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EDUCATION FOR EXPECTANT FATHERS IN WORKPLACES IN TURKEY

YUSUF SAHIP* AND JANET MOLZAN TURAN†

**Family Health Department, Institute of Child Health, Istanbul University, Turkey and †University of California, San Francisco, USA*

Summary. Worldwide, there is increasing recognition that if family and reproductive health programmes are to be successful, the involvement of men is essential. As part of the problem, men also have to be seen as part of the solution. The reality is that in many countries, including Turkey, men generally do not accompany their partners to health facilities for family planning, antenatal and postnatal services and are not expected to attend the labour or birth of their child. Workplace programmes are a potential strategy for meeting the reproductive health education needs of men in industrial cities such as Istanbul. This intervention study was developed to test the feasibility and effects of expanding a special programme for expectant fathers to large workplaces in Istanbul, with the aim of improving the health of Turkish families during the pregnancy, birth and newborn periods. The findings indicate that it is possible to train workplace physicians in Istanbul to conduct regular educational programmes for expectant fathers on reproductive health, and that such programmes may have beneficial effects, especially in the areas of pregnancy nutrition, exclusive breast-feeding, and support behaviours. Considering the difficulty of getting men to attend hospital or clinic-based educational programmes in large urban areas, bringing such training programmes to men at their places of work has the potential to be an important strategy. Given that large workplaces in Turkey already have full-time physicians charged with the duty of health education for employees, this is also a feasible strategy.

Introduction

Over the past decade more reproductive health programmes worldwide have started to address the issue of male involvement in order to increase the impact of safe motherhood and reproductive health programmes. The important role of men in the promotion of safe motherhood and reproductive health is well accepted (WHO, 2002). Young expectant couples all around the world are confronted with new and unexpected problems during pregnancy, labour and the postpartum period. Giving them physical and emotional support as well as knowledge and skills can potentially

help them to overcome the problems they encounter (Turan *et al.*, 2001, 2002). But the reality is that in most societies men generally do not accompany their partners to health facilities for family planning, antenatal and postnatal care services, and are not expected to attend the labour or birth of their child. They rarely attend child health care services as well, and should they have a sexually transmitted infection, they seek care from the private sector (Kunene *et al.*, 2004). Thus men have relatively low use of reproductive health services and few contacts with reproductive health service providers.

Given this situation, one option is to bring reproductive health education programmes to men where they work. If men are involved in reproductive health education and support programmes, they can gain a better understanding of a world usually considered the domain of women. Workplace interventions have been used in different settings to provide men with education and services related to family planning (McCauley *et al.*, 1994), sexually transmitted infections (WHO, 2005) and HIV/AIDS (Family Health International, 2004).

According to the Turkish Labour Law, workplaces with 1000 or more employees are required to employ a full-time workplace physician and nurse. One of the important tasks of the workplace health unit is employee health education. After conducting training programmes for these workplace service providers, health staff could help meet the need for reproductive health education for women and especially for men.

Over the past 25 years significant gains in health status in Turkey have been registered, but there are still many areas in which maternal and child health urgently need to be improved. The available data indicate that Turkish maternal and perinatal mortality rates, estimated at 70 deaths per 100,000 births (WHO *et al.*, 2004) and 35 deaths per 1000 births (Erdem, 2003), respectively, are among the highest in the WHO European Region. Nutrition during pregnancy appears to be inadequate; while one recent study conducted in Istanbul found the prevalence of anaemia among women of reproductive age to be 33% (Filippi *et al.*, 1997), a study of hospital-based antenatal care found that iron/folate supplementation during pregnancy was not universal (Turan *et al.*, 2006). Although almost all Turkish infants are breast-fed, only one out of five infants is *exclusively* breast-fed in the first six months of life (TDHS, 2003). Although most women want to space between births, it appears that many couples use less-effective contraceptive methods during the postpartum period (Bulut & Turan, 1995).

In Istanbul, a city with a relatively young population and high numbers of pregnancies, new parents have a strong need for more education, information and counselling about family health. It appears that these needs are not being met by the national health or education systems. A study conducted in Istanbul in 1992 by the Istanbul University Institute of Child Health (IUICH) found that women who had recently given birth needed more support in many areas, including infant feeding, infant care, maternal health and postpartum family planning (Bulut & Turan, 1995). This study also revealed that although the majority of women received antenatal care, almost none received any information or counselling about what to expect after the birth. In a study carried out in the course of developing a 'Parents School' at Istanbul University, 900 parents were interviewed (Aydoğmuş & Baltaş, 1995). It was found

that parents had a strong demand for more information on child health and development and that their list of demands for education was quite detailed.

