DEVELOPMENT OF CLINICAL MINIMUM DATASET FOR POSTNATAL TREATMENT IN TRADITIONAL MALAY MEDICINE

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ABSTRACT
This study presents a minimum dataset designed to complement manual health record documentation in Traditional Malay Medicine (TMM) postnatal care. TMM postnatal treatment is widely sought after by Malay mothers during their confinement period. However, TMM healthcare providers either still utilize paper based records or do not provide proper documentation during treatment. This leads to unavailability of continuity and seamless healthcare services for TMM patients, making it fragmented from modern medicine. This research shall attempt to propose a minimum dataset for postnatal care as a foundation to facilitate integration of modern medicine and Traditional Malay Medicine. Data collection was conducted to establish a minimum dataset using structured interviews for participants involved in the postnatal care process - doctors, nurses and TMM practitioners. A total of nineteen core and fourteen additional clinical indicators were established. The results of this study shall serve as a basis to establish electronic health record research areas in the TMM field such as clinical decision support systems and e-health systems.

Keywords: traditional malay medicine, postnatal, clinical dataset.

INTRODUCTION
Postnatal treatment in Traditional Malay Medicine (TMM) is commonly referred to as Malay Confinement. In Malaysia, Malay Confinement treatment are offered by public hospitals (Anuar et al. 2012; Anuar et al. 2010; Fadzil et al., 2012), wellness centres and home or centre of TMM healers (Low et al., 2002; Mohd Riji, 2005) or TMM practitioners. Some private hospitals also offer Malay postnatal care services though most of these services are outsourced to TMM Practitioners that are referred to the hospital after the patient delivers her baby. TMM treatment provided in public hospitals is recorded in standardized forms and is regulated by the Ministry of Health, Malaysia (TCM Division, 2009). However, TMM services provided by private healthcare providers, wellness centres and home of traditional Malay practitioners have yet to utilize health informatics and neither do they provide proper health records for TMM services. This leads to unavailability of continuity and seamless healthcare services for TMM patients, making it fragmented from modern medicine.

Among the areas that require contribution is particularly in the development of a Clinical Minimum Dataset (CMDs). This effort shall be able to standardize the health information shared and treatment received by patients who visit multiple healthcare providers and increase regulation by the Ministry of Health. An agreed CMDs can be incorporated into computerised clinical systems, which will automatically record the indicators and form the clinical patient record. This capability will allow medical practitioners to retrospectively analyse changes in the health status of their patients using less effort. In order to improve and uplift the quality of TMM services, healthcare professionals must have an effective means of assessing the influence and history of any interventions by the patient. A standardised CMDs will not only facilitate self-audit but, encourage good practice standards of healthcare services (Ireland et al., 2001). These Data Set Specifications (DSS) are metadata sets that are not mandated for collection but are recommended as best practice. The development of these DSS will also support a more coordinated and consistent approach to the collection of patient data. Over time, the availability of these data will provide more accurate information on trends, diagnosis, health service utilization and, ultimately, improved health outcomes.

Traditional Malay Medicine has been adopted in nine pilot public hospitals in Malaysia. However, these hospitals still utilise paper based records during doctor patient consultation in the complementary and alternative medicine unit for Malay medicine treatment (Raja Ikram & Abd Ghani, 2015a, 2015b). In addition, TMM services provided by wellness centres and home of traditional Malay healers have yet to utilise health informatics and neither do they provide proper health records for TMM services. Other informatics research areas such as telemedicine, clinical decision support system and informatics standards have yet to be tested in TMM (Raja Ikram & Abd Ghani, 2015a) (Raja Ikram, Abd Ghani, & Abdullah, 2013). Despite the lack of informatics development, patients still seek treatment from the traditional healers and wellness centres to provide general wellbeing support for the new born and their mothers. Thus there is opportunity for further research to integrate alternative medicine and informatics (Raja Ikram, Ghani, & Abdullah, 2015). Among the areas that require contribution is particularly in the development of Electronic Health Records (EHR) or lifetime health records (LHR) of Malaysians (Abd Ghani M.K. et al. 2008). This effort shall be able to standardize the health information shared and treatment received by patients who visit multiple healthcare providers and increase regulation.
by the Ministry of Health.

This research shall attempt to propose a minimum dataset for postnatal care in Traditional Malay Medicine as a foundation to facilitate integration of modern medicine and Traditional Malay Medicine. The development of these datasets shall also encourage standardisation of treatment and enable availability of continuity and seamless healthcare services by multiple healthcare providers.

