



Asian Medical Students' Conference

Healthcare Without Borders

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This journal was edited by Anuja S. Bhave, Director of Academics for AMSC 2019.

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FOREWORD

Welcome to the Asian Medical Students' Conference 2019 hosted by Singapore. Our theme for this year's AMSC was '*Healthcare Without Borders: The Problem of Access*'.

There is no such thing as a universal healthcare issue – across the globe, each individual, community and nation deals with challenges unique to them and their situation. The healthcare landscape is fluid and nuanced, and therefore, few problems can be considered truly 'global' in nature. However, the problem of access itself is certainly one of them.

The fundamental truth is that healthcare - be it prevention, treatment etc. - is pointless if people do not have access to it. As such, we chose to focus on the concept of access to healthcare in order to address what we feel is one of the most prominent issues at the moment - because no matter where you are from, there is always someone unable to receive the care they need. This is not attributed to just one problem alone but rather a widespread manifestation of many individual issues that we hope to address in a multi-tiered approach, with sub-themes focusing on barriers experienced by the individual, the community, and the world.

In this journal, we publish the works of all the chapters which participated in the Scientific Paper and White Paper competitions. We have also included the winning Scientific Poster entry by AMSC- India. We hope you enjoy these entries and get enriched with knowledge from around the world! Happy reading!

Anuja S. Bhave

AMSC 2019 Academic Director

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PERIODS, LET'S NOT WHISPER: A CROSS-SECTIONAL STUDY TO DETERMINE BARRIERS IN ACCESS TO MENSTRUAL HEALTHCARE (AMSA-INDIA)..... 40

FEMALE REFUGEES' ACCESS TO SEXUAL AND REPRODUCTIVE HEALTHCARE - WHAT ROLE DOES EDUCATION PLAY? (AMSA-AUSTRALIA)

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Introduction: Females refugees are a growing population globally and are a particularly vulnerable group. The stresses of displacement and resettlement within a foreign land create challenging circumstances for female refugees to navigate. This can come at the cost of their own health and wellbeing. Females have unique sexual and reproductive health (SRH) care needs which can lead to morbidity and mortality if unchecked. Health literacy is important for female refugees to recognize when and how to access SRH care. The impact of education on female refugees' access to SRH care is investigated through review of current literature.

Method: The Medline and Embase databases were accessed via the Ovid platform with key terms: refugee and access and edu* and repro*. Key terms were limited to title and abstract. Following authors' exclusion criteria, 15 relevant studies were included for review.

Findings: Review of current literature revealed correlations between increased SRH knowledge and greater utilisation of SRH resources available within both refugee camp and host community settings. Very young adolescent (VYA) refugee girls obtained much of their knowledge about puberty from their mothers, however this information was not always accurate. Formal education improved VYA refugee girls access to SRH services, through greater awareness of sexually transmitted infections (STI) and countering misconceptions regarding contraceptives. There is poor uptake of preventative women's healthcare amongst female refugees including cervical screening tests (CST) and human papillomavirus (HPV) vaccinations due to misperceptions. Cultural taboos and religious beliefs hindered acquisition of SRH knowledge relating to contraception and family planning, resulting in poor access to SRH services. Cultural awareness and sensitivity is important for delivering appropriate SRH education to refugee females. Greater SRH literacy through education did not correlate with improved post-natal outcomes, however it was associated with increased utilisation of healthcare facilities for childbirth. Overall, greater awareness and knowledge of SRH amongst female refugees through education is correlated with better access and utilisation of available SRH care services within resettlement camps and communities. These findings may be similarly translatable to migrant females within host countries.

EFFECTS OF COMMUNITY HEALTHCARE SERVICE ON LIFE QUALITY OF PATIENTS WITH ALZHEIMER'S DISEASE: A META-ANALYSIS (AMSA-CHINA)

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Introduction: At present, there is no specific therapeutic drug for Alzheimer's disease and reasonable community health service can delay the development of the disease and improve the life quality of patients to a certain extent. As a new form of health service with low input and high output, therapeutic psychological intervention can improve the quality of chronic disease treatment. Based on the evidence available, patients with Alzheimer's disease with community healthcare service has higher quality of life and it is also labor-saving. However, it is said that dementia care is over-specialized and current specialist models of dementia care provide very little effect for the growing number of people affected by dementia—especially in low and middle income countries. The purpose of this paper is to compare the influences of the community healthcare service in the treatment of Alzheimer's disease in the developing country, China.

Method: We searched databases including CBM, CNKI and Wanfang database for articles published up to April 2019. The inclusion criteria were patients diagnosed with Alzheimer's disease and evaluated by certain psychic evaluation tables. Two independent reviewers performed the initial screening and extraction procedures, then quality assessment and bias analysis were conducted by another two researchers independently. The evaluation included PANSS (positive and negative symptom scale), ADL (activity of daily living) and MMSE (mini-mental state examination).