A recent WHO study conducted by the IUICH evaluated 'The Ten Steps for Breast-feeding at Hospitals in Istanbul' and found that postpartum mothers had a high demand for information and counselling on breast-feeding (Gökçay *et al*., 1997). The vast majority of existing health education programmes target females (mothers). However, if women do not have support within the family, they often cannot use the knowledge and skills that they gain. For this reason, it is important to educate males as well. Males in Turkey have not traditionally been involved in the reproductive health of their partners. Another problem in Turkey is the lack of services designed to involve males in family planning and reproductive health care (MOCEF, 2001).

Studies on including men in antenatal education programmes in developed countries have shown that men who participate are more supportive of the mother and infant than men who do not participate (Westney *et al.*, 1988; Swedin, 1996; McGee, 1998). One study in the United States also found that a male-focused training programme was more effective than a traditional programme (Diemer, 1997).

Although programmes for couples have become routine in developed countries, antenatal education programmes including both expectant parents are rare in developing countries. The few published studies indicate that including men in such settings may have positive effects, including increases in men's reproductive health and child health knowledge, higher utilization of antenatal care services, and even decreases in perinatal mortality (Bhalerao *et al.*, 1984; Loftin & Engle, 1999; Mullick *et al.*, 2005). Recently intervention studies aiming for greater involvement of men in maternity care have been conducted in India, Nepal and South Africa (Kunene *et al*., 2004; Raju & Leonard, 2004; Beenhakker, 2005).

To date, only a few small pilot projects have specifically addressed parents' needs for education regarding family health in Turkey. Education before the birth on pregnancy, childbirth, infant health, and postpartum women's health (including family planning) may positively affect health behaviours after the birth. The effects may be even greater if expectant fathers participate in the educational programme as well (Turan *et al*., 2001). Since 1997, educational programmes for pregnant women and expectant fathers have been developed and implemented in Istanbul. In a clinic-based antenatal education programme, couples who participated together were more likely to be using contraception at six months after the birth (Turan *et al*., 2002). Based on the difficulties experienced in getting men to participate in a couples programme, a separate community-based programme for expectant fathers was subsequently developed parallel to an existing antenatal education programme for pregnant women.

The programme for expectant fathers was developed in partnership with the Mother–Child Education Foundation (MOCEF), a Turkish foundation experienced in educating Turkish mothers and fathers (MOCEF, 2001). Based on the successful experience of MOCEF in obtaining high rates of participation in special educational programmes for fathers of young children – in which groups are all male and led by male facilitators – it was decided to offer a separate programme for expectant fathers only. Educators and participants in the new programme for expectant fathers were all male. Topics of the six-session programme included fatherhood, communication skills,

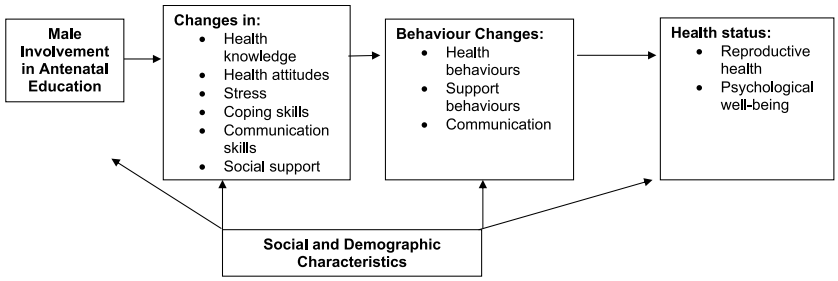

Fig. 1. Conceptual framework for male involvement in antenatal education.

pregnancy, birth, infant care and feeding, and family health after birth. The new community-based programme for men resulted in positive effects on male knowledge and attitudes in the areas of infant health, infant feeding, postpartum family planning and spousal relations (Turan *et al*., 2001). A comprehensive guide for antenatal education programme managers and educators with detailed modules for both the women's and men's programmes was produced in Turkish and used in subsequent programmes.

Based on these initial findings, the present intervention study was developed to test the feasibility and effects of expanding the special programme for expectant fathers to large workplaces in Istanbul to improve the health of Turkish families during pregnancy, birth and newborn periods. The intervention aimed to measure the impact of the training programme on reproductive health behaviours, including use of preventive health services for the mother and infant, exclusive breast-feeding, and contraception, as well as on men's supportive behaviours. Expected long-term impacts were reduction of fertility and reduction of incidence of preventable maternal and infant morbidity and mortality.

