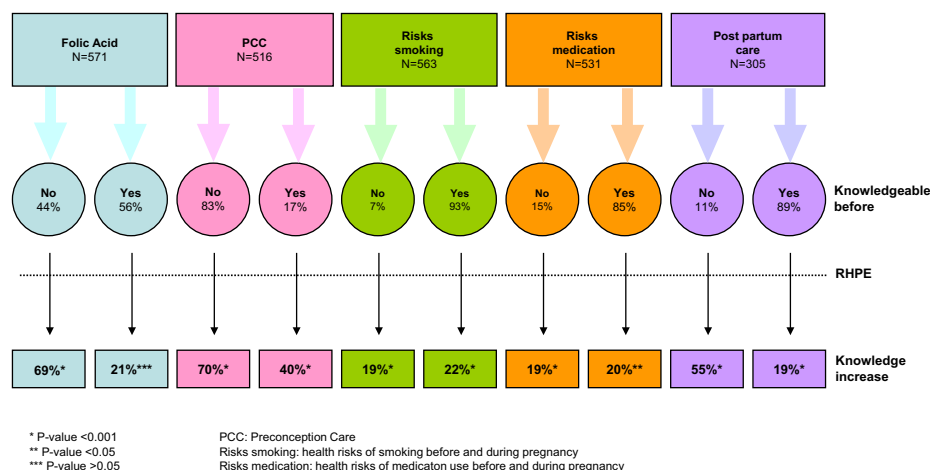
**Notes:** In absolute numbers and percentages; <sup>a</sup>Non-Western Asian and African immigrants; <sup>b</sup>Significant ( $< 0.05$ ) difference between native Dutch and Surinamese group; <sup>c</sup>Significant ( $< 0.001$ ) difference between native Dutch and Turkish group; <sup>d</sup>Significant ( $< 0.001$ ) difference between native Dutch and Moroccan group; <sup>e</sup>Significant ( $< 0.001$ ) difference between native Dutch and other group<sup>a</sup>; <sup>f</sup>Significant ( $< 0.05$ ) difference between Antillean and Moroccan group

**Table III.**  
Recruitment results of female immigrant generations for perinatal health peer education  $N = 1.235$

Recruitment methods	First generation $N = 880$	Second generation $N = 355$
Verbal advertising by organizations	626 (71)	253 (71)
Flyers	17 (2) <sup>a</sup>	23 (6) <sup>a</sup>
Mailing	12 (1)	2 (1)
Social network	225 (26)	77 (22)

**Note:** In absolute numbers and percentages; <sup>a</sup>Significant ( $< 0.001$ ) difference between first- and second-generation immigrant

**Figure 4.**  
Knowledge before and after RHPE



mortality and perinatal morbidity) (Municipality of Rotterdam, 2012). According to data from the Centre of Research and Statistics Rotterdam (COS), these types of neighbourhoods show low scores for experienced health and high scores for registered use of primary care (but not for reproductive health care) (Choté *et al.*, 2010; COS, 2012). These low health scores are associated with low income, a low LP level, unemployment, weak social network and social cohesion and poor housing (COS, 2012). These findings and our study results indicate that the target group needs support for healthy motherhood. The project successfully reached non-Western ethnic minority females from deprived neighbourhoods. A majority of the participants lived in a neighbourhood ( $n = 33$ ) with a low social index score; 85 per cent reported a low or intermediate educational level; and 17 per cent of the females reported insufficient LP. In these neighborhoods, a mean percentage of 2.4 [range 0.4-9.3 per cent] among the target population [non-Western female immigrants, aged between 18 and 42] was reached (COS, 2011). Compared to the native Dutch population, more children are born in the non-Western immigrant groups (COS, 2011). The Dutch National Institute for Public Health and the Environment has indicated that preventive lifestyle interventions are not able to reach low socio-economic status (SES) groups, let alone non-Western immigrant groups (RIVM, 2013). Most Dutch publications about lifestyle interventions show a lack of absolute numbers of participation of specific target groups caused by the absence of registration of background characteristics like SES and ethnicity variables in these intervention programmes (ZonMW, 2011).

