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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 Malaysian (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 (Barakbah, 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 though referral by neighborhood or family contacts.

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

Participants	Quantity
Modern Medicine	
Nurse	3
Doctor	3
Traditional Malay Medicine	
Traditional Malay practitioners	4
Case Study	
Hospital (Traditional and Complementary Medicine Unit)	1
Hospital Obstretician and Gynaecology specialist	1
Total interviews	12

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.

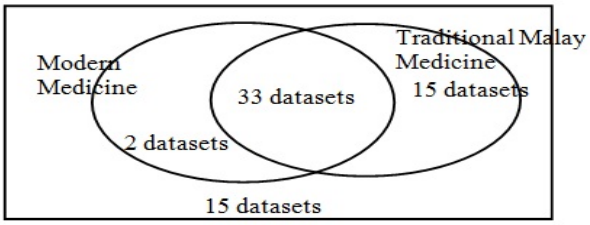

Figure-1. Datasets that have a mean of at least 3.0.

Figure-1 shows that there is a total of thirty three (33) datasets are commonly agreed by modern medicine and traditional malay medicine participants. 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 patients placenta is believe to provide indication of a patients inner recovery and may effect patients 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 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.

Table-2. Core and additional clinical indicators for TMM postnatal treatment.

Clinical Indicator	Mean	Rank
Core Clinical Indicators		
Operation Delivery	5.0	1
Date of delivery	5.0	2
Cervical delivery	5.0	3
Elective/Emergency caesarian	5.0	4
Treatment assessment	5.0	5
Treatment plan	5.0	6
Previous treatment history	4.8	7
Complication treatment history	4.8	8
Mother physical condition	4.7	9
Referral reason - current pregnancy	4.5	10
Referral description	4.5	11
Severity of the referral reason	4.5	12
Referral date	4.4	13
Delivery related procedures	4.4	14
Visit date	4.4	15
Delivery date of previous pregnancies	4.3	16
Delivery method of previous pregnancies	4.3	17
Allergy	4.2	18
Previous delivery complications	4.0	19
Additional Clinical Indicators		
Degree of tear	3.9	20
Preeclampsia/eclampsia	3.8	21
Surgical repair for tear	3.8	22
Number of previous pregnancy including current	3.7	23
Epidural	3.6	24
Vacuum procedure	3.6	25
Assisted birth i.e. forceps	3.5	26
ICU admission -antenatal, delivery, postnatal	3.5	27
Blood pressure	3.5	28
Date admitted to hospital for delivery	3.5	29
Temperature	3.5	30
Birth at home	3.4	31
Pulse rate	3.3	32
Episiotomy	3.2	33

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.

Indicators	Definition	Data Type	Length	Format
Delivery Type	Type of delivery of baby 01 Operation Delivery 02 Cervical delivery 03 Elective caesarian 04 Emergency caesarian	Numeric	2	01,02,03,04
Date of delivery	The start of the baby perinatal period DD/MM/YYYY	Date format	8	30/12/2014
Treatment assessment	What kind of treatment should be given to the patient? 01 Suitable for treatment 02 Not suitable for treatment 03 Treatment with precaution 04 Emergency referral	Numeric	NN	01,02,03
Treatment plan	What follow up treatment should be given to the patient? 01 Postnatal massage 02 Body wrap 03 Hot compress 04 Postpartum diet 05 Herbal bath 06 Others Frequency during postnatal period NN	Numeric Numeric	2 2	01,02..07 01,02..NN
Previous treatment history	Previous treatment 01 Postnatal massage 02 Body wrap 03 Hot compress 04 Postpartum diet 05 Herbal bath 06 Others 07 None Date of previous treatment history DD/MM/YYYY	Numeric Date format	2 8	01,02…07 30/12/2014
Complication treatment history	Complications during previous TMM postnatal care treatment *ICD-10 Section XVI Certain conditions originating in the perinatal period* P00-P96	String	3	P00..P99
Mother physical condition	Condition of mother following birth PP Primary Postnatal Care SC Secondary / Tertiary Care MD Maternal Death	Char	2	PP, SC, MD
Referral reason -	Code representing referral reason of current pregnancy *ICD-10 Section XV Pregnancy, childbirth and the puerperium* O00-O99	String	3	O00..O99
Referral description	Description of the referral reason	String	256	
Severity	Severity adjunct of the referral reason 01 Mild 02 Moderate 03 Severe	Num	2	01,02,03
Referral date	Date the referral was made DD/MM/YYYY	Date format	8	30/11/2014
Delivery related procedures	Assisted delivery 01 Vacuum 02 Forceps 03 None Other Labour procedures Induction Flag - Yes, No Episiotomy Flag - Yes, No Manual Placenta Removal Flag - Yes, No Epidural usage Flag - Yes, No	Numeric Char	2 1	01,02,03 Y, N
Visit date	Postnatal treatment visit date DD/MM/YYYY	Date format	8	30/11/2014

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.

	Clinical Indicators for TMM Postnatal care
S	**Presenting complaint, symptoms, pain, medical interview** Core: delivery type, delivery date, delivery related procedures, previous treatment history, previous treatment complication history, referral information, severity, mother physical condition Elective: ICU admission, surgical repair for tear, number of previous pregnancy, baby condition at birth,
O	**Physical examination, Heart rate, BP, Blood test, X-ray** Core: None Elective: Degree of tear, preeclampsia / eclampsia, pulse rate, temperature, blood pressure
A	**What is the diagnosis?** Core: treatment assessment - Suitable for treatment, Not suitable for treatment, Treatment with precaution, Emergency referral Elective: None
P	**What treatment will be most effective?** Core: treatment plan - postnatal massage, Body wrap, Hot compress, Postpartum diet, Herbal bath, Others, frequency of treatment Elective: None

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 patients 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).

Subjective is the evaluation of patient condition or describes the reasons they visited the physician. Both modern medicine and TMM physician listens to their patients complains before any examination is done. Some patients with clinically related diseases seek treatment from TMM practitioners because they may be dissatisfied with modern medicine treatment (Bishop, 1998). The practitioners will need to assess the patients symptoms via interview, patient complaints and relevant symptoms. This includes onset, chronology of symptoms, severity, factors aggravating or reducing and previous treatments.

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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