Conceptual framework

The conceptual framework for this study is similar to the framework proposed by Diemer for evaluating the effects of educating expectant fathers on spousal relations (Diemer, 1997). In that framework, fathers' participation in 'father-focused' discussion classes was expected to decrease stress, increase coping skills and increase social support. These in turn lead to better spousal relations, including less use of violence in conflict situations. The main addition that this study made to this framework is the addition of changes in health knowledge and attitudes as short-term effects of participation in antenatal education and the addition of changes in health behaviours and status as long-term effects (see Fig. 1). The effects of men's social and demographic characteristics were recognized at all stages of the process.

Methods

The intervention

All workplaces in Istanbul having full-time workplace physicians were contacted in collaboration with the Medical Chamber of Istanbul and these physicians were

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invited to attend a preliminary meeting. Fifteen of the 58 invited physicians attended the meeting, in which the study was introduced and the physicians were asked to volunteer to be trained in how to conduct educational programmes for expectant fathers at their own workplaces. Six of the fifteen physicians agreed to participate and were trained as educators for this programme in an intensive five-day programme conducted by IUICH and MOCEF. Then they ran the programme at their own workplaces with the assistance of master trainers. During the study period, seven programmes were conducted at workplaces, including banks, an electronics factory, a plastics factory, a telecommunications company and a washing machine manufacturing company. The expectant fathers who participated in the education programme were the employees of these large workplaces and participation was voluntary. In total 102 employees participated in the programmes (9–15 men per group) and 90 of them completed the entire programme.

The programme for expectant fathers consisted of six sessions, each session lasting 3–4 hours. The topics covered in the programme included health and nutrition during pregnancy, antenatal care, support of women during childbirth, breast-feeding, postpartum and postnatal check-ups, postpartum contraception, communication techniques and adjustment to fatherhood. At the end of the programme participants received a certificate of their status as a 'trained father', which many were proud to hang on the wall in the new baby's room.

The six sessions and the topics included in each session are presented below:

1. Health during pregnancy

- Calculation of weeks of pregnancy and expected birth date
- Reproductive organs and fertilization process
- Growth and development of the fetus during pregnancy
- Things that can affect the growth and development of the fetus
- Antenatal care
- Common discomforts/symptoms of pregnancy
- Expectations about the baby's sex
- The pregnant woman's psychological state
- The expectant father's psychological state

2a. Pregnancy nutrition (pregnancy nutrition and birth are usually included in the same session)

- Basics of pregnancy nutrition
- Things to avoid/cut down on during pregnancy
- Ways for the expectant father to support good nutrition during pregnancy

2b. Birth

- Deciding on a hospital
- Signs of labour
- Preparations for going to the hospital

- What to expect at the hospital
- Normal birth
- Other types of birth
- What to expect at the hospital after the birth

3. Communication techniques

- Communication barriers
- Effective listening
- Use of 'I' language for communication

4. Infant health care and feeding

- Communication with the newborn baby
- Characteristics of a newborn baby
- Traditional practices
- Early infant development
- Well-baby check-ups
- Common health problems in the newborn period
- Infant care (bathing, changing nappies, dressing)
- Equipment and toys for the baby
- Importance of breast-feeding
- Things that increase/decrease breast milk production
- Breast-feeding counselling

5. Fatherhood

- The role of the father
- Changes in life style
- Expectations
- Relationship with own father
- Communication/bonding with the baby starting during pregnancy

6. Family health after a birth

- The postpartum woman's physical and mental state
- The situation of the new baby
- The new father's physical and mental state
- Resuming sexual relations
- Postpartum contraception

Evaluation

The intervention was evaluated using face-to-face interviews with participating fathers ($n=80$) and a control group ($n=80$) three months after the baby's birth, telephone interviews with the same 160 men nine months after the baby's birth and

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four focus group discussions with wives of participating men. All participants in the study participated in an informed consent process and signed an informed consent form.

Three-month interviews. The three-month interviews were conducted with an interviewer-administered questionnaire, which included questions about the topics included in the educational programme. Eighty of the 90 participants were interviewed in this manner by a trained physician. After contacting the fathers to get an appointment, the interviews were conducted face-to-face in private and convenient locations, including workplaces, health facilities or a private corner in a cafe. The interview lasted about 1 hour and on average three calls were necessary to set up an appointment. Control group fathers for the three- and nine-month interviews were recruited from seven work places in Istanbul similar to those involved in the intervention. After obtaining the agreement of workplace managers and physicians, the control group sample was selected using stratified sampling to ensure similar distributions to the intervention group for education and number of living children. The same questionnaire was administered by the same physician using the same techniques in similar locations.