The change of knowledge results confirm our second *hypothesis that* for the target groups, customized peer education is an effective method to increase knowledge about reproductive health (care). After participating in the educational meetings, a knowledge increase regarding adequate folic acid use, preconception care, smoking and medication intake was observed.

Health peer education has become very popular in the broad field of HIV prevention, and it is also used to reduce tobacco, drug or alcohol abuse among young people. While not commonly used within the field of reproductive health, several international examples can be found of prenatal and postnatal peer-led educational programmes focussed on preconception health, HIV prevention for pregnant woman, nutrition, mental health, breastfeeding and smoking (Owens *et al.*, 2006; Rempel and Moore, 2012). Most of the pregnancy-related peer education programmes were developed and evaluated for single health issues such as nutritional intake (Boyd and Windsor, 2003) in contrast to slightly broader education programmes in the USA, Nepal and India (Massey *et al.*, 2006, Tripathy *et al.*, 2010). To our knowledge, this is the first time that a peer-led reproductive health education project spans the entire chain of obstetric care, ranging from the preconception to the postnatal health period.

### Participants

The majority of participants were female which can be explained by the pilot design (inclusion criteria: directed primary at women and secondary at men) and the content of the meetings. Reproductive health is commonly perceived by both men and women as primarily “women’s” issues (Murphy Tighe, 2010; Iliyasu *et al.*, 2010). Nevertheless, the relatively high number of male adolescent participants can be explained by the fact that some of the meetings were organized in a school for intermediate vocational education. Three out of nine peer educators had a Moroccan

background, which probably explains the higher proportion of Moroccan participants.

The higher number of first-generation female participants is probably due to:

- the first-generation immigrant status of most of the peer educators who might have more first-generation females in their social network (Martijn *et al.*, 2004; De Graaf *et al.*, 2012);
- the low employment rates of first-generation immigrants which could provide more time for participating in the sessions (CBS, 2004; Temel *et al.*, 2012; Poeran *et al.*, 2010);
- the higher educational level of second-generation immigrants, who tend to feel that they are already knowledgeable enough (CBS, 2004); and
- the involvement of several immigrant organizations in the recruitment.

### *Recruitment*

In our study, the “active” recruitment methods were by far the most successful method, which are in line with other studies (Velott *et al.*, 2008; Murphy Tighe, 2010; El-Khorazaty *et al.*, 2007). As expected, the passive methods (flyer and invitation by mail) were less successful, especially for first-generation immigrants, probably due to insufficient language skills of these groups, which makes it difficult to read and understand text in Dutch (Denktaş *et al.*, 2009; Ng and Newbold, 2011; Thomas *et al.*, 2010).

### *Preferences for health care provider*

Midwives, gynaecologists and GPs are the designated professionals to offer preconception care in The Netherlands (van der Zee *et al.*, 2011). About 45 per cent of the participants had a preference for seeing a midwife, whilst about the same percentage of the participants preferred a GP. A cross-sectional study found that 70 per cent of the population of one of the districts of Rotterdam preferred a GP (Programme Ready for a Baby, 2011). Our study showed that GPs were also the most preferred choice for the first booking visit during pregnancy. Possible reasons for this are that:

- GPs are located in closer proximity than designated obstetric professionals;
- citizens are more familiar with GPs;
- ethnic minorities are less aware of the existence of midwifery care (in a non-hospital setting) (Alderliesten *et al.*, 2007).