Results: 9 RCT studies were included in the meta-analysis for revision, involving 789 patients. The results of systematic review shows that the intervention group has obvious advantages in improving the function of ADL ($P < 0.00001$) and reducing mental syndrome ($P < 0.00001$). In addition, it slows down the progression of cognitive impairment ($P=0.04$). Results of the present study provide evidence to support making more efforts on community health service. On the available evidence, we recommend that psychological intervention should be chosen and spread according to the situation of the patients and community hospital.

Conclusion: In summary, while there is a need for more evidence regarding the specific role and effectiveness of factors in reducing the risk of dementia and the potential to delay its onset, there is a strong case for ongoing investigation of community health services.

DEVELOPMENT STATUS OF CHINESE ONLINE MEDICAL SERVICE (OMS): A STUDY BASED ON A TYPICAL OMS PLAT- FORM (AMSA-CHINA)

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Introduction: Online medical service (OMS) in China is undergoing tremendous development in recent years. Patients are more willing to consult physicians on online platforms to avoid time-consuming hospital visits. We aim to elaborate the status of OMS by using data in Hubei province, China, by comparing data from a typical online health service platform (haodf.com) and the China Health Statistics Yearbook 2018.

Method: Data from haodf.com is extracted by a web crawler and processed by Microsoft Excel 2016. The different characteristics of doctors and institutions in haodf.com and CHSY 2018 were illustrated by histogram, broken line graph and heat map. We detected statistically significant differences between the groups ($p < 0.05$) by using Mann-Whitney U test and chi-square test for continuous variables and categorical variables respectively.

Findings:

1. OMS platforms have a high proportion of senior specialists from advanced medical institutions, meaning that these platforms can provide high-quality medical services.
2. OMS platforms can be used not just for physician consultation, but also patient follow-up and doctor-rating.
3. Current existing problems include online physician scarcity, inactivity of registered doctors and imperfection of policies and the platform system itself.

SYSTEMATIC REVIEW ON ARTIFICIAL INTELLIGENCE IN PREDICTION OF OUTBREAKS: A FORETHOUGHT IN IMPROVING ACCESS TO HEALTH-CARE (AMSA-INDIA)

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Introduction: Endemic diseases surmounted with epidemics with the possibility of becoming pandemics can wreak havoc in countries all over the world. Epidemics of diseases, such as Dengue, Influenza and Norovirus, cause a heavy burden of deaths in Asian countries; The outbreaks of these diseases if unprepared for, can overwhelm the health system and make governments vulnerable due to limitation of treatment facilities to overcome these, compounding the problem. Our research deals with how machine learning technologies can make early detection more effective for public health emergencies like these; This approach to epidemics will not only enable early detection but will also improve access to health-care along with global preparedness and response.

Design: Systematic Review.

Method: A comprehensive search on PubMed Central and Embase was conducted up to 1st May, 2019 using the keywords- “Artificial intelligence” and “outbreaks;” out of 4437 articles, 30 were included and qualitative analysis was done.

Results: Evaluation of included studies revealed a prediction accuracy for outbreaks of Oyster Norovirus (99.83% by ANN 2-day model)^[26] and Random forest model for Influenza (99.6%)^[14]. Prediction accuracy was 90%- 94% for Malaria^[19], 97% for legionellosis^[22], 95- 88.37% for Dengue^{[3],[8]} and 87.5% for another Influenza model^[15]. MAPE could predict Tuberculosis with values close to 0.0002 by using ARIMA-GRNN model^[24], whereas other diseases were predicted with values- 10.60 for Influenza^[12] and 11-20 for Echinococcosis^[30]; Few studies on dengue, Influenza and Schistosomiasis had MSE values less than 1. Finally, AUC values of more than 0.9 were seen in studies of Dengue morbidity by SVR model^[6], Influenza by IAT-BPNN^[17] and VARSELRF for Legionellosis^[21] (0.96, 0.93 and 0.966 respectively).

Conclusion: The magnitude of accuracy of Artificial Intelligence can prevent a susceptible country from falling into crisis during epidemics and save tens of progress years. Compared to other ‘non-machine learning’ models, models based on artificial intelligence supersede the other competing models by a huge margin; The lead time provided by these models can be used extensively to strengthen and prepare the existing health care for the coming disaster or can altogether prevent the outbreak from happening.

KNOWLEDGE AND PRACTICES OF ADOLESCENT GIRLS REGARDING MENSTRUAL HYGIENE AND REPRODUCTIVE HEALTH (AMSA-INDIA)

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Introduction: In India menstrual practices traditionally still face many social, cultural, and religious restrictions. Due to prohibition and discouragement of open discussion on such topics, there is a big barrier in the path of menstrual hygiene management. Moreover, 71% of adolescent girls have no knowledge about menstruation until they get their first period. Accessibility of sanitary pads in India is still a major concern. Hence, this study was conducted amongst adolescent girls who had attained menarche to ascertain their knowledge about menstruation, reproductive health issues and practices adopted by them during menstruation.