Nine-month interviews. During the first interviews, contact details of the participants were obtained for the second interviews. The same physician followed up the fathers in the education and control groups until their babies had reached nine months of age. After contacting the fathers to get an appointment, the nine-month interviews were conducted over the telephone. Each of these interviews took about 45 minutes and five calls were necessary to get an appointment. All 160 fathers were contacted again.

Focus groups. Four focus groups were conducted with women whose husbands had participated in the programme for expectant fathers. These focus groups were conducted by researchers experienced in qualitative research (a female sociologist as moderator and a female social service provider as note taker) 4–6 months after the men had participated in the programme. The groups were held at the husbands' workplaces or at a health facility and included a total of nineteen participants. The moderator used a focus group discussion guide developed by the research team and the discussions were audio-taped after obtaining the permission of the participants.

Measures

Topics covered in the three-month questionnaire included questions on pregnancy (antenatal care, health status, complications experienced by partner during pregnancy, pregnancy nutrition, the expectant father's contribution, reactions to pregnancy including expectations regarding the baby's sex, changes in marital relationship, communication techniques, supportive behaviours of the expectant father, and sources of social support), birth (preparations made for the birth, birth type, locations and activities of expectant father during labour and delivery, and first contact with newborn baby), and after the birth (infant check-ups, participation of father in infant

care, infant feeding practices, postpartum check-ups, resumption of regular menstruation and sexual relations, plans regarding having another child, postpartum contraception, responsibilities as a father and husband, communication problems and solutions, supportive behaviours of father, and sources of social support).

The nine-month questionnaire was designed to detect any changes in reproductive health behaviours and included questions on the father's participation in infant care, infant feeding practices, infant check-ups, resumption of regular menstruation and sexual relations, plans regarding having another child, postpartum contraception, responsibilities as a father and husband, changes in marital relationship, communication problems and solutions, supportive behaviours, and sources of social support.

The main outcomes examined included utilization of preventive health services for the mother and baby (antenatal and postnatal), exclusive breast-feeding for first 6 months, protection from unwanted pregnancy, and supportive behaviours during pregnancy and birth, and after the birth. Men's supportive behaviours were measured using the 'Supportive Behaviour Questionnaire Scale' developed by Diemer (Diemer, 1997). This questionnaire measures different dimensions of support that may be given by expectant and new fathers including housework support (seven items), baby/pregnancy care support (eight items), female support (nine items) and male self-support (ten items). The questionnaire was translated into Turkish and adapted for the Turkish cultural setting. Male self-support items were intended to measure the extent that men were able to participate in activities for their own needs/enjoyment, such as playing sports with a friend, going out to a coffee house, spending extra time at work, or spending time with their own friends. This questionnaire was pre-tested and well understood by a small sample of new fathers visiting the well-baby clinic at Istanbul Medical School.

Analysis

Questionnaire data were entered into the computer using the EPI-INFO programme (version 6·01d) and analyses of data were conducted using SPSS (version 12·0). To evaluate the differences between the background characteristics and outcomes for the intervention vs the control group, chi-squared tests, Student's t tests and two-way ANOVA were used. Written transcripts were obtained from the audio recordings of the focus group sessions and typed into Microsoft Word files. Qualitative data from the focus groups were coded and analysed by the second author using the Ethnograph qualitative data analysis software (version 5).

Results

Socio-demographic characteristics

There were no significant differences between the intervention and the control groups in terms of key background variables such as age, marriage duration, birth place, occupation type, wife's characteristics and sources of health care, as presented in Table 1. Men in both groups tended to be in their early 30s (mean age 32·1 years),

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Table 1. Background characteristics by study group

	Total (n=160)	Education group (n=80)	Control group (n=80)	Odds ratio	95% CI
Men's characteristics (%)					
<30 years of age	31·9	32·5	31·3	1·06	0·54–2·06
University education[a]	67·5	67·5	67·5	1·00	0·52–1·94
Married<5 years	63·1	66·3	60·0	1·31	0·69–2·49
First child[a]	75·6	81·3	70·0	1·86	0·89–3·88
Born in Istanbul	33·1	32·5	33·8	0·94	0·49–1·83
<15 years in Istanbul	40·0	36·3	43·8	0·73	0·39–1·38
High-level occupation[b]	50·6	50·0	51·3	0·95	0·51–1·77
Relatives living in same apartment building	24·4	21·3	27·5	0·71	0·34–1·47
Wives' characteristics (%)					
<30 years of age	60·0	60·0	60·0	1·00	0·53–1·88
University education	52·5	60·0	45·0	1·83	0·98–3·44
Working outside the home	51·3	53·8	48·8	1·22	0·66–2·27
Sources of health care (%)					
Private health insurance	48·1	43·8	52·5	0·70	0·38–1·31
Received any antenatal care in the private sector	90·6	90·0	91·3	0·86	0·30–2·50
Birth at a private or university hospital	85·0	86·3	83·8	1·22	0·51–2·91