### *Knowledge*

Non-Western ethnic minorities in The Netherlands tend to have low awareness of folic acid supplementation and of the negative effect of smoking during pregnancy (Alderliesten *et al.*, 2007; Choté *et al.*, 2010). About half of our participants indicated that their knowledge of folic acid usage had increased after the educational meetings. This might suggest that the public campaigns and advice offered by governmental organizations and health care providers about folic acid use in The Netherlands did not fully reach our target group. The limited effectiveness of these methods might be caused by the passive and impersonal nature of campaigns and the lack of adaptation to people with low/intermediate educational levels (de Walle *et al.*, 1999). In the educational meetings, participants learned about the negative effects of smoking before and during

pregnancy. Despite of mass-media campaigns about the detrimental health effects of smoking for the general health, the meetings delivered new information (STIVORO, 2010). As expected, the majority of the participants indicated that they heard new information about preconception care. Other studies have shown that preconception care is not a very well-known type of care (Coonrod *et al.*, 2009; Frey and Files, 2006).

### *Points of improvement*

Registration forms were only available in Dutch language. This might have caused a barrier for participants with poor Dutch LP. Four per cent of the questionnaires were incomplete (missing of gender variable and missing of more than five respondent characteristics) that were excluded from the analysis. We cannot fully oversee the consequences that these omitted questionnaires have for results of this study. However, given the small number of exclusions (4 per cent) we do not expect a bias. For future research, we recommend translating the forms in the relevant languages or deployment of research assistants who can primarily focus on assisting participants in filling in the forms.

### *Conclusion*

The peer-led educational format used in this study was successful in reaching and educating non-Western ethnic minorities – a typically underserved population – for reproductive health education. Cornerstones of the success were:

- the active recruitment strategies “verbal advertising by organizations” and “social network”;
- the involvement of bicultural peer educators as recruiters; and
- a customized knowledge transfer using an eclectic peer educational method.

### *Practice implications*

In line with the results of this pilot study, we recommend educational programmes to invest in: training of educators for peer education about peer education reproductive health; training of educators with a Central African and Eastern European background is highly needed in The Netherlands as well as native Dutch peer educators; recruitment for peer education by verbal advertising by organizations and social networks of peer educators.

### *Future research*

This pilot study showed that it is possible to reach first- and second-generation non-Western ethnic minority groups via reproductive health peer education. The success of this pilot is the starting point for a scaling-up of this method to other cities in the nationwide perinatal health programme called “Healthy Pregnancy 4 ALL” which started in 2011.

We recommend the following future research: a network study of how recruiters/educators use their social network to recruit participants and a study on how community organizations such as churches, mosques, schools and community centres are able to recruit participants.