Methods: This was a cross-sectional community based descriptive study conducted among 181 adolescent girls using a semi-structured questionnaire, who met the inclusion criteria and were selected from two urbanized villages of Meerut district by convenience sampling method. For assessment of the knowledge of the participants a scoring system was developed for the items enquired upon in the questionnaire. Each correct response depicting the correct knowledge of the participant was given a score of 2, while, the incorrect response is scored as zero. Since the numbers of such questions asked were 10, the total score ranged in between 0-20.

Findings: More than 80% of the adolescent girls were completely unaware about the knowledge regarding pubertal changes during adolescence and had no knowledge about symptoms of RTI or STI. 97.2% of the participants had no knowledge about management of RTI /STI. Based on the scoring of the level of the knowledge more than three-fourths of our study participants (77.3%) had overall poor knowledge about menstruation and reproductive health, nearly 20% of them had satisfactory knowledge and only 2.2% had good knowledge. Most participants reported as using sanitary napkins during menses (80.7%) and the remaining were using clean cloth (19.3%). 100% of the participants whose mothers were illiterate had poor knowledge about menstrual hygiene and reproductive health. Participants whose mothers were engaged in semi-skilled or skilled work were more likely to have satisfactory (39.4%) or good (4.3%) knowledge scores.

Conclusion: Overall knowledge of our study participants regarding menstrual hygiene and reproductive health was poor. Meanwhile, the practices adopted by adolescent girls during menstruation were good. The two main impediments in the access to care is non availability of services at affordable cost and lack of knowledge.

COMPREHENSIVE ASSESSMENT OF MOBILE HEALTH (MHEALTH) INTERVENTION TO OVERCOME MATERNAL HEALTH PROBLEM IN LOW-MIDDLE INCOME COUNTRIES: A SYSTEMATIC REVIEW (AMSA-INDONESIA)

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Introduction: Despite increasing effort and attention to achieve better health status holistically, maternal health problem still become the major problem that cannot be solved in low-middle income countries. Many solutions has been conducted in order to prevent and manage maternal health issues, but implementation of these solutions is constrained as overall access to quality care is lacking. Nowadays, the global proliferation of mobile technology has shift the paradigm of healthcare access, one of them is mHealth. The wide availability of mobile phones make them become a promising instrument to deliver a variety of maternal health-related interventions.

Methods: Systematic review about interventions of mHealth in low-middle income countries for maternal health was carried out using PRISMA statement. Studies search were conducted using search engine ScienceDirect, ProQuest, and PUBMED database using keyword “maternal health”, “mobile phone”, “mHealth in maternal”, “low-income country maternal problem” with criterion papers published in english between 2014 to 2019 and related about interventions of mHealth in maternal health. Quality assesment of included papers was conducted using CONSORT statement checklist for clinical trials study and STROBE statement checklist for observational studies.

Result and Discussion: From the search, 1492 studies were identified and finally obtained 12 studies that fulfill the criterion of this systematic review. The studies are organized according to common functions of mHealth as the following data collection, emergency medical support, point-of-care support, and health promotion. Studies show that mHealth interventions give significant improvement in many aspect stated above. The strength of this studies are using only moderate-high quality studies and give a picture of the best mHealth model. Limitation is that this review lack of concerning bias aspect thus need more consideration on its internal validity. Also some studies still lack of participants thus needs more moderate-high quality studies with more participants.

Conclusion: mHealth interventions gave good improvement in maternal health service and access either for the patients and care provider. Future research should explore new areas of application the mHealth interventions.

THE EFFICACY OF TYPE 2 DIABETES MELLITUS SELF-MANAGEMENT VIA MOBILE PHONE APPS AND TEXT-MESSAGING: A SYSTEMATIC REVIEW OF RANDOMIZED CONTROLLED TRIALS (AMSA-INDONESIA)

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Introduction: Good self-management plays a crucial role in increasing life expectancy and preventing serious complications in diabetes mellitus (DM) patients. However, access to medical consultation can be high for many patients due to distance and time constraints. The increase of technology uses in health care, including mobile health (mHealth) intervention based on mobile phone applications and text message, as the most standard features in all types of phone, may become a promising way to overcome this challenge. Therefore, evaluating the efficacy of using mHealth and apps and text messaging is important to resolve the issue. This systematic review is aimed to evaluate whether mobile phone app and text messaging are effective tools to increase self-management knowledge in type 2 diabetes mellitus (T2DM) on current published randomized controlled trials (RCTs) assessing the behavioral changes and clinical outcomes of people with T2DM who downloaded mobile phone applications and subscribed to text messaging provider that promote self-management in T2DM compared to usual care alone on the management of adult patients with T2DM.

Methods: The systematic review was conducted using PRISMA principles to improve the quality of reporting. Two independent reviewers searched six online databases (PubMed, Cochrane Library, Scopus, Clinical Key, Science Direct, and MEDLINE) and other sources (manual search and bibliography from another study) to identify relevant studies from the year 2014-2019. A total of 235 articles were retrieved, screened and critically appraised to finally shortlisted to thirteen RCT studies included to review phase. To ascertain the validity of eligible trials, a pair of reviewers worked independently and appraised the relevant studies using the standardized critical appraisal instruments, Jadad Scale or Oxford quality scoring system.

