UMEÅ UNIVERSITET

Umeå University Medical Dissertations, New Series No 1973

Pregnancy and delivery-related complications in Rwanda: prevalence, associated risk factors, health economic impact, and maternal experiences

Jean Paul Semasaka Sengoma

Akademisk avhandling

som med vederbörligt tillstånd av Rektor vid Umeå universitet för avläggande av medicine doktorsexamen framläggs till offentligt försvar i Bergasalen, målpunkt Q, plan 0, Norrlands universitetssjukhus, fredagen den 2 november, kl 09:00.

Avhandlingen kommer att försvaras på engelska

Fakultetsopponent: Professor Jon Øyvind Odland, Global Health, Norwegian University of Science and Technology, Trondheim

Department of Clinical Sciences
Obstetrics and Gynecology

Organisation
Umeå University
Department of Clinical Sciences
Obstetrics and Gynecology

Document type
Doctoral thesis

Date of publication
11 October, 2018

Author
Jean Paul Semasaka Sengoma

Title
Pregnancy and delivery-related complications in Rwanda: prevalence, associated risk factors, health economic impact, and maternal experiences

Abstract
Background Every year more than 1.5 million women suffer from pregnancy and delivery-related complications (PDCs) during pregnancy and childbirth worldwide, and these women are a vulnerable population for lifelong consequences, somatically, psychologically and financially. Following the establishment of Millennium Development Goal no 5, which targeted a reduction of 75% of the maternal mortality ratio from 1990 to 2015, many efforts were made to reduce maternal mortality worldwide. In low-income countries saving a pregnant woman's life requires a focused medical intervention so that near-miss cases of death are considered as obstetric success and thus postpartum follow-up may be neglected. In Rwanda, maternal mortality is estimated to 210 per 100,000 live births and main obstetric complications are hypertensive disorders during pregnancy, obstructive/prolonged labour, post-partum haemorrhage (PPH) and sepsis/infections. However, the specific prevalence of PDCs as well as their consequences to the woman and her family is currently relatively unknown.

Aims The overall aim of this thesis was to determine the prevalence of PDCs and their associated risk factors and to investigate delivered women's experiences of PDCs, the consequences of these complications on postpartum health and family situation, and to estimate the societal economic costs of pregnancy, delivery and postpartum-related problems.

Subjects and methods A population-based cross-sectional study including 921 women who gave birth within the past 13 months prior to time of data collection (Paper I) and a health facility-based study including 817 women that were at discharge time (Paper II) were conducted in the Northern Province of Rwanda and Kigali City. Fifteen women who experienced PDCs were interviewed through individual in-depth qualitative interviews (Paper III). A micro costing approach to collect health facility data and household costs including opportunity cost, transport and food cost was conducted to estimate the societal economic cost of PDCs (Paper I-V). Descriptive statistics, Chi-Square, bi- and multivariable logistic regression, Cox regression, and health economic analysis were applied for quantitative data analyses (Papers I, II and IV). Qualitative manifest and latent content analysis was used for qualitative data analyses (Paper III).

Results Prevalence of anaemia, hypertension, diabetes mellitus during pregnancy, and severe bleeding during pregnancy and labour were estimated to 15.0%, 4.9%, 2.4%, and 3.7%, respectively (Paper I). In total, 56.4% of the participants were transferred and the majority were transferred from health centres to district hospitals, with caesarean section (CS) as the main reason for transfer. Almost three-quarters of the women started labour spontaneously; 5% had induced labour and 28.4% of all pregnant women were delivered by CS (Paper II). Pre-eclampsia/eclampsia, PPH, and caesarean section (CS) due to prolonged labour/dystocia represented 1%, 2.7% and 5.4% of all participants, respectively (Paper II). Risk factors for CS due to prolonged labour or dystocia were poverty, nulliparity, and residence far from health facility (Paper II). The prevalence of poor-self rated health (poor-SRH) for participants who gave birth within the past 14 months prior to time of data collection was 32.2% at one day postpartum, 7.8% at one month, and 11.7% at time of the interview (Paper I). Most participants who had experienced PDCs reported that they were previously unaware of the complications they had developed, and they claimed that at discharge they should have been better informed about the potential consequences of these complications (Paper III). Most participants blamed the health care system as the cause of their problems due to the provision of inadequate care. Participants elaborated different strategies for coping with persistent health problems (Paper III). PDCs negatively affected participants' economic situation due to increased health care expenses and lowered income because of impaired working capacity (Paper III). The estimated total societal cost of a normal uncomplicated vaginal delivery was 107 United States dollars (USD). The incremental cost of a vaginal delivery followed by PPH was 55 USD. The incremental cost of prolonged, dystocic or obstructed labour resulting in a CS was 146 USD. The incremental cost of pre-eclampsia with vaginal delivery and pre-eclampsia with CS were 289 and 339 USD, respectively. The major cost categories of the estimated costs for each mode of delivery were staff, the hospitalisation rooms, and household expenditures (Paper IV).

Conclusions A high prevalence of poor self-rated health status was reported in the early postpartum period. Identified factors associated with poor-SRH were severe bleeding, hypertension, infection, and anaemia during pregnancy and postpartum haemorrhage. The estimated prevalences of specific pregnancy and delivery-related complications were relatively low, probably in part due to underestimation. Rwandan women experiencing PDCs are facing many challenges and problems during pregnancy, delivery and postpartum period. The costs of PDCs were calculated to be very high in comparison to the net median monthly wage in Rwanda. In addition, the Rwandan health system presents weaknesses in relation to the prevention of PDCs. Above all, there is an insufficient postpartum health care provision and community support to women experiencing PDCs. The results from this thesis call for interventions, to improve the postpartum health care services and call for the community sensitisation for the increased support to women who face difficult living circumstances because they have experienced severe pregnancy and delivery-related complications.

Keywords
Pregnancy and delivery-related complications, cross-sectional study, qualitative method, costing study, health economics, epidemiology, self-rated health status, pregnancy, childbirth, postpartum, Rwanda, prevalence, experiences

Language
English

ISBN
978-91-7601-923-8

ISSN
0346-6612

Number of pages
67 + 4 papers