METHODOLOGY

Development of the initial dataset

An extensive literature review was conducted to identify candidate dataset attributes (often referred to as structured content) that may be relevant. The search included journal articles, policy documents and research reports and book publications. Documents reviewed involved publications by Ministry of Health Malaysia, Maternity Services Data Set User Guidance United Kingdom (HSCIC, 2013) and National Maternity Collection New Zealand (Unit, 2011) and a review of the guideline for Malay Postnatal Care Practices in Hospital Setting (TCM Division, 2009). Initial findings show that the common postnatal treatments are traditional massage, corset, hot compress, postpartum diet and herbal bath (Barakah, 2007; Hishamshah et al., 2010). A list datasets from the Maternity Services Data Set User Guidance and National Maternity Collection New Zealand was also shortlisted to be included in the initial data set to assess indications of presence of modern medicine datasets in Traditional Malay Medicine. The initial datasets required were divided into 5 categories include patient pregnancy and delivery information, previous pregnancy information, referral information, newborn information and treatment information. A total of seventy one (71) data fields were shortlisted and prepared for verification via interviews with subject matter experts.

Data collection design

A qualitative study was undertaken to identify the information recorded throughout the treatment of postnatal care for TMM. A structured interview was conducted via participants in the postnatal care treatment - nurses, doctors and Traditional Malay Medicine practitioners. In addition, additional field notes were taken by researchers regarding the organization providing the treatment. A five point Likert scale was used when developing the questionnaire scale. A scale value of 1 represented Strongly Disagree whereas a scale value of 5 represents Strongly Agree. A scale value of 3 represents a “Neither Agree Nor Disagree” indicator or “I am not sure”, or “I don’t know” response from participants. The mean of a particular dataset or field was then calculated by summing the total score by all participants and dividing it by the total number of participants.

Sample and setting

A total of twelve (12) interviews were conducted. Structured interviews involved participants that represent a case study of one hospital, three nurses, three medical officers and four Traditional Malay Medicine practitioners. The population of Traditional Malay Medicine practitioners in Malaysia is unable to be accurately established as these providers are not entirely regulated and may only exist through referral by neighborhood or family contacts.

Table-1. Participants involved in the data collection process.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern Medicine</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>3</td>
</tr>
<tr>
<td>Doctor</td>
<td>3</td>
</tr>
<tr>
<td>Traditional Malay Medicine</td>
<td></td>
</tr>
<tr>
<td>Traditional Malay practitioners</td>
<td>4</td>
</tr>
<tr>
<td>Case Study</td>
<td></td>
</tr>
<tr>
<td>Hospital (Traditional and Complementary Medicine Unit)</td>
<td>1</td>
</tr>
<tr>
<td>Hospital Obstetrician and Gynaecology specialist</td>
<td>1</td>
</tr>
<tr>
<td>Total interviews</td>
<td>12</td>
</tr>
</tbody>
</table>

Table-1 shows the breakdown of the interview participants involved in the study. The hospital selected are one of the nine pilot public hospitals in Malaysia that implement postnatal massage and treatment as part of the services in their traditional and complementary medicine unit facility. Nurses involved in this study are well trained in the field of maternity care. Medical officers selected in this study consists of mothers who are experienced in implementing Malay postnatal practices during their self-confinement period. Traditional Malay Medicine practitioners involved all have a minimum of 10 years of experience in Malay postnatal care services and their services are well sought in their respective residence communities.

RESULTS AND DISCUSSION

A total of thirty three (33) datasets had a minimum mean of 3.0 when both scores of TMM and modern medicine practitioners combine. A dataset that has a mean of at least 3.0 in this study shall be taken into consideration to be accepted as an agreed Clinical Minimum Dataset. It is also interesting to note that a total of forty eight (48) datasets had a mean of 3.0 and above rated by TMM practitioners and thirty five (35) datasets with a minimum min of 3.0 by medical officers and nurses. This indicates a different perspective towards the function and importance of TMM towards patients. Figure 1 shows the breakdown of datasets that are agreed to be of importance by modern medicine and Traditional Malay Medicine participants.
Figure-1 shows that there is a total of thirty three (33) datasets are commonly agreed by modern medicine and traditional Malay medicine practitioners. A total of fifteen (15) data sets scored a minimum mean of 3.0 by TMM practitioners only and less than 3.0 by modern medicine practitioners. This indicates that these datasets are considered relevant by TMM and less significant by modern medicine practitioners. Amongst these datasets include newborn physical condition, breastfeeding status, additional delivery related procedures such as epidural usage and mother’s age TMM practitioners believe their treatment is more holistic and require this information to assess massage points, inner body wellness, perform more accurate treatment that is suitable for the patient.