Findings: From thirteen studies reviewed in this paper, nine studies used text message as the intervention, three studies used the mobile application, and one study used both. Results show that text message and mobile phone application as the intervention tools gave significant impacts on both clinical outcomes (HbA1c) and behavioral changes in T2DM patients. Text messaging and mobile application were indicated as potential platforms for self-management in T2DM patients.

Conclusions: The usage of mobile apps and text messaging offered benefits for T2DM self-management. Nevertheless, more research with larger samples and longer duration of applied interventions and follow-up are still needed to evaluate the clinical effects and confirm the efficacy of mobile apps and text messaging in the self-management of T2DM patients.

DIETARY ANALYSIS ON MACRONUTRIENT AND MICRONUTRIENT INTAKE PATTERN AMONG HYPERTENSIVE POPULATION IN KLANG VALLEY (AMSA-MALAYSIA)

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Objective: The prevalence of hypertension is increasing worldwide. Many studies have indicated that diet rich in macronutrient and micronutrient can control blood pressure effectively among hypertensive individuals. Hence, this study aimed to assess the dietary pattern of hypertensive young adults to provide further insight on the appropriate implementation of necessary nutritional programmes as an approach to reduce the incidence of hypertension in Malaysia.

Method: A cross-sectional study was conducted among young adults in selected urban and rural areas in Klang Valley, Malaysia. Simple random sampling was used in selecting the samples. Their demographic data was collected during the event. Food Frequency Questionnaire (FFQ) designed to quantify the average dietary nutrient intake was used in this study. Nutrient deficient termed when the subjects' average dietary intake is lower than the recommended nutrient intake (RNI) based on Malaysian Recommended Nutrient Intakes (RNI) guidelines 2017. Hypertension was defined according to the Malaysia Clinical Practice Guidelines (2018). Comparison of mean dietary intake was analysed using independent T-test.

Results: A total of 1265 respondents aged 30 to 50 years were recruited. The results showed all hypertensive individuals (100%) are deficient in potassium and fibre intake. Hypertensive individuals consumed higher amount of vitamin C, iron, phosphorus and sodium above the RNI. The prevalence of selected nutrient deficiency was significantly higher among men (vitamin C- 68.1%), urban area (protein- 70.5%) and individuals with sedentary lifestyles (vitamin B1- 90.9%) ($p < 0.05$). The difference in Na^+/K^+ ratio between gender, location and physical activity are also noted, although it is not consistently significant across all 3 factors ($p > 0.05$).

Conclusion: In conclusion, the present study showed that high prevalence of selected nutrient deficiency is evident among hypertensive individuals. Nutritional programmes may be necessary to educate Malaysians on adequate nutrient intake to control the incidence of hypertension.

PREVALENCE OF DENTAL CARIES AMONG CHILDREN WITH HEARING IMPAIRMENT IN ULAANBAATAR (AMSA-MONGOLIA)

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Objective: The purpose of this study was to elicit the oral health status among disabled children aged 7-16 years in school number 29 in Ulaanbaatar.

Methods: This cross-sectional study assessed one hundred fifteen students with hearing disabilities who attend the public schools that conduct the integrated learning program in the capital city of Mongolia. The inclusion criteria of this study were first, the student with a hearing disability have no other disabilities, and second, age range between 7-16 years old and last student with mixed dentition and full permanent dentition excluding third molars. 115 children with hearing disorders had participated in this study. Among them 64.3% were boys, 35.7% were girls, and the mean age was 9.93 ± 1.8 . Clinical examination was performed by using a dental mirror and detected the presence of dental caries, missing (extracted) and filled teeth. Each tooth was examined and scored based on the WHO standard (WHO, 1997).

Results: The dental caries prevalence of all disabled children was 87.8% and average Decayed, Missed, and Filled Teeth (DMFT) values were 3.8 ± 2.59 in mixed dentition and 4.2 ± 0.9 in permanent teeth. A total of 115 students with hearing disabilities to the criteria. Among the total participant 64.3% of them were boys (n=74), 35.7% of them were girls (n=41) and mean age were 9.93 ± 1.8 . 94.9% (n=109) of the total students in this study had mixed bite and 5.1% (n=6) of them had a permanent bite. 16.1% of the total students had no dental abnormalities whereas 83.9% (n=101) of the total students had dental caries.

Conclusion: This study showed high dental caries prevalence and DMFT. The oral hygiene index was poor among disabled children in Ulaanbaatar comparing to the general population. The main component of DMFT (mixed dentition) and dmft (permanent teeth) was decayed teeth, which suggest special oral health promotion policy and urgent treatment, diagnosis, and special dental care.

