



JAPAN: The possibility of MCH Handbook as a research resource



Maternal and Child Health Handbook,
Tokushima Prefecture, Japan, 1975

Maternal and Child Health Handbook as a traditional tool in Japan

The Maternal and Child Health (MCH) Handbook has been implemented in Japan over 70 years. The MCH Handbook is a recording tool for MCH-related data from antenatal care to delivery, postnatal care, child vaccinations and child growth monitoring.

Information stored in the MCH Handbook functions as a trilateral interface between parents, health providers, and local governments for their collaboration. Moreover, since a majority of parents preserve the MCH Handbook even after their children have become adolescent and adult, it can serve as the valuable data source for health researches.

MCH Handbook use for researches

We systematically reviewed earlier studies that employed MCH handbooks as their data source. Those studies published from January 1980 to May 2017 were searched in major electronic research databases, i.e. PubMed, Google Scholar, Ichu-Shi (a Japanese medical journal website) and Google, by entering the term of "Maternal and Child Health Handbook". As a result, a total of 37 studies were identified and thereby obtained: four review articles, 22 original articles, four brief reports, two letters, one research note, and four proceedings. Of them, 17 (45.9%) used MCH handbooks as the data source. The following fields of research benefit from having access to MCH-related data available in the MCH Handbook, particularly when conducting household surveys as it is kept at home (Table 1). The number of studies whose data were derived from the MCH Handbook has been increasing since 2005, while there was only one study whose data were derived from the MCH Handbook prior to 2005. This may imply that researchers might have been increasingly paying greater attention to the MCH Handbook as the reliable source of personal health data.

Use of MCH Handbook data in our study

We also obtained the data about individuals' child immunization histories from their MCH Handbooks and analyzed them in our study on immunization. The MCH Handbook helps parents find their children's immunization histories without having to rely only on their memory. Recall bias of parents in answering questions in a questionnaire may distort results. We therefore used the MCH Handbook as

the reliable source of immunization-related data. The study team guided the university student respondents on the way of finding immunization-related data, by indicating specific pages of the MCH Handbook in which immunization-related data should be recorded. As a result, of 860 respondents, 714 (83.0%) attached the photocopies of their MCH Handbooks to the self-administered questionnaire in the study (Table 2). This implies that the students' parents preserve their children's MCH handbooks for a greater number of years than needed and expected. The parents who preserve the MCH Handbook may be likely to be more health-conscious or to recognize its value as a memorial to their children's growth history. Thus, there might be possible risks of sampling bias in those studies whose data are derived from MCH Handbooks.

Towards integrated data sources for all the life-time span

The MCH Handbook is a symbolic tool of the world's most robust and resilient health system in Japan, which encompasses quality of MCH-related data. Thus, it is strongly recommended that MCH Handbooks be leveraged as the source of a series of MCH-related data for researches in Japan.

Other research projects aimed at identifying the contribution of childhood health to adult health is ongoing, by matching the data between MCH Handbooks and workplace health checkup results. Note that a greater coverage not only of the MCH Handbook but also of students' and workers' regular health checkups keeps Japan's health system highly reputed. There is room for increasing the target age groups of Japan's MCH Handbook as the current one targets those up to six years of age. Therefore, routine health checkups at schools and workplaces are currently neither combined nor connected with antenatal and childhood health data in the MCH Handbook. An increase in the scope of target age groups of the MCH Handbook will help make longitudinal health data readily available and thereby contribute to health researches and health systems.

