

Pathways to Improving Maternal Mortality in Rural Nepal

by

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Statement of Originality

I hereby certify that the work embodied in the thesis is my own work, conducted under normal supervision. The thesis contains no material which has been accepted, or is being examined, for the award of any other degree or diploma in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made. I give consent to the final version of my thesis being made available worldwide when deposited in the University's Digital Repository, subject to the provisions of the Copyright Act 1968.

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November 2018

Declaration of Collaboration

I hereby certify that the work embodied in this thesis has been done in collaboration with other researchers. I have included as part of the thesis a statement clearly outlining the extent of collaboration, with whom and under what auspices.

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Thesis by Publication

Declaration of Contribution

I hereby certify that this thesis is in the form of a series of papers. I have included as part of the thesis a written declaration from each co-author, endorsed in writing by the Faculty Assistant Dean (Research Training), attesting to my contribution to any jointly authored papers.

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By signing below, I confirm that Binod Bindu Sharma contributed to the publication titled “Systematic Review of Community Participation Interventions to Improve Maternal Health Outcomes in Rural South Asia” in the following manner: by writing and registering the review protocol; finalising the search strategies; conducting the database searches for related articles; screening the search results; assessing the eligibility of studies for inclusion and extracting relevant data; and contacting their authors for additional information, where appropriate.

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By signing below, I confirm that Binod Bindu Sharma contributed to the following publications;

1. “Systematic Review of Community Participation Interventions to Improve Maternal Health Outcomes in Rural South Asia” in the following manner: by writing and registering the review protocol; finalising the search strategies; conducting the database searches for related articles; screening the search results; assessing the eligibility of studies for inclusion and extracting relevant data; and contacting their authors for additional information, where appropriate.

2. “Pathways to Improving Maternal Mortality in Rural Nepal”, his contribution included: designing and developing the concept of the research video documentary, developing the storyboard; seeking ethics approval; collecting video footage and other relevant information; editing and finalising the video and submitting it for publication.

3. “Pathways to Improving Maternal Mortality in Remote, Rural Nepal, PhD Project of Binod Bindu Sharma” by developing the design of the intervention research eBook. Sought ethics approval to collect photographs and all relevant information necessary to develop and finalise the eBook to the publication

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5. “Use of Songs Leads to Long-term Improvement in Knowledge of Antenatal Care in a Predominantly Illiterate Community” by designing the project, writing and registering the protocol, seeking ethics approval, organising all aspects of the intervention (including all surveys), and analysing the resulting data.

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Publication List

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Manuscripts Prepared for Publication

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List of Abbreviations

AARM	AIDS Risk Reduction Model
AIDS	Acquired Immune Deficiency Syndrome
AM	Member of the Order of Australia
ANC	Antenatal Care
ANOVA	Analysis of Variance
AUD	Australian Dollar
B. A.	Bachelor of Arts
BMC	BioMed Central
CA	California
CDO	Chief District Officer
CI	Confidence Interval
DHE	Diploma in Health Education
FCHV	Female Community Health Volunteer
HBM	Health Belief Model
HMRI	Hunter Medical Research Institute
HREC	Human Research Ethics Committee
IBM	International Business Machines
MLE	Maximum Likelihood Estimator
NHSS	Nepal Health Sector Strategy
NSW	New South Wales
OAM	Medal of the Order of Australia
PA	Public-Address
PhD	Doctor of Philosophy
RCT	Randomized Control Trial

SBA	Skilled Birth Attendant
SDGs	Sustainable Development Goals
SPSS	Statistical Package for the Social Sciences
SUB	State University of Bangladesh
TU	Tribhuvan University
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Population Fund
USA	United States of America
VDC	Village Development Committee
WHO	World Health Organisation

Abstract

Worldwide maternal mortality, particularly in low-resource economies like Nepal, is unacceptably high. Lack of knowledge, lack of accessible care and unsupportive sociocultural practices are the main causes of poor maternal health outcomes.

We first conducted a systematic literature review which revealed the importance of community support and cultural sensitivity in designing effective public health education programs. The results have been published in a peer reviewed journal, link: <https://doi.org/10.1186/s12884-018-1964-1>. As community singing and dancing play a central role in Nepalese rural life, we then designed a program to improve community knowledge of key maternal health issues through the use of songs and a wall chart illustrating key points. The population chosen for study was located in one of the remote hill districts of Nepal. One cluster of villages (the intervention cluster) received the program while another similar cluster (the control) did not. The clusters were assessed by pre- and post-intervention surveys to record the results. The key health messages were defined with expert assistance, but the program involved every section of the community, under the leadership of local people, to fine-tune it to suit the local culture and context. Together, we organised a song competition incorporating safer pregnancy and childbirth messages in songs. The winning songs were then taken to the wider community through singing and dancing. To complement these messages, and to encourage the villagers to value them, a pictorial “Holy Duty” wall chart, incorporating pictures of local gods, was also developed. Our program was designed to educate family members with limited literacy, especially mothers-in-law who are key figures in the rural Nepalese family. Male involvement was also essential for decisions related to finance and care.

We found there was a significant improvement in the knowledge of the intervention population. Knowledge regarding the importance of antenatal care improved by 130.66%; knowledge of supplementary diet and rest during pregnancy improved by 84.37%; knowledge of childbirth planning improved by 95.73%; and knowledge regarding delivery care, the area with the least improvement, by 72.54%. The follow-up data demonstrated that across all ages and genders in the intervention cluster the effect of the intervention was maintained even 12 months after the intervention. There was a negligible change in the control population. The results have been published in a peer reviewed journal, link: <https://doi.org/10.1016/j.ajog.2018.09.038>. A video documentary has also been created on the work, link: <https://youtu.be/g8z0Vujkrh4>. An unexpected finding was a remarkable reversal in the community culture where, while it was once taboo for men to discuss pregnancy and childbirth before the intervention, it became uncommon for anyone not to talk about the key issues of pregnancy and childbirth afterwards.

Our research demonstrates that if community education programs are designed, developed and executed properly by addressing community needs and respecting local culture and talents, then long-term positive changes in the knowledge, attitude and practices both at the community and government levels can be realised. The Government of Nepal has already taken important policy decisions to improve maternal health as a result of this project and an in-depth policy review has been presented to it.