Keywords: hearing impairment, dental caries, oral health, treatment needs

BARRIERS TO ACCESS OF HUMAN PAPILLOMAVIRUS (HPV) VACCINES AMONGST LOW- AND MIDDLE-INCOME COUNTRIES (LMICS) IN ASIA (AMSA-PHILIPPINES)

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Abstract:

Cervical cancer (CC) is one of the most common cancers among women especially in low- and middle- income countries (LMICs). Despite this, it is also one of the most preventable and treatable cancer when diagnosed early. Human Papillomavirus (HPV) is identified as one of the most common causes of CC. A systematic review was done on the availability and barriers of HPV vaccination in LMICs in Asia. A systematic search of literature from the past five years (2014 - 2019) was done through PubMed, Cochrane CENTRAL, CINAHL, and Google Scholar. There were a total of 46 studies included after critical appraisal from the initial 2,767 studies. Results showed the most of the studies highlighted the awareness of healthcare providers and the availability of programs on HPV vaccination. Information on HPV vaccination are mainly disseminated through the programs implemented and through the recommendation of healthcare providers. Thus, issues on the two would greatly affect the reception of the vaccine in the community. Other barriers identified include level of awareness of the individuals, societal influence and practices, governmental policies, and economic capability. Countries within the scope of the study tend to have a more conservative outlook on sexual behavior which impacts on the level of education available. This outlook would also influence the significance the government allot on the issue and the willingness to create and support programs for HPV vaccination. The economic capability of the individuals in the community is also considered a barrier on HPV vaccination particularly since the countries included are among LMICs.

Keywords: HPV vaccination, barriers, implementation

QUALITY OF HEALTHCARE ACCESS IN SINGAPORE: CROSS SECTIONAL STUDY OF 708 INDIVIDUALS (AMSA-SINGAPORE)

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BACKGROUND: Singapore has been recognised as one of the best countries in terms of human development based on the Human Development Index 2018 report. However, access to quality healthcare has yet to be improved. Currently, little research has been conducted to establish the crucial motivations and barriers affecting Singaporeans' access to healthcare.

AIM: This study will focus on the accessibility of quality healthcare, defined by the adequacy of healthcare services, its affordability, physical accessibility and acceptability of services.

We hope to identify the main factors affecting healthcare access in Singapore and the successful aspects of current policies aimed at improving it.

METHODOLOGY: Residents aged 30 onwards who are Singaporean or Permanent Residents (n = 708) were identified and undertook a questionnaire on healthcare access in Singapore. The questionnaire had 5 parts: general demographics, financial background, source of healthcare financing, medical history and background and healthcare access indicators.

KEY FINDINGS: Results were classified into 3 main categories: primary care, chronic care and accessibility & equity.

Primary Care:

Patients of higher socioeconomic status as measured through income tend to choose GPs over polyclinics as their primary healthcare institution ($P=0.030$). Patients who go to a GP compared to a polyclinic are more likely to feel that their doctors give less attention ($P<0.0016$) and unclear explanations ($P<0.0078$).

Chronic care:

Patients with chronic diseases compared to those without are more likely to go for checkups at least once a year ($P<0.00010$), visit a GP than a polyclinic ($P=0.013$), feel that their doctor's explanation is unclear ($P<0.0001$) and less likely to have a perception of long waiting times ($P<0.0001$).

Accessibility and Equity:

Surveyees of the lower age group are more likely to delay medical appointments ($P=0.00080$). Patients with high education levels are more likely to have purchased private healthcare insurance. ($P<0.0001$). Patients with lower income ($P<0.0001$) and low education levels ($P=0.0051$) were more likely to feel disadvantaged in terms of healthcare ($P<0.0001$).

CONCLUSION & RECOMMENDATIONS: Regarding primary care, more in-depth research would be needed to analyse factors affecting perceptions and healthcare quality. While chronic care provision is concrete, satisfaction remains lower than the population which do not suffer from them. Overall, this study aims to provide a framework for future research identifying and targeting at-risk populations which receive a lower quality of healthcare access.

THE ASSOCIATION OF LIBRA INDEX WITH MRI CEREBROVASCULAR DISEASE AND COGNITION IN A SINGAPOREAN MEMORY CLINIC COHORT (AMSA-SINGAPORE)

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BACKGROUND: Dementia is one of the fastest growing health problems worldwide with no known available cure for its most common types. The Lifestyle for BRAin health (LIBRA) index was developed to assess an individual's risk for midlife dementia and cognitive impairment. However, no studies have explored the utility of the LIBRA index in an Asian population where cardiovascular burden is higher than in western countries, and the association of the LIBRA index with markers of cerebrovascular disease (CeVD) in MRI.

OBJECTIVE: This study aims to explore the association of the LIBRA index with neuroimaging markers of CeVD and with cognition in an Asian memory clinic population.

METHODS: 579 subjects were recruited from the National University Hospital and Saint Luke's Hospital where subjects fell into either the categories of NCI, CIND or Dementia. A total of 481 subjects age below 80 years old were included for the analysis consisting of 108 NCI, 204 CIND, and 169 dementia cases. The LIBRA score was calculated based on 7 available risk factors. All participants underwent 3T cranial to assess for markers of CeVD, such as cortical infarcts, lacunes, cerebral microbleeds and white matter hyperintensities, using the STRIVE Criteria. Formal neuropsychological assessment was performed for each subject.