[a]Control group sample was selected using stratified sampling to ensure similar distributions to the intervention group for education and number of living children.
[b]High-level occupations included high-level government employees, director/manager at a private company and professionals (lawyer, doctor, engineer).

had been married for fewer than five years (median 3 years) and had only one child. Most were of middle socioeconomic status (68% of men and 52% of wives had some university education, and 51% of men were in a managerial or professional job).

Three-month interviews with the men

Men in the intervention group were significantly more likely than men in the control group to report many positive health behaviours at three months after the birth, including accompanying their wife on more than 50% of antenatal visits (OR=3·0, 95% CI 1·3–6·8), being supportive of good pregnancy nutrition (OR=9·0, 95% CI 2·0–40·8), making preparations for the birth (OR=24·3, 95% CI 10·6–55·6), baby's first breast-feeding within 1 hour of birth (OR=2·4, 95% CI 1·2–4·6), deciding together with their wife about infant feeding (OR=22·8, 95% CI 6·4–75·9), and baby still exclusively breast-feeding at three months (OR=3·4, 95% CI 1·7–6·8). On the other hand, no significant differences between groups were found for some variables that it was hypothesized would be affected by the intervention, including feeling anxious before the birth, vaginal vs Caesarean birth, postpartum check-up for the

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Table 2. Percentage of men reporting selected health behaviours at three months after a birth by study group

	Total (n=160)	Education group (n=80)	Control group (n=80)	Odds ratio	95% CI
Went to more than 50% of antenatal check-ups with wife	78·8	87·5	70·0	3·00**	1·32–6·79
Supportive of good pregnancy nutrition	89·4	97·5	81·3	9·00**	1·98–40·81
Made a plan/preparations for the birth	49·4	82·5	16·3	24·30**	10·62–55·60
Did not feel anxious about the birth	60·6	67·5	53·8	1·79	0·94–3·40
Vaginal birth	28·8	33·8	23·8	1·64	0·82–3·27
First breast-feeding within 1 hour of the birth	37·5	47·5	27·5	2·38**	1·24–4·61
Decides about infant feeding together with wife	25·0	46·3	3·8	22·08**	6·43–75·89
Exclusive breast-feeding at the time of the interview	63·8	77·5	50·0	3·44**	1·74–6·82
Changes nappies	39·2	58·8	19·2	5·98**	2·92–12·26
Plays with the baby	94·3	95·0	93·6	1·30	0·34–5·04
Postpartum check-up for wife	83·1	86·3	80·0	1·57	0·68–3·63
Decides about contraception together with wife	82·6	86·1	79·2	1·63	0·68–3·92
Currently using a contraceptive method	90·0	90·0	90·0	1·00	0·36–2·81

**p value from chi-squared<0·01.

mother, use of a family planning method at three months, and deciding together with wife about family planning. Detailed results are presented in Table 2.

Men in the intervention group were more likely to report supportive behaviours in the areas of housework, baby care and female support, measured by the Supportive Behaviour Questionaire Scale as presented in the top panel of Table 3. Scores on the male self-support sub-scale were very low and did not differ between the groups.

In the intervention group, 39% of men's wives had also attended an antenatal education programme (separately). Thus, it was also possible to examine outcomes for three different groups: no intervention (control group), only the father participated in antenatal education, and both mother and father participated in antenatal education. These comparisons tended to follow three different patterns, as illustrated in Fig. 2. In the case of making preparations for the birth, both father-only and mother–father groups were significantly more likely than controls to report the behaviour; however the difference between the father-only and mother–father groups was not significant. In the case of exclusive breast-feeding, there is an interesting step-wise effect, with the highest percentage in the mother–father group, followed by the father-only group, followed by the controls, with significant differences among all three groups. In the case of postpartum check-up, there appears to be a ceiling effect, with all three groups reporting equally high levels of the positive behaviour. The intervention group had

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Table 3. Mean scores on supportive behaviour sub-scales by study group, at follow-up, and controlling for wife's participation in antenatal education (*t* test and two-way ANOVA)

