Social Science & Medicine 75 (2012) 733–737

Contents lists available at SciVerse ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Short report

High caesarean section rate in rural China: Is it related to health insurance (New Co-operative Medical Scheme)?

Qian Long [a,b,*], Reija Klemetti [c], Yang Wang [b], Fangbiao Tao [d], Hong Yan [e], Elina Hemminki [c]

[a] Department of Public Health, University of Helsinki, Helsinki, Finland
[b] School of Public Health, Chongqing Medical University, Chongqing, China
[c] National Institute for Health and Welfare, Helsinki, Finland
[d] School of Public Health, Anhui Medical University, Anhui, China
[e] School of Medicine, Xi'an Jiaotong University, Shaanxi, China

ARTICLE INFO

Article history:
Available online 7 May 2012

Keywords:
China
Caesarean section
Rural health insurance
Women

ABSTRACT

The epidemic of Caesarean section (CS) is worldwide, and it has been argued that it is mainly due to non-medical factors, including healthcare financing patterns. We investigated the use of CS in rural China and the related factors, particularly health insurance in the form of the New Co-operative Medical Scheme introduced in 2003.

A cross-sectional survey of women who gave birth in 2008–2009 was conducted in five rural counties in central and western China. Of the 5049 new mothers, 73% were interviewed. The association between health insurance coverage and self-reported CS (divided into emergency and non-emergency CS) were examined by cross-tabulation and logistic regression, adjusting for maternal age, education, occupation, household income, previous abortions, parity and type of birth health facility. We found that 46% of all births (3550) were CSs, with 13% having an emergency and 33% a non-emergency CS. Women reported that half of the non-emergency CSs were recommended by a doctor and half were requested by themselves. In those counties with mid-range CS rates (28%–63%), health insurance coverage was associated with having CS, and particularly with having non-emergency CS. In those counties with the highest (82%) and lowest (13%) rate, there was no statistically significant association. The findings suggest that health insurance coverage may have facilitated the overuse of CS. Further studies are needed to develop appropriate interventions to reduce non-medically indicated CS, focussing on payment mechanisms, healthcare provider practice patterns, and maternal requests.

Introduction

China, like other transitional countries, is encountering socioeconomic-related inequality in the use of maternity care. Since the 1990s, the Chinese government has gradually increased investments in infrastructure and capacity building in health facilities so as to improve maternal and child health in less developed regions (Guo, Zakus, & Liang, 2008). By 2008, a vast majority of rural women were giving birth in health facilities (Feng, Xu, Guo, & Ronsmans, 2011). Caesarean sections (CS) in rural China increased from 6% to 26% between 1998 and 2007, with the variation by social class being notable (Long et al., 2011).

In the 1950s, healthcare for China's rural population was financed by the Co-operative Medical Scheme, a collective-economy prepaid health security programme. The scheme collapsed when commune welfare funding disappeared following the rural market-oriented economic reform during the 1980s (Feng, 2010). At the same time, the central government shrunk investment in healthcare and permitted the price for high-technology medical services and new drugs to rise above cost in order to make up the revenue shortfall and to maintain a low cost for basic services (Yip & Hsiao, 2008). The distorted price regulation contributed to overuse of high-technology procedures resulting in an explosion of healthcare prices and expenditures (Eggleston, Li, Meng, Lindelow, & Wagstaff, 2008). Healthcare became less affordable for rural populations.

In 2003, the Chinese government instituted a new rural health insurance scheme, the New Co-operative Medical Scheme (NCMS). It provides the rural population with financial protection in accessing healthcare, especially for catastrophic diseases. It is

* Corresponding author. Department of Public Health, University of Helsinki, Helsinki, Finland.
E-mail addresses: qian.long@thl.fi (Q. Long), reija.klemetti@thl.fi (R. Klemetti), wangyang8289@163.com (Y. Wang), fbtao@126.com (F. Tao), yanhonge@mail.xjtu.edu.cn (H. Yan), elina.hemminki@thl.fi (E. Hemminki).

0277-9536/$ – see front matter © 2012 Elsevier Ltd. All rights reserved.
doi:10.1016/j.socscimed.2012.03.054

characterised by joint financing (central and local government, individual contribution) and voluntary participation (Wang, 2007). The scheme operates at county level (typical population: 0.5–1 million) and follows the general guidelines issued by the Chinese Ministry of Health. County governments can decide the coverage and model of reimbursement to suit local conditions.

The NCMS includes a maternity package. The design and implementation varies across counties, but the package usually provides reimbursement for facility-based delivery, either as a fixed proportion of expenditures or as a fixed payment. Reimbursement may be the same or different for vaginal delivery and CS.

The epidemic of CS is worldwide (Declercg, Young, Cabral, & Ecker, 2011; Lumbiganon et al., 2010; Ronsmans, Holtz, & Stanton, 2006), and it has been argued that it is mainly due to non-medical factors, including healthcare financing patterns (Barber, 2009; Mossialos, Allin, Karras, & Davaki, 2005; Murray, 2000). The high rate of non-medically indicated CS is a concern due to the increased risk of adverse maternal and neonatal outcomes and increased costs both to families and healthcare systems (Long et al., 2011; Lumbiganon et al., 2010). Unnecessary CSs are particularly detrimental to rural healthcare, with its limited health resources.