**References**

- Agyemang, C., Vrijkotte, T.G., Droomers, M., van der Wal, M.F., Bonsel, G.J. and Stronks, K. (2009), "The effect of neighbourhood income and deprivation on pregnancy outcomes in Amsterdam, The Netherlands", *Journal of Epidemiology and Community Health*, Vol. 63 No. 9, pp. 755-760.
- Alderliesten, M.E., Vrijkotte, T.G., van der Wal, M.F. and Bonsel, G.J. (2007), "Late start of antenatal care among ethnic minorities in a large cohort of pregnant women", *BJOG*, Vol. 114 No. 10, pp. 1232-1239.
- Andrulis, D.P. (1998), "Access of care is the centerpiece in the elimination of socioeconomic disparities in health", *Annals of Internal Medicine*, Vol. 128 No. 5, pp. 412-416.
- BOS Office Research and Statistics Amsterdam (2012), "Dutch: population by ethnic group", available at: [www.os.amsterdam.nl/feiten-en-cijfers/](http://www.os.amsterdam.nl/feiten-en-cijfers/) (accessed June 2012).
- Boyd, N.R. and Windsor, R.A. (2003), "A formative evaluation in maternal and child health practice: the partners for life nutrition education program for pregnant women", *Maternal and Child Health Journal*, Vol. 7 No. 2, pp. 137-143.
- Burnes Bolton, L., Giger, J.N. and Georges, C.A. (2004), "Structural and racial barriers to health care", *Annual Review of Nursing Research*, Vol. 22 No. 1, pp. 39-58.
- CBS Statistics Netherlands (2000), "Dutch: standard definition immigrant", available at: [www.cbs.nl/NR/rdonlyres/26785779-AAFE-4B39-AD07-59F34DCD44C8/0/index1119.pdf](http://www.cbs.nl/NR/rdonlyres/26785779-AAFE-4B39-AD07-59F34DCD44C8/0/index1119.pdf) (accessed June 2012).
- CBS Statistics Netherlands (2004), "Dutch: second generation immigrants more successful than first generation, statistics Netherlands", available at: [www.cbs.nl/nl-NL/menu/themas/arbeid-sociale-zekerheid/publicaties/artikelen/archief/2004/2004-1611-wm.htm](http://www.cbs.nl/nl-NL/menu/themas/arbeid-sociale-zekerheid/publicaties/artikelen/archief/2004/2004-1611-wm.htm) (accessed February 2014).
- Choté, A.A., Koopmans, G.T., Redekop, W.K., de Groot, C.J., Hoefman, R.J., Jaddoe, V.W., Hofman, A., Steegers, E.A., Mackenbach, J.P., Trappenburg, M. and Foets, M. (2010), "Explaining ethnic differences in late antenatal care entry by predisposing, enabling and need factors in the Netherlands. The Generation R Study", *Maternal and Child Health Journal*, Vol. 15 No. 6, pp. 689-699.
- Coonrod, D.V., Bruce, N.C., Malcolm, T.D., Drachman, D. and Frey, K.A. (2009), "Knowledge and attitudes regarding preconception care in a predominantly low-income Mexican American population", *American Journal of Obstetrics and Gynecology*, Vol. 200 No. 6, 686.e 1-7.
- COS. Rotterdam Centre for Research and Statistics (2011), "Customized data request: Rotterdam neighborhood birth rates of non-western women aged between 18 and 42", Rotterdam Centre for Research and Statistics.
- COS. Rotterdam Centre for Research and Statistics (2012), "Rotterdam social measured [Dutch]", available at: [www.rotterdam.nl/DG%20Centrum/Sociale%20Index%202012.pdf](http://www.rotterdam.nl/DG%20Centrum/Sociale%20Index%202012.pdf) (accessed July 2012).
- De Graaf, J.P., Ravelli, A.C., De Haan, M.A., Steegers, E.A. and Bonsel, G.J. (2012), "Living in deprived urban districts increases perinatal health inequalities", *Journal of Maternal-Fetal and Neonatal Medicine*, Vol. 26 No. 5, pp. 473-481.
- De Graaf, J.P., Steegers, E.A. and Bonsel, G.J. (2013), "Inequalities in perinatal and maternal health," *Current Opinion in Obstetrics and Gynecology*, Vol. 25 No. 2, pp. 98-108.
- de Walle, H.E.K., van der Pal, K.M., de Jong-van den Berg, L.T.W., Jeeninga, W., Schouten, J.S.A.G., de Rover, C.M., Buitendijk, S.E. and Cornel, M.C. (1999), "Effect of mass media campaign to reduce socioeconomic differences in women's awareness and behaviour concerning use of folic acid: cross sectional study", *BMJ*, Vol. 319 No. 7205, pp. 291-292.