	Total (n=160)	Education group (n=80)	Control group (n=80)	t	p value	F adjusted for wife's participation	p value
At three months							
Housework (range 0–40)	9·25	10·90	7·60	4·86	0·000	16·21	0·000
Baby care (range 0–30)	10·68	11·74	9·61	5·51	0·000	27·53	0·000
Female support (range 0–50)	10·01	10·75	9·28	2·64	0·009	2·78	0·097
Male self-support (range 0–50)	3·79	3·82	3·75	0·19	0·847		
At nine months							
Housework (range 0–40)	8·62	9·61	7·62	3·27	0·001	6·36	0·013
Baby care (range 0–30)	10·16	11·45	8·88	6·45	0·000	28·79	0·000
Female support (range 0–50)	10·00	10·69	9·31	2·48	0·014	2·41	0·123
Male self-support (range 0–50)	4·26	3·82	4·70	− 1·84	0·068		

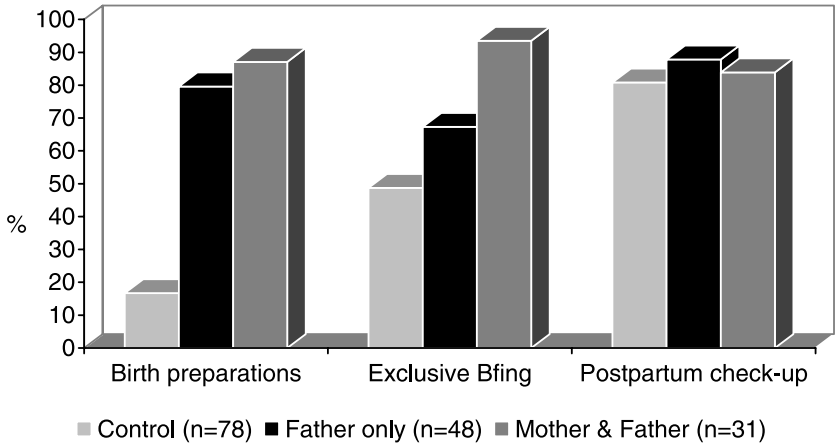

Fig. 2. Health behaviours by study group (N=157).

significantly higher scores on the housework and baby care sub-scales while controlling for the wife's participation in antenatal education in a two-way analysis of variance, while study group became non-significant in the case of the female support sub-scale (top panel of Table 3).

Analyses also revealed that these three study groups differed in terms of the educational level of the wife. For couples in which both husband and wife attended antenatal education programmes, the wife was more likely to have a university education (74%), than couples in which only the husband attended (51%), or neither husband nor wife attended (45%). Thus, stratified analyses were conducted to examine the variables separately for different levels of the wife's education (less than university vs university education). Again different patterns emerged (data not shown). For exclusive breast-feeding and the supportive behaviour scales, a significant positive effect of the intervention was observed for both educational levels. For vaginal birth and the man's anxiety about the birth, a significant positive effect was observed only for those whose wives had university education. On the other hand, for accompanying the wife on antenatal visits, a significant effect of intervention was only observed for those whose wives had less than university education.

Nine-month interviews with the men

Results of the telephone interviews conducted with the same 80 intervention group and 80 control group fathers at nine months after the baby's birth were very similar to the three-month interview results. Significant differences between the groups persisted in the area of infant feeding, with significantly more intervention group fathers reporting that their wives were still breast-feeding, that they postponed introduction of supplemental foods until the baby reached six months, and that they decide together about infant feeding with their wives. Intervention group fathers were also more likely to carry out baby care behaviours, such as changing nappies or dressing the baby. Again there were no differences between the groups in terms of

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Table 4. Percentage of men reporting selected health behaviours/indicators at nine months after a birth by study group

	Total (n=160)	Education group (n=80)	Control group (n=80)	Odds ratio	95% CI for odds ratio
Wife still breast-feeding	61·3	72·5	50·0	2·64**	1·36–5·09
Baby fed supplements before 6 months of age	56·9	37·5	76·3	0·19**	0·09–0·37
Decides about infant feeding together with wife	13·1	25·0	1·3	26·33**	3·44–201·76
Changes nappies	38·1	55·0	21·3	4·53**	2·26–9·06
Dresses the baby	37·5	62·5	12·5	11·67**	5·23–26·03
Baby has had more than six check-ups since the birth	80·0	83·8	76·3	1·61	0·73–3·52
Baby had a health problem	32·5	37·5	27·5	1·58	0·81–3·08
Wants fewer than three children	66·3	67·5	65·0	1·12	0·58–2·15
Decides about contraception together with wife	87·5	90·0	85·0	1·59	0·61–4·12
Currently using a contraceptive method	98·1	98·8	97·5	2·03	0·18–22·80
Currently using a modern contraceptive method	72·0	69·6	74·4	0·79	0·39–1·59