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▼ Table 1. Reviewed paper using the MCH Handbook as material to acquire information

No	Year of publication	Author	Journal	Title	Type of manuscript	Study design
1	1996	Kunugi H, et al	J Nerv Ment Dis	Perinatal complications and schizophrenia. Data from the Maternal and Child Health Handbook in Japan	Original article	Cross-sectional study
2	2005	Ohara K, et al	Prog Neuropsychopharmacol Biol Psychiatry	Obstetric complications in siblings of Japanese schizophrenics: data from the Maternal and Child Health Handbook	Original article	Case-control study
3	2005	Tsuchiya K, et al	Schizophr Res	Advanced paternal age associated with an elevated risk for schizophrenia in offspring in a Japanese population	Original article	Case-control study
4	2006	Takagai S, et al	Schizophr Res	Increased rate of birth complications and small head size at birth in winter-born male patients with schizophrenia	Letter	Case-control study
5	2007	Tsuchiya K, et al	Psychiatry	Decreased serum levels of platelet-endothelial adhesion molecule (PECAM-1) in subjects with high-functioning autism: a negative correlation with head circumference at birth	Brief Report	Case-control study
6	2008	Tsuchiya K, et al	Br J Psychiatry	Paternal age at birth and high-functioning autistic-spectrum disorder in offspring	Original article	Case-control study
7	2011	Tanabe K, et al	Tohoku J Exp Med	Association of women's birth weight with their blood pressure during pregnancy and with the body size of their babies	Original article	Case-control study
8	2012	Kouda K, et al	J Epidemiol	Relationship between body mass index at age 3 years and body composition at age 11 years among Japanese children: the Shizuoka population-based study	Original article	Cross-sectional study
9	2013	Fujita Y, et al	J Epidemiol	Association of rapid weight gain during early childhood with cardiovascular risk factors in Japanese adolescents	Original article	Cross-sectional study
10	2013	Aoyama T, et al	PloS One	Does cardiorespiratory fitness modify the association between birth weight and insulin resistance in adult life?	Original article	Cross-sectional study
11	2013	Takeuchi J, et al	Jpn J Infect Dis	Influence of Vaccination dose and clinico-demographical factors on antibody titers against measles, rubella, mumps, and varicella-zoster viruses among university students in Japan	Original article	Case-control study
12	2014	Mori M, et al	Pediatr Int	Effectiveness of influenza vaccine in children in day-care centers of Sapporo	Original article	Case-control study
13	2014	Takeuchi J, et al	Pediatr Int	Serological assessment of measles-rubella vaccination catch-up campaign among university students	Original article	Cross-sectional study
14	2014	Takeuchi J, et al	Tohoku J Exp Med	Social regulations predispose people to complete vaccination for vaccine-preventable diseases	Original article	Case-control study
15	2015	Ichikawa K, et al	Plos One	Effectiveness of Home Visits in Pregnancy as a Public Health Measure to Improve Birth Outcomes	Original article	Quasi-experimental cohort study
16	2016	Matsuda Y, et al	J Obstet Gynaecol Res	Exploratory analysis of textual data from the Mother and Child Handbook using the text-mining method: Relationships with maternal traits and post-partum depression	Original article	Prospective study
17	2017	Tagawa M, et al	J Obstet Gynaecol Res	Exploratory analysis of textual data from the Mother and Child Handbook using a text mining method (II): Monthly changes in the words recorded by mothers	Original article	Prospective study

▼ Table 2. Type of data sources used for a study in Japan

Type of data sources	No. of students (%)
Virus antibody measurements	657 (76.4)
Questionnaire	743 (86.4)
Photocopies of MCH Handbook	714 (83.0)
Total	860 (100.0)

Values are expressed as number and percentages are expressed in the parenthesis.

Further readings

1. Takeuchi J, et al. The Mother and Child Health Handbook in Japan as a Health Promotion Tool: An Overview of Its History, Contents, Use, Benefits, and Global Influence. *Glob Pediatr Health* 2016; **3**: 1-9.
2. Takeuchi J, et al. Influence of Vaccination dose and clinico-demographical factors on antibody titers against measles, rubella, mumps, and varicella-zoster viruses among university students in Japan. *Jpn J Infect Dis* 2013; **66**: 497-502.
3. Fujimoto S, et al. Utilization of Maternal and Child Health handbook in Japan. *Nihon Koshu Eisei Zasshi* 2001 **48**: 486-494 (in Japanese).