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A Community Based Child Drowning Prevention Programme in Bangladesh: a model for low income countries

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ABSTRACT

Background: Drowning is a global public health problem of children. Children of low- and middle-income countries are the most susceptible victims. Prevention measures implemented in high-income countries have effectively reduced drowning. However, in low- and middle-income countries, due to a severe lack of information, drowning has not been recognized as a child survival issue. Moreover, prevention efforts remain non-existent as there is no proven effective measure applicable for these countries, including Bangladesh.

Objectives: The objectives of the research activities were to determine the current child drowning situation and risk-factors in rural areas of Bangladesh (Paper I); to understand the community perception of drowning problems and the possible solutions for designing a preventive programme in the rural area of Bangladesh (Paper II); to develop, pilot and assess initial community response to an intervention package in terms of acceptability, feasibility and sustainability (Paper III) and to evaluate the package for its effectiveness (Paper IV).

Methods: A cross sectional survey and a case-control study were conducted to determine the magnitude and identify risk-factors of child drowning respectively (Paper I). Community perception on drowning prevention was explored by using a qualitative method (Paper II). Intervention measures were identified through workshops with the relevant stakeholders. Utilizing qualitative methods community acceptability, feasibility and sustainability of the intervention package were initially assessed (Paper III). A quasi-experimental design was used to evaluate the effectiveness of the intervention package (Paper IV). Two sub-districts were selected each having a population of 200,000. One was allocated as an intervention area and the other as a comparison area. Quantitative data was collected through structured pre-tested questionnaires and the qualitative data was gathered through Focus Group Discussions (FDGs) and in-depth interviews.

Results: The drowning rate of Bangladeshi rural children aged 1-4 years was found to be 156.4 per 100,000 (95% CI 138.5 - 176.6 per 100,000). The proportional mortality due to drowning in the children was about 28.0 percent. Natural water bodies were the most frequent places of drowning, and over 40 percent occurred in ponds. The child's sex, mother's age and literacy, family income and ownership of agricultural land by the families were identified as risk factors (Paper I).

Community people wrongly perceive that children 5 - 10 years are at the greatest risk of drowning. Participants of the FDGs, parents, adolescents and community leaders, knew the common causes of drowning and were able to mention a few preventive measures. However, they do not act on this knowledge (Paper II).

Increased supervision of children through the creation of drowning-safe homes and the establishment of community crèches, raising water safety awareness, and educating the community on first response skills were the three core aspects identified through workshops to include in the intervention package. Qualitative study revealed that these measures are accepted by the community, feasible and sustainable (Paper III).

After three years of implementation of the intervention package the evaluation showed that 36 percent of households became drowning safe and through 100 community crèches 2,680 children aged 1-4 years were kept safe under direct supervision. Nearly all the population of the intervention area were reached through various behaviour change communication materials. In the intervention area fatal drowning rate declined from 120.8 to 53.7 per 100,000; however, in the comparison area the rate remained the same in the base-line and the end-line data (Paper IV).

Conclusion: Drowning is one of the major survival issues among children aged 1-4 years in rural Bangladesh. The intervention model developed through these research activities was found to be effective in reducing child drowning. Improved supervision, creating a heightened water safety culture of the community and utilizing low cost locally available resources are the fundamental intervention strategies identified in reducing child drowning in rural Bangladesh. This model is developed in such a way that it could be applicable in similar low-income settings.

Key words: Child drowning, prevention, rural, Bangladesh, low-income countries.

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