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Antenatal care strengthening for improved health behaviours in Jimma, Ethiopia, 2009–2011: An effectiveness study

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ABSTRACT

Introduction: health systems in low-income settings are not sufficiently reaching the poor, and global disparities in reproductive health persist. The frequency and quality of health education during antenatal care is often low. Further studies are needed on how to improve the performance of health systems in low income settings to improve maternal and child health.
Objectives: to assess the effectiveness of a participatory antenatal care intervention on health behaviours and to illuminate how the different socioeconomic groups responded to the intervention in Jimma, Ethiopia.
Setting, intervention and measurements: an intervention was designed participatorily and comprised trainings, supervisions, equipment, health education material, and adaption of guidelines. It was implemented at public facilities. Household surveys, before (2008) and after (2010) intervention, were conducted amongst all women who had given birth within the previous 12 months. The effect of the intervention was assessed by comparing the change in health behaviours (number of antenatal visits, health facility delivery, breast feeding, preventive infant health check, and infant immunisation) from before to after the intervention period at intervention sites, relative to control sites, using logistic mixed effect regression.
Results: on the basis of 1357 women included before and 2262 after the intervention, there were positive effects of the intervention on breast feeding practices (OR 3.0, 95% CI: 1.4; 3.6) and preventive infant health check (OR 2.4, 95% CI: 1.5; 3.5). There was no effect on infant immunisation coverage and negative effect on number of antenatal visits. The effect on various outcomes was modified by maternal education, and results indicate increased health facility delivery (OR 2.4, 95% CI: 0.8; 6.9) and breast feeding practices (OR 18.2, 95% CI: 5.2;63.6) among women with no education.
Key conclusions and implications for practice: the facility based intervention improved some, but not all health behaviours. The improvements indicated amongst the most disadvantaged antenatal care attendants in breast feeding and health facility delivery are encouraging and underline the need to scale up priority of antenatal care in the effort to reduce maternal and child health inequity.

Introduction

Globally there has been a marked decline in maternal and child mortality over the last decades, however large disparities persist. The maternal mortality ratio is 14 times greater in low-income

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countries than in high-income countries, and Sub-Sahara Africa accounts for 62% of the global maternal deaths (WHO, 2014). The need for continued action is acknowledged by the Sustainable Development Goals (United Nations, 2015). Antenatal care (ANC) is a globally implemented and widely used health system approach aiming to improve maternal and infant health (Carroli et al., 2001; WHO, 2003a; United Nations, 2010). Health education and counselling are essential components of the World Health Organization (WHO) guidelines for ANC, however, in practice the quality of the health education is questionable and the time allocated often short (Nikiema et al., 2009; Jennings et al., 2010; Magoma et al., 2011). Studies from Ethiopia indicate that only 30–50% of ANC attendants receive health education (Central Statistical Agency and ORC Macro, 2006; Hailu et al., 2011). The lack of health education is unfortunate, because good quality counselling during ANC possibly improves the women's response to complications and increase health care utilisation during pregnancy, childbirth and postnatally (Bloom et al., 1999; Magoma et al., 2010; Aniebue and Aniebue, 2011; Wang and Hong, 2015). Thus, it seems that the potential of the ANC programme remains to be fully unfolded in low income settings. Intervention research has shown that it is possible to scale up the health education provided during ANC service by training of health professionals and development of job aids (MacGillivray et al., 2004; Jennings et al., 2010; Magoma et al., 2011). Hence, it is possible to translate intervention activities into improved health worker practices, but little is known about to what extent improvements in quality of ANC will be translated into changes in health behaviours among women.