- Denktaş, S., Koopmans, G., Birnie, E., Foets, M. and Bonsel, G. (2009), "Ethnic background and differences in health care use: a national cross-sectional study of native Dutch and immigrant elderly in the Netherlands", *International Journal for Equity in Health*, Vol. 8 No. 35, pp. 1-9.
- Denktaş, S., Bonsel, G.J., van der Weg, E.J., Voorham, A.J.J., Torij, H.W., De Graaf, J.P., Wildschut, H.I.J., Peters, I.A., Birnie, E. and Steegers, E.A.P. (2011), "An urban perinatal health programme of strategies to improve perinatal health", *Maternal and Child Health Journal*, Vol. 16 No. 8, pp. 1553-1558.
- El-Khorazaty, M.N., Johnson, A.A., Kiely, M., El-Mohandes, A.A., Subramanian, S., Laryea, H.A., Murray, K.B., Thornberry, J.S. and Joseph, J.G. (2007), "Recruitment and retention of low-income minority women in a behavioral intervention to reduce smoking, depression, and intimate partner violence during pregnancy", *BMC Public Health*, Vol. 6 No. 7, p. 233.
- Fransen, M.P., Wildschut, H., Vogel, I., Mackenbach, J., Steegers, E. and Essink-Bot, M.L. (2009), "Information about prenatal screening for Down syndrome: ethnic differences in knowledge", *Patient Education and Counseling*, Vol. 77 No. 2, pp. 279-288.
- Frey, K.A. and Files, J.A. (2006), "Preconception healthcare: what women know and believe", *Maternal and Child Health Journal*, Vol. 10, pp. S73-S77.
- Goedhart, G., van Eijnden, M., van der Wal, M.F. and Bonsel, G.J. (2008), "Ethnic differences in preterm birth and its subtypes: the effect of a cumulative risk profile", *BJOG*, Vol. 115 No. 6, pp. 710-719.
- Hoppensteijn, M. (2012), "Dutch: Rotterdam population prognoses 2013-2030", COS Rotterdam Centre for Research and Statistics, available at: [www.rotterdam.nl/COS/publicaties/Vanaf%202005/12-3583.Bevolkingsprognose%20Rotterdam%202013-2030.pdf](http://www.rotterdam.nl/COS/publicaties/Vanaf%202005/12-3583.Bevolkingsprognose%20Rotterdam%202013-2030.pdf) (accessed July 2014).
- Hoppensteijn, M. (2014), "Dutch: Factsheet, population monitor, April 2014", COS Center for Research and Statistics, Rotterdam, Rotterdam, The Netherlands.
- Iliyasu, Z., Abubakar, I.S., Galadanci, H.S. and Aliyu, M.H. (2010), "Birth preparedness, complication readiness and fathers' participation in maternity care in a northern Nigerian community", *African Journal of Reproductive Health*, Vol. 14 No. 1, pp. 21-32.
- Lee, R.E., McGinnis, K.A., Sallis, J.F., Castro, C.M., Chen, A.H. and Hickman, S.A. (1997), "Active vs. passive methods of recruiting ethnic minority to a health promotion program", *Annals of Behavioral Medicine*, Vol. 19 No. 4, pp. 378-384.
- Lindström, M., Sundquist, J. and Östergren, P.-O. (2001), "Ethnic differences in self-reported health in Malmö in southern Sweden", *Journal of Epidemiology and Community Health*, Vol. 55 No. 2, pp. 97-103.
- Mackenbach, J.P., Karanikolos, M. and McKee, M. (2013), "The unequal health of Europeans: successes and failures of policies", *Lancet*, Vol. 381 No. 9872, pp. 1125-1134.
- Martijn, C., de Vries, N.K., Voorham, T., Brandsma, J., Meis, M. and Hospers, H.J. (2004), "The effects of AIDS prevention programs by lay health advisors for migrants in The Netherlands", *Patient Education and Counseling*, Vol. 53 No. 2, pp. 157-165.
- Massey, Z., Rising, S.S. and Ickovics, J. (2006), "Centering pregnancy group prenatal care: promoting relationship-centered care," *JOGNN*, Vol. 35 No. 2, pp. 286-194.
- Municipality of Rotterdam (2012), "Social index score", available at: [www.rotterdam.nl/tekst\\_sociale\\_index\\_centrum](http://www.rotterdam.nl/tekst_sociale_index_centrum) (accessed July 2012).
- Murphy Tighe, S. (2010), "An exploration of the attitudes of attenders and non-attenders towards antenatal education", *Midwifery*, Vol. 26 No. 3, pp. 294-303.