This study aims to investigate the use of CS in rural China and its related factors, with particular focus on health insurance (NCMS), so as to draw lessons from the early implementation of the scheme. It also contributes to the debate on financing mechanisms for maternity care in other developing countries.

Methods

Study sites

This study was carried out in the context of the project "Structural hinders to and promoters of good maternal care in rural China-CHIMACA (015396)", funded by the European Commission. Approval for the study was obtained from the International Centre for Reproductive Health, Ghent University. Local approval was obtained from the ethics committee of Anhui Medical University, Chongqing Medical University and Xi'an Jiaotong University.

One province in Central (Anhui) and two in Western China (Chongqing and Shaanxi) were included in the study, all three representing relatively less developed areas of China. Two counties in Anhui (FC and XC Counties) and Shaanxi (LT and ZA Counties) and one county in Chongqing (RC County) were selected. One selection criterion for counties was a low to average socioeconomic level. Other than the CHIMACA project, activities to improve maternity care occurred only in one county (ZA) in Shaanxi province (Zhang et al., 2010).

In all five counties, families pay a flat annual premium to enrol in the NCMS at their registered hometown. The implementation of the family planning policy varies by county: in FC, XC, LT and ZA Counties the first birth, or the second birth if the first child was daughter, is defined as authorised; in RC, only the first birth is considered to be an authorised birth. Women having an authorised birth can claim reimbursement on the basis of the maternity package [Table A1]. Care for delivery complications is covered by other sections of the NCMS, both for authorised and unauthorised births.

In 2008, the maternity package provided a fixed payment for facility-based delivery in all five counties. In the XC and RC Counties, the amount reimbursed for vaginal delivery and CS was the same, while in the other three counties, the amount reimbursed for CS was higher than vaginal delivery and higher also compared to the XC and RC Counties. The available reimbursement as a percentage of mean medical cost for CS was relatively high in the LT and ZA Counties (50%), followed by the FC and RC Counties (24%), and lowest in XC County (14%).

Materials and data analysis

A cross-sectional survey was conducted in the five counties between December 2008 and March 2009. The survey included a sample of villages in all townships in each county. The villages of each township were stratified by population size and distance to the township hospital; one third of the villages were then randomly selected from each of the stratifications, giving a total of 485 villages. In the FC and XC Counties, women who gave birth between March and December 2008 were identified from the family planning register. In the RC and LT Counties, women who gave birth between April and December 2008 and in the ZA County between August 2008 and March 2009 were identified from the birth registers of hospitals. These two registers contained both facility-based delivery and delivery outside facilities. The total number of women identified (excluding women moving out of the area) was 5049.

An invitation letter was given to women prior to the survey. The women were interviewed at home or in a public place by trained researchers and medical students using a structured questionnaire. The questionnaire included women's demographic and socioeconomic background, history of pregnancy, utilisation of and expenditures on maternity care for the latest pregnancy.

In the five counties, 73% of women (3673 of 5049) completed the interview. In addition, in the cases of 285 (of 5049, 6%) women, the husband or mother was interviewed if the woman was not able to answer questions; these responses are not included in this study. The most common reasons for non-response were: women were not at home at the time of survey (10%, $n = 518$); no or incomplete contact information (7%, $n = 376$); or woman refused to be interviewed (2%, $n = 83$).

The outcome measure was having CS. In the survey, the mode of delivery was asked with the following question: "How did the birth take place: a) normal vaginal birth; b) birth assisted by instrument; c) assisted breech birth; d) CS". If the answer was "CS", the reasons for having CS were asked, with several response alternatives provided, each of which could be answered "yes or no": a) "emergency" (child's or my own condition was in danger); b) "my doctor/midwife recommended it for other than an emergency reason"; c) "I wanted to have it"; d) "my family members advised to have it"; e) other reasons; g) I don't know. If a woman chose "c (yes)", the reasons were asked through the response alternatives. The questionnaire is available here: [Appendix A]. In the analysis, CS was categorised as emergency CS if a woman answered "yes" to option "a", otherwise it was classified as non-emergency CS. The reasons of non-emergency CS were also studied according to answers from the other options. CS was considered as a woman request if the woman chose only the option "c (yes)".

The main explanatory variable was the payer. In the four counties (FC, XC, RC and LT), the payer was classified into two categories: (1) NCMS coverage, defined as having received reimbursement from the scheme; (2) out-of-pocket payment, defined as full payment for the delivery, which applied to both uninsured women and insured women who did not receive reimbursement. In ZA County, there were several sources for funding a facility-based delivery (NCMS, provincial and national maternal projects) during the study period. In this county, we grouped women who did not receive any subsidy into the out-of-pocket category and others into a subsidised category.

Cross-tabulation was used to compare women's socioeconomic and maternity characteristics, CS deliveries and the reasons for having a non-emergency CS by payer and county. The differences by payer were tested by the χ^2 test. Logistic regressions were used to examine associations between NCMS coverage and having CS, and having emergency and non-emergency CS respectively.