In addition, two (2) data sets scored a minimum mean of 3.0 by modern medicine practitioners only and less than 3.0 by TMM practitioners. This indicates that these datasets are considered relevant by modern medicine and less significant by TMM practitioners. These two datasets are manual removal of placenta and the health professional involved in treating the patient during referral process. Manual procedure removal of a patient’s placenta is believed to provide indication of a patient’s inner recovery and may effect the patient’s overall wellness during Malay postnatal massage. Healthcare professional involved in treating a patient is also considered slightly relevant to modern medicine practitioners in order to assess patient’s wellness. However, TMM practitioners believe that a patient’s referral reason only is a sufficient indication during assessment.

Table-2 contains thirty three (33) clinical indicators with an overall mean of 3.0 as referred to in Figure-1. These clinical indicators are ranked in importance with the relevant category listed. Data sets with a mean of at least 4.0 is grouped as Core Clinical Indicators whereas data sets with a mean between 3.0 to 3.9 shall be considered as Additional Clinical Indicators. Table 2 shows that there are nineteen (19) core and fourteen (14) additional clinical indicators in this study.

Out of the thirty three (33) indicators, many are considered subsets of the core indicators. Indicators with an overall mean of less than 3.0 was excluded from the list and considered potentially irrelevant as the mean falls below the “Neither agree nor Disagree” zone.

Clinical indicators that scored “Strongly Agree” by both TMM and modern medicine practitioners are delivery method, date of delivery, treatment assessment and plan. Delivery method is a main indicator whether a patient is suitable candidate for TMM postnatal care. Patients who undergo operational or caesarian delivery methods may be subject to rejection for treatment in public hospitals with TCM facilities as these patients are considered risky patients. TMM practitioners however will usually enforce a longer cooling post-delivery period for operation and caesarean patients before undergoing TMM postnatal treatment. Date of delivery in considered vital to indicate when a patient is ready for TMM postnatal care. Normal delivery patients can start practicing Malay postnatal care within 24 hours post delivery whereas caesarian and operation patients usually start treatment after 14 days. Other vital clinical indicators are previous maternity complications and referral information, including allergies.

Additional clinical indicators are supporting indicators that indicate a patient’s pain symptoms and wellness to assist during treatment assessment. These indicators assist TMM practitioners to identify suitable treatment methods for patients and also trigger vital signs for emergency cases that require immediate referral to hospital. For example, an interview with TMM practitioner in the hospital commented that patient with high blood pressure may not be suitable to undergo treatment because the postnatal massage process may cause temporary increase in blood pressure which is potentially dangerous for high risk patients.
The participants in this study defined recording guidelines for the core group of indicators which are listed in Table-3. Some elective or additional indicators were grouped under the core clinical indicators according to their relevance.

Table-3. Recording guidelines for the core clinical indicators for traditional Malay medicine postnatal care.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Definition</th>
<th>Data Type</th>
<th>Length</th>
<th>Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery Type</td>
<td>Type of delivery of baby</td>
<td>Numeric</td>
<td>2</td>
<td>01,02,03,04</td>
</tr>
<tr>
<td></td>
<td>01 Operation Delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02 Cervical delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03 Electronic delivery</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>04 Emergency Referral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date of delivery</td>
<td>The start of the baby perinatal period</td>
<td>Date</td>
<td>8</td>
<td>30/12/2014</td>
</tr>
<tr>
<td>Treatment assessment</td>
<td>What kind of treatment should be given to the patient?</td>
<td>Numeric</td>
<td>NN</td>
<td>01,02,03</td>
</tr>
<tr>
<td></td>
<td>01 Suitable for treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02 Not suitable for treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03 Treatment with precaution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>04 Emergency Referral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment plan</td>
<td>What follow-up treatment should be given to the patient?</td>
<td>Numeric</td>
<td>2</td>
<td>01,02,03</td>
</tr>
<tr>
<td></td>
<td>01 Postnatal massage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02 Body wrap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03 Hot compress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>04 Postpartum Diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05 Herbal bath</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>06 Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Frequency during postnatal period</td>
<td>Numeric</td>
<td>2</td>
<td>01,02,03,07</td>
</tr>
<tr>
<td></td>
<td>07 None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Previous treatment history</td>
<td>Previous treatment</td>
<td>Numeric</td>
<td>2</td>
<td>01,02,03,07</td>
</tr>
<tr>
<td></td>
<td>01 Postnatal massage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>02 Body wrap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>03 Hot compress</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>04 Postpartum Diet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>05 Herbal bath</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>06 Others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>07 None</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Data of previous treatment history</td>
<td>Date</td>
<td>8</td>
<td>30/12/2014</td>
</tr>
</tbody>
</table>

This include delivery type and delivery related procedures. Treatment history and referral reason is agreed to be linked to International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) standards for consistency. The ICD-10 standards is a medical classification list by the World Health Organization (WHO). It codes for diseases, signs and symptoms, abnormal findings, complaints, social circumstances and external causes of injury or diseases (Organisation, 2015). Patients referred to primary postnatal care are considered normal and do not require special supervision and potentially suitable for Malay postnatal care. Secondary care and tertiary patients are patients who require special attention from specialists and acute cases which usually require inpatient treatment.
The definition of the clinical indicators have defined a systematic structure to incorporate the datasets in any health information system software. The data type and length defines the format of the clinical indicator. These specifications are important to support standardization of information exchange between multiple healthcare providers (Abd Ghani M.K. et al., 2010). All these indicators are also essential to be accessed by both modern and traditional Malay practitioner.

