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Short Communication

Factors affecting the utilisation of maternal, newborn, and child health services in Indonesia: the role of the Maternal and Child Health Handbook

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There are approximately 22 million children below the age of five who currently reside in Indonesia (population 240 million).[1] The infant mortality rate in Indonesia has decreased from 49 per 1000 live births in 1998, to 27 in 2010.[1] Further, the maternal mortality ratio has decreased from 340 per 100,000 live births in 2000, to 220 in 2010,[1] and the national coverage of priority interventions has increased, including interventions providing a maternal, newborn, and child health (MNCH) continuum. However, the remaining coverage gaps in MNCH care indicate the need for maternal and child care to continue throughout the prenatal and postnatal periods[2,3] to achieve the country's UN Millennium Development Goals (MDGs).[4]

A 2004 ministerial decree declared the 48-page Maternal and Child Health Handbook (MCHHB) the only home-based record of MNCH in Indonesia. A following 2008 ministerial decree identified it as a standard tool for minimum health service provision in decentralized regional settings. Major professional and non-governmental organisations and development partners for the country have supported the handbook's use for a range of services. The MCHHB includes a home-based record, educational information, and communication material to increase awareness of the necessity of MNCH service utilization by all women and children nationally. The handbook is given to pregnant women during the first antenatal care visit, referenced during times of need, and brought to health service appointments. Health personnel record details of delivered health care services in the handbook, assist clients in understanding its contents, and encourage them to share information with their families. Like other countries, Indonesia has used different types of parallel records, although the MCHHB is gradually becoming the predominant home-based record. The MCHHB was piloted in 1993, and has been scaled up stepwise to accommodate the country's diversity. While the Ministry of Health stopped issuing an adapted version of the home-based maternal record to Indonesian women in 1997, they continued distributing the child growth monitoring/immunization card (*KMS*) as a transitional measure.

In a prior study of a province where the MCHHB was intensively promoted, relationships were observed between MCHHB ownership and the utilization of various services such as antenatal care, tetanus toxoid (TT) immunization, family planning, and health personnel-assisted deliveries.[5] Analyses using the Indonesian Demographic Health Survey (IDHS) indicated associations between record ownership both before and after childbirth and health service utilization along the MNCH continuum. Such services include increased maternal

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care (i.e. four antenatal care appointments, trained personnel-assisted delivery, and care during the first postpartum week); 12 doses of child immunisations for seven diseases; and a continuum of immunization before and after childbirth (i.e. 12 doses administered during childhood, and two maternal doses of TT vaccine during pregnancy). However, the IDHS data did not distinguish the MCHHB from parallel records, so the implications regarding the association between MCHHB ownership and service utilization are limited to provinces where there is better access to services and MCHHB use is promoted.[6] Therefore, the present study aimed to identify the direct contribution of the MCHHB toward MNCH service utilization through the analysis of nationally representative cross-sectional data from the Indonesia Basic Health Research (RISKESDAS) collected in 2007 and 2010, which indicates MCHHB ownership directly.[7,8]

The prevalence of home-based records and MCHHB usage increased across the nation from 2007 (38.4%) to 2010 (55.2%) in respondents with children under the age of two years. Provincial prevalence ranged from 81.6% (Yogyakarta) to 23.1% (West Irian Jaya). The RISKESDAS 2010 showed that 18.4% of the respondents used the KMS only, while 26.5% did not have any form of record. National MCHHB use may have increased along with the estimated number of printed handbooks from 2004 to 2006 (39.7%; 6,176,957) to 2007–2009 (54.5%; 8,590,446), according to data compiled by the Indonesian government.