RESULTS: The LIBRA index is significantly higher in the cognitively impaired group as compared to the NCI, and higher LIBRA scores are significantly associated with the presence of cortical strokes (OR 1.59 [1.34-1.88]; $p < 0.001$), lacunes (OR 1.67 [1.44-1.92]; $p < 0.001$), and WMH (OR 1.23 [1.09-1.38]; $p < 0.001$). The LIBRA index is also significantly associated with global

cognition (β [95% CI]= -0.323[-0.0492, -0.155], $p < 0.05$), as well as all cognitive domains; but only independently and significantly associated with visuoconstruction domain impairment (β [95% CI]= -0.224[-0.383, -0.066], $p < 0.007$)

CONCLUSION: The LIBRA index is consistently associated with cognitive impairment in an Asian memory clinic population and is strongly correlated with the presence of MRI markers of CeVD. The LIBRA index is also correlated with cognitive decline, independent of CeVD markers. The LIBRA index is useful as a preventive tool for dementia, especially in community health settings.

REGIONAL INEQUALITY IN ACCESS TO HIGH QUALITY OF DIABETES CARE IN TAIWAN (AMSA-TAIWAN)

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Background: National Health Insurance (NHI) program was implemented in Taiwan in 1995 and eliminated the financial barrier to access to healthcare services. However, little is known on the regional inequality in access to high quality of health care in Taiwan. We aimed in this study to examine the city/county differences in providing high quality of care for people with diabetes mellitus.

Methods: We used the Quality of Diabetes Care Open Data released by the NHI Administration of Taiwan to calculate the 10th, 50th (median), and 90th percentile of four examination rates in each city/county. The 90th/10th ratio was used to assess the extent of regional inequality in quality of diabetes care. We then computed the rank percentile of each clinical setting combining four examination rates and defined the clinical setting as high quality of care if the rank percentile above 75th percentile. Finally, we estimated the percentage of people with diabetes been cared by high quality clinical settings in each city/county.

Key findings: The median examination rate for HbA1c, cholesterol, micro-albumin, and eye in Taiwan as a whole was 92%, 79%, 20%, and 18%, respectively. The extend of inequality was largest in micro-albumin examination with 90th/10th ratio of 4.36 (72% in Chiayi County and 18% in Hsinchu County) followed by eye examination with 90th/10th ratio of 1.65 (25% in Changhua County and 10% in Hsinshu City). Of 1,542,641 people with diabetes in Taiwan only 14.2% (n=219,120) was cared by clinical settings with high quality. The percentage was highest in Changhua County (56.7%) followed by Chiayi City (30.0%) and lowest in Yunlin County (5.2%), Hsinchu County (8.1%), and Penghu County (8.2%).

Conclusion: Large variation in regional inequality in access to high quality of diabetes care (especially the practice of evaluation of kidney function) was noted in Taiwan. Efforts are needed to promote the examination rates among people with diabetes in some cities/counties with low examination rates.

INTEGRATED DELIVERY SYSTEM IMPROVES MEDICAL DISPARITY IN RURAL AREAS (AMSA-TAIWAN)

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Background: Health have been propagated as related policies have also been put into effect globally for decades. Taiwanese government have been making considerable endeavors into eliminating the border of access to medical resources. Currently, medical disparity still exists, highlighting the significance to address the issue more actively and diversely. National Health Insurance (NHI) was implemented in 1995, while Integrated Delivery System (IDS) was executed after four years then. Nonetheless, there have not been a comprehensive evaluation for IDS. Therefore, here, we sought to examine the effectiveness of IDS via several indicators including doctor density, medical institution density and causes of death, hoping to shed light on rural medicine.

Methods: The following search terms were used: rural medicine, national health insurance, integrated delivery system, dependency ratio, density of doctors, population density, medical institution density, crude birth rate, crude death rate, leading cause of deaths. Websites or documents from Ministry of Health and welfare, Taiwan, Department of Household Registration, Taiwan, and Taiwan Medical Association were exceptionally browsed. All graphs and trend lines were made by Microsoft Excel 2016.

Conclusion: Via multiple indicators such as increasing doctor and medical institution density and a cause of death shift more prone to chronic diseases from which once consisted of high proportion of accidents, we propose that IDS do exert positive effects on rural areas. Ensuring the base line of medical practitioners and raising public health awareness which engenders lifestyle habit changes and most important of all are potential positive impacts. However, both doctor and medical institution density is still far lower than national average, while we identify potential medical workforce gap and inequitable distribution of doctors, all of which implicate that health disparity had improved through the implementation of IDS in the past two decades but it requires more time and endeavors to ultimately reach the prospect of health equity.