### Table-4. SOAP model for core clinical datasets for postnatal treatment in traditional Malay medicine.

<table>
<thead>
<tr>
<th>S Presenting complaint, symptoms, pain, medical interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core: delivery type, delivery date, delivery-related procedures, previous treatment history, previous treatment complication history, referral information, severity, mother physical condition</td>
</tr>
<tr>
<td>Elective: ICU admission, surgical repair for tear, number of previous pregnancy, baby condition at birth.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O Physical examination, Heart rate, BP, Blood test, X-ray</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core: None</td>
</tr>
<tr>
<td>Elective: Degree of tear, preeclampsia / eclampsia, pulse rate, temperature, blood pressure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A What is the diagnosis?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core: treatment assessment - Suitable for treatment, Not suitable for treatment, Treatment with precaution, Emergency referral</td>
</tr>
<tr>
<td>Elective: None</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P What treatment will be most effective?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Core: treatment plan - postnatal massage, Body wrap, Hot compress, Postpartum diet, Herbal bath, Others, frequency of treatment</td>
</tr>
<tr>
<td>Elective: None</td>
</tr>
</tbody>
</table>

The list of core and additional clinical indicators can be further categorized according to the SOAP model as per Table 4. The SOAP model for clinical and community health assessment is a model that provides a structural method used by healthcare providers to document a patient's chart (NM-IBIS, 2014). The SOAP model is originally used as a standard format to guide health practitioners to document their findings during doctor-patient consultation. This model shall be applied to develop the SOAP model for Traditional Malay Medicine and the analysis of results shall be discussed. SOAP model consists of four parts that are Subjective, Objective, Assessment and Plan (NM-IBIS, 2014).

Objective is the documentation of patient condition through physical examinations, vital signs, results from laboratories which usually involves results of measurable data (Low et al., 2002). However, examination done by TMM practitioners does not always produce measurable results and does not utilize the use of medical technology.

Assessment is the analyses of subjective and objective information of the physicians diagnosis. During the assessment stage, modern medicine practitioner derives their observation based on clinical and measurable findings (Broome & Broome, 2007). The assessment of illnesses via Traditional Malay Medicine uses a holistic approach, involving physical, spiritual, mental, emotional and behavioral factors.

Plan is the treatment of the patient which may include referrals, procedures and prescriptions (NM-IBIS, 2014). When planning for treatment, modern medicine physicians may recommend clinical prescriptions, further medical tests, follow up appointments. For postnatal care, TMM practitioners would recommend unprocessed herbal medications, proper food consumption and prescribe spiritual treatment that are not clinically proven such as talisman and incantation. For postnatal care, TMM practitioners offer services which consists of postnatal massage, Body wrap, Hot compress, Postpartum diet and herbal bath. Traditional Malay massage has a proper established method and its knowledge is usually inherited (Mohd Riji, 2005) and not acquired by formal education. Body wrap is done to assist women to get back into pre pregnancy physical state. It also provides lower abdominal support and helps realigned the spine to its normal shape (TCM Division, 2009). Hot compress is used to reduce pain, muscle spasm, congestions of non-inflammatory origin and stimulates the absorption of cellular debris during healing of injuries (TCM Division, 2009). Hot compress also improves bowel movement, promote flatus and defecation (TCM Division, 2009). Herbal bath is recommended to provide new mothers to regain her energy, dispel wind, get rid of odours from lochia and discharge and treat sore veins (Barakbah, 2007). Postpartum diet also is expected to provide health benefits, nutrition and promote healthy breastfeeding for the mother and newborn.

### CONCLUSIONS

This study has presented the core clinical indicators of postnatal treatment in Traditional Malay Medicine via both modern medicine and Traditional Malay Medicine practitioners. This study has also indicated that there is a relationship between these two domains as thirty three (33) indicators are mutually agreed to be important data sets by both modern and traditional Malay medicine practitioners. More research may be required to establish a relationship and integrate modern and traditional Malay medicine services. A computerized recording guideline and format via the SOAP model also has been established. The result of this study can be extended for other technology purposes such as clinical
decision support, electronic health records standards, data mining and machine learning.

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