A comparison of respondents who used the MCHHB, the KMS, or neither may reflect differences in socio-economic factors. Wealth and education level were positively correlated, while number of children, age of child(ren), and rural residence were negatively correlated with MCHHB utilization. MCHHB use and possible confounders for logistic regression analysis as independent variables after controlling for possible collinearity were employed. Further, communication with health personnel was considered and indicated by the obtainment of information regarding pregnancy-related danger sings, as this may have influenced clients' service receipt.[5] To examine potentially distinct effects of the MCHHB on women in different settings, an interaction term of the MCHHB with a dummy variable for rural residence was included.

First, given that pregnant women received the handbook and health personnel used it for monitoring and communicating with women throughout the antenatal care period, an investigation was made whether MCHHB owners were more likely to choose health personnel as delivery assistants (i.e. physicians, midwives, and auxiliary nurses or midwives). Table 1 shows that respondents who used the MCHHB (81.5%) were more likely than those who did not (64.9%) to deliver with health personnel assistance. Multivariate analysis indicated that MCHHB use significantly predicted assisted delivery [adjusted odds ratio (aOR), 1.94; 95% confidence interval (CI), 1.73–2.18], even when possible confounding factors, communication with health personnel, and the interaction term of the MCHHB with rural residence were included in the regression equation.

Second, MCHHB users (90.6%) were significantly more likely than non-users (73.1%) to obtain birth weight assessments within 48 h postchildbirth. After controlling for possible covariates, MCHHB use (aOR, 2.82; 95% CI, 2.46–3.23) remained as a predictor of newborn care acquisition within the initial 48 h.

The third variable was a continuum of care that included four antenatal care visits (pregnancy), health personnel-assisted birth (delivery), and measurement of birth weight within the first 48 h (newborn). MCHHB users (66.6%) were significantly more likely to have obtained the full care continuum than were non-users (45.4%). After controlling for possible covariates, predictors of this variable included MCHHB use (aOR, 1.67; 95% CI, 1.44–1.93).

The fourth and fifth variables pertained to immunisations. Among respondents with a child who was 9–23 months old, MCHHB users (1589; 52.4%) were more likely than non-users (627; 23.9%) to have had their children fully immunized (twelve doses). MCHHB users (744; 24.6%) were also significantly more likely than non-users (308; 11.8%) to have obtained full child immunization together with TT immunization for the mother during pregnancy. Logistic regression analysis indicated that MCHHB use predicted these variables (aOR, 2.90; 95% CI, 2.46–3.41; aOR, 1.97; 95% CI, 1.66–2.35).

Authors controlled for possible selection bias by repeating the comparison of MCHHB users and non-MCHHB users. Comparisons both included and excluded respondents who had received the MCHHB but no longer owned it by the time of survey, to assess potential bias in the results. These repeated analyses suggested the same trends; thus, bias deriving from selection errors appeared minimal. Potential recall bias resulting from the absence of health records during survey completion was also tested. A recall-based sample demonstrated the same trends as the whole sample, suggesting that bias deriving from recall errors was also minimal.

The present results confirm and extend previous findings indicating a positive relationship between home-based prenatal and postnatal record utilization and health service uptake. Among MCHHB users, there was a higher prevalence of health service reception; health personnel-assisted delivery; birth weight measurement within 48 h; a continuum of pregnancy, delivery, and newborn care; and completion of measured child immunisations. As Bhutta and his colleagues stated, the three priority coverage gaps across nations in achieving MDGs four and five occur in family-planning services, childbirth care, and the care of sick children.[9] This study addressed the second of these gaps, including newborn care. Because MCHHBs are not distributed at immunization sites, unlike KMS cards, which are often distributed to children without another form of record, it is unlikely that immunization reception led to handbook ownership. MCHHB use triggers an increase in service demand, standardises the 'to-do list' for efficient service provision, facilitates communication within and between services, and may have resulted in the increased coverage of the studied services. Given that the MCHHB is an efficient means of home-based health record-keeping from pregnancy throughout childhood, it could consequently promote continuous MNCH.

Similar to a previous study,[6] this cross-sectional study design enabled us to establish an associational relationship between MCHHB ownership and health service utilization.