DIFFERENCES IN THE PARTICIPATION RATES BETWEEN HPV SELF-SAMPLING AND PHYSICIAN-PERFORMED SAMPLING FOR CERVICAL CANCER SCREENING: A SYSTEMATIC REVIEW AND META REGRESSION OF RANDOMIZED CONTROLLED TRIALS (AMSA-THAILAND)

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Background: For cervical cancer screening, high-risk human papillomavirus (hrHPV) self-sampling is more acceptable than physician-performed sampling. However, little is known about the factors that might affect the preference between the two methods. This systematic review aimed to compare the participation rates between self-sampling and physician-performed sampling. In addition, we compared women who had rejected one or more invitations to a Pap test (non-responders) to those who had no record of rejecting any Pap test invitation (general women). We also examined the moderating effect of the Health Access and Quality (HAQ) Index.

Methods: Eligible criteria for an included study were: i) participants randomly invited to participate in either self-sampling or physician-performed sampling, but not both; ii) the experimental groups being given self-sampling kits; iii) the control groups being invited to have physician-performed sampling; iv) no additional intervention that might affect the participation rates; and v) the participation rates being available. We searched articles in Pubmed, Scopus, and Web of Science in May 2019. The quality of the included studies was assessed using the Jadad Scale. At least two authors independently selected the studies, assessed the trial quality, and extracted the data. The differences in participation rates (rate differences, RDs) between groups receiving self-sampling kits and undergoing physician-performed sampling were pooled to determine the preference between the two methods. We also performed a meta-regression to explore the moderators of RDs.

Key findings: This review included 23 studies with the total participants numbering 226,621. The highly heterogeneous data revealed a significantly higher participation rate of self-sampling (RD = 0.08, 95% CI = 0.04 – 0.12, I² = 99%). The pooled participation rate of self-sampling was significantly higher in the subgroup of general women (RD = 0.17, 95% CI = 0.09 – 0.26) than the subgroup of non-responders (RD = 0.04, 95% CI = 0.00 – 0.08). The meta-regression analysis revealed that the HAQ Index, which was significantly and negatively associated with the RDs, explained approximately 27.5% of the heterogeneity. In conclusion, women participate more in hrHPV self-sampling than physician-performed sampling. However, the participation rate

differences are highly variable. General women have a higher participation rate than non-responders. The participation rate differences are higher in women living in countries with lower HAQ Indices. The hrHPV self-sampling test is a promising method that could improve access to cervical cancer screening. More studies in countries with a low or middle HAQ Index are warranted.

THAILAND'S PRIMARY HEALTHCARE IN COMPARISON WITH THE TEN COUNTRIES

WITH THE “MOST EFFICIENT HEALTHCARE SYSTEMS” (AMSA-THAILAND)

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Thailand's healthcare system has become increasingly efficient, moving up from 41 to 27 in the Bloomberg Healthcare Efficiency rankings as recent as 2018. Despite the massive improvement, Thailand is still far from having one of the most efficient healthcare systems in the world. Thus, this paper aims to compare primary healthcare in Thailand with the ten most efficient countries according to the Bloomberg index (Hong Kong, Singapore, Spain, Italy, South Korea, Israel, Japan, Australia, Taiwan, and the United Arab Emirates). A systematic review was conducted by three researchers using three databases (PubMed, World Health Organization (WHO), Google Scholar) for studies published from 2000 to 2018 in the English language, focusing on primary healthcare in the aforementioned countries and categorizing their components by the WHO's Primary Care Evaluation Tool (stewardship, financing and incentives, resource generation, and delivery of primary care). Financially, Japan had the highest general government expenditure on health (GGHE) as a percentage of total government expenditure (20.28% in 2014) with a continuous increase since 2000, while Thailand had the lowest out-of-pocket spending as a percentage of current health expenditure (12.86% in 2014) with a remarkable decrease from 2002 onwards. In terms of resources, Japan had the most hospital beds per 10 000 population (Mean = 140.58, SD = 3.84), and Spain had the most doctors (Mean = 42.37, SD = 3.54). By comparison, Thailand ranked only eighth in GGHE (13.28% in 2014) despite having a prominent rise like Japan over the years but managed to rank first in out-of-pocket spending as previously mentioned. However, Thailand ranked only tenth and eleventh in the number of hospital beds (Mean = 21.69, SD = 1.27) and the number of doctors per 10 000 population (Mean = 3.31, SD = 0.57) respectively. In conclusion, more government investments, more resources provided, and more medical personnel readily available can provide long-lasting improvements to primary healthcare in Thailand to become even more comprehensive and accessible to every citizen in all parts of the country.

Keywords: primary healthcare, accessibility, health expenditure

ASHA - A Hope in Distress

A White Paper Presentation exploring the importance and functionality of ASHA workers in India, their challenges and potential solutions.

(AMSA-INDIA)

Authors: Medhajit Pahari, Kushagra Bansal, Mohammad Arqam Nasir, Pallavi Aggarwal

The Government of India, in 2005, started the National Rural Health Mission (NRHM) which aimed at improving the health status of thousands of individuals, specifically poorest of poor marginalised population, women and children, by making health care accessible to them. To bridge the gap between the community and the health care facilities, a trained female voluntary community health worker or Accredited Social

Health Activist (ASHA) was introduced. ASHA is meant to be the first point of contact for any health related issues of the community. She is selected from the village/community, trained, and then serves the community. However, she is not a salaried worker; for her work, the ASHA is given incentives on a point-based system.