**p value from chi-squared<0·01.

contraceptive behaviour, with both groups reporting high levels of contraceptive use (overall 98% reported current use of any method and 72% reported current use of a modern method), as presented in Table 4. Mean scores for both intervention and control groups on the supportive behaviour scales were slightly lower at nine months, compared with three months. Again significant differences between the groups were found on the housework, baby care and female support sub-scales, but not on the male self-support sub-scale, as presented in the bottom panel of Table 3. Controlling for the wife's participation in antenatal education in a two-way analysis of variance had the same effects as for the three-month interview data.

Focus group discussions with wives of participating men

Qualitative analysis of focus group data revealed that women felt that the main benefits of the programme for expectant fathers were in support for good pregnancy nutrition, exclusive breast-feeding and emotional support/understanding. The women reported that their husbands shared what they learned with their wives and others in the community. The women also reported that, despite some ridicule from other men in the community about attending pregnancy education, their husbands recommended the programme to others and that this had increased demand for the programme.

Several women reported that their husbands had joined them in resisting family pressure and adopting recommended health behaviours. As illustrated in the following

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quote from one of the groups, it appears that the programme gave some young couples the confidence to stand up to family members and do what they thought was right for maternal and child health.

> A lot of people were saying to us 'That baby is hungry.' 'Your breast milk isn't enough.' 'Let's give him some water.' 'Let's prepare some linden tea.' . . . But we were able to resist them by both of us saying 'No. This child is only going to get breast milk for the first 6 months.' For example if my husband didn't participate in such a programme, he could have said 'Yes, that's the way my mother raised us.' But because this was emphasized so much in these programmes, he understood the importance and he was able to say to his mother 'No, mother, he has to have breast milk,' and to me 'No, don't pay attention to them. We are doing the right thing.'

On the negative side, 'support' from husbands sometimes took the form of pressure to adopt healthy behaviours (especially in the areas of pregnancy nutrition and infant care) and for the woman to think only of the baby rather than her own needs/wants, as illustrated in the following quotes.

> My husband paid a lot of attention to this issue. He would say, 'You need to eat this, not for your benefit, but for the baby's benefit.' My husband would prepare me food packets to take to work, as if preparing a packed lunch for a child. Asking, 'Did you get your apple? Did you get your sandwich?' He would put the packet in my hand as I was going to work.

> He learned it here, he's a know-it-all. I want to give the baby meatballs; he doesn't want me to, since he knows it all. Sometimes I wish that he hadn't gone to the course.

Discussion

The results of this study indicate that it is possible to train self-selected workplace physicians in Istanbul to conduct regular educational programmes for expectant fathers on reproductive health. The fact that the workplace physicians trained as a part of this study have continued to conduct programmes for new groups of expectant fathers after the study ended is also encouraging.

There were some difficulties involved in implementing reproductive health education programmes in workplaces that were based on the profit motive. Employers were sometimes reluctant to invest any extra resources in health education and to take employees away from production to attend educational sessions. However, it was also possible to reach compromises, such as having educational sessions after work hours or half during work hours and half in the workers' own time. Based on this experience, the intervention indicates that reaching men and women where they work has the potential to be an important strategy. The difficulty of getting men, in particular, to come to hospital or clinic-based educational programmes in large urban areas such as Istanbul (Turan *et al.*, 2002), makes bringing programmes to them at their places of work seem particularly attractive. The fact that large workplaces in Turkey already have full-time physicians charged with the duty of health education for employees also makes this strategy a feasible one.

The main positive effects of this programme for expectant fathers appeared to be in the areas of pregnancy nutrition, exclusive breast-feeding and supportive behaviours. In addition to being topics that were especially emphasized in the programme, these are also areas in which men can take an active role. Men were able to get involved in supporting a healthy diet for their wives during the pregnancy (by buying

fresh fruits and vegetables, for example); in resisting family, community and health system pressures for early supplementation of breast-feeding; and in provision of emotional and physical support to their wives after the birth.