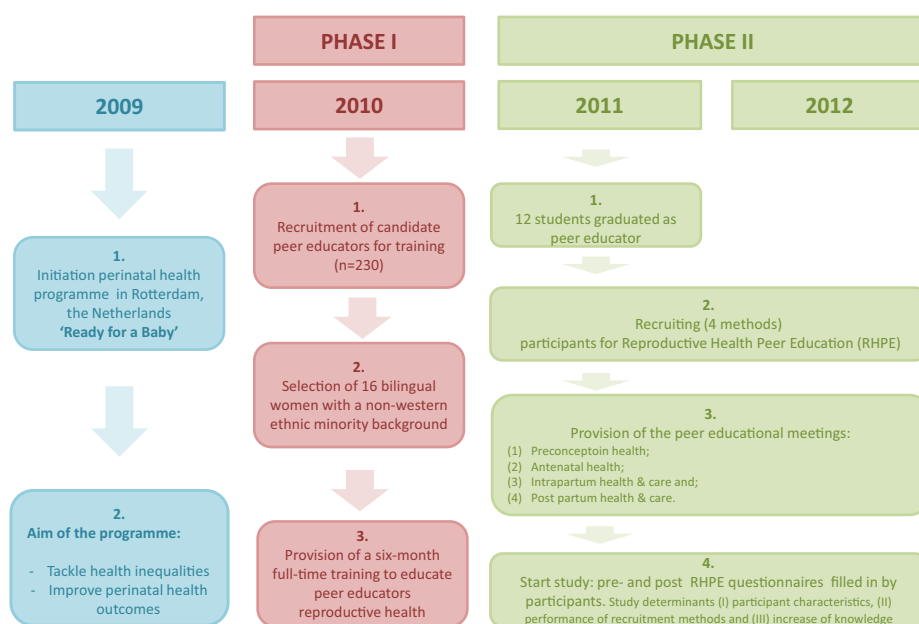
- Ng, C. and Newbold, K.B. (2011), "Health care providers' perspectives on the provision of prenatal care to immigrants", *Cult Health Sex*, Vol. 13 No. 5, pp. 561-574.
- Owens, M.D., Kieffer, E.C. and Chowdhury, F.H. (2006), "Preconception care and women with or at risk for diabetes: implications for community intervention", *Maternal and Child Health Journal*, Vol. 10, pp. S137-S141.
- Peristat II (2004), "EURO-PERISTAT project in collaboration with SCPE, EUROCAT and EURONEONET, European perinatal health report, better statistics for better health for pregnant women and their babies in 2004", available at: [www.europeristat.com/reports/european-perinatal-health-report2004.html](http://www.europeristat.com/reports/european-perinatal-health-report2004.html) (accessed May 2012).
- Poeran, J., Denktas, S., Birnie, E., Bonsel, J., Steegers, E.A.P. (2010), "Urban perinatal health inequalities, Journal of Maternal Fetal and Neonatal Medicine," Vol. 24 No. 4, pp. 643-646.
- Poeran, J., Maas, A.F., Birnie, E., Denktas, S., Steegers, E.A. and Bonsel, G.J. (2013), "Social deprivation and adverse outcomes among Western and non-Western pregnant women in a Dutch urban population", *Social Science and Medicine*, Vol. 83, pp. 42-49.
- Programme Ready for a Baby (2011), "Dutch: report, baseline measurement preconception care district Feijenoord, Rotterdam", *Program Ready for a Baby Rotterdam*.
- Rempel, L.A. and Moore, K.C. (2012), "Peer-led prenatal breast-feeding education: a viable alternative to nurse-led education", *Midwifery*, Vol. 28 No. 1, pp. 73-79.
- RIVM (2013), "Dutch: what is the effect of prevention in the Netherlands?, National Compass Public Health", available at: [www.nationaalkompas.nl/preventie/bereik/](http://www.nationaalkompas.nl/preventie/bereik/) and <http://www.nationaalkompas.nl/algemeen/menu-rechts/english/> (accessed January 2013).
- STIVORO (2010), "ITC Netherlands survey: report on smokers' awareness of the health risks of smoking and exposure to second-hand smoke."
- Stronks, K., Ravelli, A.C. and Reijeneveld, S.A. (2001), "Immigrants in the Netherlands: equal access for equal needs?", *Journal of Epidemiology and Community Health*, Vol. 55 No. 10, pp. 691-692.
- Temel, S., Birnie, E., Voorham, A.J.J., Bonsel, G.J., Steegers, E.A.P. and Denktas, S. (2012), "Determinants of the intention of preconception care use: lessons from a multi-ethnic urban population in the Netherlands", *International Journal of Public Health*, Vol. 58 No. 2, pp. 295-304.
- Thomas, P.E., Beckmann, M. and Gibbons, K. (2010), "The effect of cultural and linguistic diversity on pregnancy outcomes", *The Australian and New Zealand Journal of Obstetrics and Gynecology*, Vol. 50 No. 5, pp. 419-422.
- Timmermans, S., Jaddoe, V.W., Mackenbach, J.P., Hofman, A., Steegers-Theunissen, R.P. and Steegers, E.A. (2008), "Determinants of folic acid use in early pregnancy in a multi-ethnic urban population in The Netherlands: the Generation R study", *Preventive Medicine*, Vol. 47 No. 4, pp. 427-432.
- Tripathy, P., Nair, N., Barnett, S., Mahapatra, R., Borghi, J., Rath, S., Gope, R., Mahto, D., Sinha, R., Lakshminarayana, R., Patel, V., Pagel, C., Prost, A. and Costello, A. (2010), "Effect of a participatory intervention with women's groups on birth outcomes and maternal depression in Jharkhand and Orissa, India: a cluster-randomised controlled trial", *Lancet*, Vol. 375 No. 9721, pp. 1182-1192.
- Turner, G. and Shepard, J. (1999), "A method in search of theory: peer education and health promotion", *Health Education Research*, Vol. 14 No. 2, pp. 235-247.
- van der Zee, B., de Beaufort, I., Temel, S., de Wert, G., Denktas, S. and Steegers, E. (2011), "Preconception care: an essential preventive strategy to improve children's and women's health", *Journal of Public Health Policy*, Vol. 32 No. 3, pp. 367-379.