Social inequality in maternal health and health care utilisation and quality is documented globally (Gwatkin, 2000; Collin et al., 2007; Gilson et al., 2007; Victora et al., 2010; Ataguba et al., 2011; Nybo Andersen et al., 2015), including Ethiopia (Gurmesa, 2009; Villadsen et al., 2014). In a framework for understanding the mechanisms of social inequality in health, the contextual and social disadvantages lead to differential exposure to risk factors, differential vulnerability to the exposures and differential consequences of diseases (Diderichsen et al., 2001). Efforts to reduce social inequality in health therefore need to address not only the direct exposures to ill-health like nutrition or use of health care facilities, but also the social context at individual, community and policy level. Policies and programmes to reduce inequality in health in low income settings have resulted in improvements, however mostly among the non-poor, and Wagstaff argues that public financed health care fails to reach the poor and push for more research using before-and-after comparisons with control groups (Wagstaff, 2002). The need to improve the performance of health systems in low income settings are recognised by WHO and a framework for action for health system strengthening has been put forward, where the context dependency of health systems is acknowledged, however shared characteristics of health systems are decided (WHO, 2007).

On this background, a participatory ANC strengthening intervention (the Maternity study) was designed and implemented in public health facilities in Jimma and surrounding areas, Ethiopia. In a previous study we have shown that the intervention succeeded in improving the content of care, satisfaction with care, and identification of health problems (Villadsen et al., 2015). The aim of present study was to analyse if these changes at facility level translated into improved health behaviours (breast feeding practices) and health care seeking (number of ANC visits, health facility delivery, preventive infant health check, infant immunisation) of the women and to illuminate how the different socio-economic groups responded to the intervention.

Methods

Needs assessment and design of intervention

The local needs for improvement of ANC were assessed by a participatory mixed method approach involving a wide range of stakeholders. A detailed analysis of the setting and needs assessment was performed in 2008-9 and the result has previously been reported (Villadsen et al., 2014). In brief, the study was conducted in South-western Ethiopia at two health centres, one hospital in Jimma town, and one health centre in Serbo town (17 km from Jimma). There were no official Ethiopian ANC guidelines in 2008-9 and the health centres intended to follow the focused ANC model, while at the hospital a model with more visits was standard care. In-service training of health professional students was given high priority and the women felt that it compromised the continuity and privacy of care. Consequently, poor user-provider interaction and lack of trust in the health care providers was a serious concern. Health education was provided for around 50% of the ANC attendants, but was unstructured and affected by the poor interaction. Further, inadequate laboratory facilities, lack of training of health professionals as well as an overall low priority and leadership hampered the quality of care.

This assessment of local needs was combined with the WHO guidelines for ANC (WHO, 2002) which were adjusted to the local setting in order to ensure international standards for quality of care. The details of the design, programme theory, and implementation of the Maternity study have been described elsewhere (Villadsen et al., 2015). Health facilities in Jimma and Serbo town were chosen as intervention sites, whereas Agaro Health Centre (45 km from Jimma) and *other facilities* (private clinics and clinics outside the study area) comprised the control sites. The intervention activities were implemented from July 2009 to April 2010 and thereafter monthly supervisions were conducted until December 2010. Intervention activities were: supplying medical consumables, equipment and laboratory reagents/facilities, seminars and on-job training for health professionals, adaption and implementation of WHO guidelines for Focused ANC, development and implementation of privacy guidelines and health education materials, workshops with Traditional Birth Attendants (TBAs), and supervisions of ANC providers.

The health education materials were initially a folder, which was developed based on seminars with the health professionals. It was in two local languages addressing the specific needs and practices of the surrounding communities and illustrated by a local artist. The health professionals were to use the folder as an aid in structuring the topics. The folder should be distributed to the women at first ANC visit and the intention was to facilitate communication between women and their network at home regarding health behaviours and health care seeking. The material included: Content of antenatal care, healthy behaviours during pregnancy, danger signs of pregnancy, birth preparedness, and healthy behaviours after childbirth. After implementation, the health professionals expressed a need for a tool targeting illiterate women and a pictogram on danger signs of pregnancy (bleeding, stomach ache, head ache, swollen feet, hands and head, blurred vision, vomiting late in pregnancy and, fewer) was developed. The pictogram was inspired by a Jamaican project (MacGillivray et al., 2004). When to distribute the folder or the pictogram or both was decided by the health professionals according to their assessment of the woman's needs. Low printing costs were aspired and the design of both the folder and the pictogram used only black ink on A4 paper, see Fig. 1. The implementation of the health education materials and the effects on provision of health care during ANC is described previously (Villadsen et al., 2015). Overall, the intervention significantly increased the provision of health education,