Due to the relative dearth of intervention studies on involving men in women's reproductive health in general and in safe motherhood in particular (Sternberg & Hubley, 2004), it is difficult to know if similar results could be expected in other settings. Those few studies that do exist, suggest that the impact of interventions to involve men in maternity may differ greatly depending on the design and content of the programme, as well as the context. In South Africa for example, an intervention to involve men in maternity care found that at follow-up the intervention group differed from the control group only in couple communication about reproductive health topics, partner assistance during pregnancy emergencies, and knowledge of the condom as a dual method of protection, but not, for example, in breast-feeding practices (Kunene *et al*., 2004). In a project aiming to involve husbands in antenatal care in India, men who were contacted by outreach workers had higher awareness and knowledge of antenatal care and women's nutritional needs during pregnancy, as compared with a control group (Raju & Leonard, 2004).

It appears that the lack of impact of the Istanbul programme on some of the outcomes targeted in this programme may be due to the fact that couples of middle and lower-middle socioeconomic status (SES) already practise many positive health behaviours during pregnancy and after the birth. There was not much room for improvement in this population for some of the study outcomes, such as use of any contraceptive method at three months after the birth, which was 90% in both study groups. In addition access to public and private sector reproductive health services is relatively common and easy in Istanbul, compared with other parts of the country. All of the participants in this study were employees of large companies and had some form of health insurance, which may give them relatively good access to health services. For other outcomes, such as vaginal versus Caesarean birth, the lack of an effect of the intervention may be due to the fact that couples have relatively little control over the situation; in this case the final decision is usually made by a doctor.

Even though the intervention with expectant fathers served as a type of support group for men, scores on the male self-support scale were very low overall and the difference between the intervention and control groups was not statistically significant. This finding seems to be related to the inappropriateness of some of the scale items for the Turkish cultural context. Items like 'I ate dinner at a restaurant without my wife' seem more like unusual and negative behaviours, unsupportive of the wife, than 'self-support' behaviours in this context. In a study of father-focused versus traditional perinatal classes in the US, which used the same supportive behaviour questionnaire used in this study, scores on this male self-support sub-scale were much higher overall, although the difference between study groups was not significant (Diemer, 1997).

However, even for this relatively well-educated population with good access to reproductive health services, the programme appears to have important benefits for reproductive health surrounding a birth. In particular, the ability of husband and wife to stand up together against pressure from elders and others in the community for what they have learned is right is an important benefit. Those couples that were most

likely to continue with exclusive breast-feeding during the first six months were those in which both husband and wife had participated in an antenatal education programme. The fact that differences between the intervention and control groups in infant feeding and supportive behaviours were significant at both three and nine months after the birth indicates that the effects of the programme may be long-lasting.

On the other hand, the focus groups with women revealed that some men used their new knowledge to dominate decision-making about pregnancy nutrition and infant care. It seems obvious that women cannot be left out of antenatal education. Ideally they should participate either in a parallel group at the same time as the husband or together with the husband in a couples group, depending on the cultural setting. If workplaces have both male and female workers, such reproductive health education programmes should be offered to both groups. Programmes for men should also emphasize the importance of sharing information and joint decision-making.

Limitations of this study include the small sample size and the fact that the sample was limited to relatively educated lower-middle and middle SES participants in Istanbul. Participation in the workplace programmes was voluntary and those who elected to participate tended to be of middle SES. Thus, nothing can be said about the effectiveness of this strategy in lower SES groups, which arguably may have a greater need for such reproductive health interventions. Other settings that should be explored for reaching low SES Turkish men include coffee houses and during compulsory military service (as in a recent project sponsored by UNFPA: UNFPA, 2007). There is also the risk of selection bias, since men who elect to attend an antenatal education at their workplace may be those who are already more likely to practise good reproductive health and support behaviours. Another limitation is that the study outcomes were measured by questionnaires based on self-reported behaviour. Intervention group participants may have given the expected responses according to what they learned in the programme for expected fathers. However, some might argue that the fact that these men even knew the expected behaviours for good reproductive health is a step forward.

It is hoped that the success of this small pilot education programme for expectant fathers, the parallel programme for expectant mothers (Turan & Say, 2003), and similar programmes may influence health policymakers in parliament and decision-makers in the Turkish Ministry of Health to expand free or low-cost antenatal education programmes for expectant parents throughout the country. During the implementation of the programme in workplaces the investigators also observed that the programme had a motivational effect on health care providers, as well as resulting in increased demand for reproductive health services. These programmes could be adapted and implemented in other settings, potentially with positive results for reproductive, maternal and child health. It is essential to work with men as a part of families for the promotion of safe motherhood and reproductive health and reaching men requires designing truly male-friendly programmes that directly address men's concerns and needs.

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