Velott, D.L., Baker, S.A., Hillemeier, M.M. and Weisman, C.S. (2008), "Participant recruitment to a randomized trial of a community-based behavioral intervention for pre- and interconceptional women findings from the Central Pennsylvania Women's Health Study", *Womens Health Issues*, Vol. 18 No. 3, pp. 217-224.

Waelput, A.J.M. and Achterberg, P.W. (2007), *Ethnic origin and care during pregnancy and birth: an exploration of Dutch research [Dutch]*, RIVM National Institute for Public Health and the Environment, Bilthoven.

Zon MW (2011), "Dutch: the future of an intercultural preventive for mental health care", available at: [www.zonmw.nl/uploads/tx\\_vipublicaties/Rapport\\_ggz\\_ZonMw.pdf](http://www.zonmw.nl/uploads/tx_vipublicaties/Rapport_ggz_ZonMw.pdf) (accessed November 2012).

## Appendix



**Figure A1.**  
Supplement-intervention  
and study design

## About the authors

Ingrid A. Peters MSc is a trained social worker and public administrator with knowledge and experience in the field of welfare and in the health sector. In the past, she was a project leader of the programme "Ready for a Baby", concerned with the implementation project "interculturalization". Nowadays, she is a coordinating staff advisor and a PhD candidate. Her PhD study focusses on diversity and interculturalization in obstetric care. Ingrid A. Peters is the corresponding author and can be contacted at: [i.a.peters@erasmusmc.nl](mailto:i.a.peters@erasmusmc.nl)

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