NRHM has helped in significant improvement in the country's health, however, the progress has slowed down recently. To understand the reasons behind this, it is imperative to begin at the rock-bottom level, the ASHA workers.

This study aims to bring to light the challenges faced by ASHA workers, the problems, and to suggest potential solutions for the same. The major problems faced by most ASHA workers are less incentives and delayed payment of existing incentives, shortage of resources (drugs, contraceptives, etc.) and infrastructure, catering to bigger populations leading to overburdening, and lack of refresher training sessions.

All these can be dealt with if a concerted effort is made on the part of the government, private health practitioners, the community, and the individual. Only then, continuous improvement in the health status of the people can be achieved.

Primary Health Care model in Universal Health Coverage (UHC) (AMSA-INDIA)

Authors: Abhishek Sharma, Rohit Shahi, Khushman Bhullar, Karan Kanchan, Shivika Jindal , Jay Gohri , Prateek Jain

Introduction: Primary health care comprises the concepts of promotive, preventive, curative and rehabilitative health care services close to the doorstep of the people. PHC as envisioned at Alma Ata more than 30 years ago has become side tracked with the entry of target based health services and then later the industrialization of healthcare.

Brief proposed policy/solutions: There must be increased awareness among the masses about the disease pattern , their prevention & treatment . Nominal system of insurance with single policy covering all sections of society must be present. Policies like NVBDCP & RNTCP must be revised with management strategies & effective supervision. Regular testing of all sections of society must be done to ensure early diagnosis & prevention of high-risk diseases.

Key Findings: As per our study, 64.5% of the patients encountered in the study experienced financial difficulties as a result of spending on healthcare whereas 76% of the patients had & 5% out-of-pocket expenditure on healthcare. Over the past 12 months , 42.2% of the patients had to experience a significant delay in accessing medicines , 40.6% in getting results of diagnostic tests & 37.5% in appointment with doctor .

Conclusion: To further strengthen the proposed policies and revisions thereof , there should be effective dissemination of information . People should be aware of their rights in healthcare & responsibilities in taking care of their well-being. Government should take strong steps along with good management strategies & effective supervision of the policies & programmes launched.

Innovation Towards JKN Mobile Application Involving Artificial Intelligence (AI) to Optimize Health Promotion to Overcome Health Problems in Indonesia (AMSA-INDONESIA)

Authors: Nurul Mufliha Patahuddin, Shafira Aulia Hanifa, Raina Maharani Tasyandita, Alif Nurul Hikmat

Based on a survey from RISKESDAS (the Indonesian Health Research and Development Agency) on 2018, 4 of the 5 deadliest diseases in Indonesia are non-communicable diseases. In addition, according to WHO 7.8 juta children in Indonesia diagnosed with stunting which make Indonesia the forth highest number of stunting in the world. Most of these health problems are very influential on the health of the nation, but actually these problems stem from a lack of understanding of things as simple as a healthy lifestyle.

The health promotion in Indonesia is still not optimal due to the unequal distribution of health workers across Indonesia regions. Thus, there is a need of a new innovation to make sure that the health promotion can reach out every place, for example using the technology of smartphones. Mobile JKN is an online application provided by BPJS Kesehatan that facilitate the administration of BPJS participants. Currently, Mobile JKN has already been installed more than 5 million times by smartphone users.

Based on the need of health promotion about disease prevention that can reach every place as well as the fact that there is large numbers of smartphone users and Mobile JKN in Indonesia, we propose an innovation about the new upgraded version of Mobile JKN. In this version, we are going to introduce new features about educational health articles from reliable sources to prevent false information about health. This article will be supported by Artificial Intelligence system, so patients will only obtain articles that they really need based on the patient's health status and history of disease. It will also provide information about the possibility of risk factor based on the prevalence of disease in the place where the patient live.

Key findings: equality, health promotion, smartphone, technology, artificial intellegence, JKN Mobile

mQueue: Your Queueing Solution (AMSA-INDONESIA)

Authors: Vanessa Carolina Gunawan, Silvia Husodo, Ivanna Yuhan, Daniel Setyawan P.M

BPJS (Social Security Organizing Agency) is a governmental public institution to achieve universal health coverage which established on January 1, 2014. Health insurance held by BPJS is based on social insurance and equity principle using the Healthy Indonesia Card. Starting January 21, 2019, BPJS has covered 81.75% of Indonesia's population. However, BPJS still has many obstacles, such as referral system where the patients have to queue for hours in primary health care. Nevertheless, these obstacles can be overcome.

Nowadays, the rapid development of information and telecommunications technology, makes the use of handphone become very easy for most people. The use of social media and mobile applications reached 92 million users in Indonesia. This digital transformation can be one of the opportunities as a solution for BPJS to improve its services. In this paper, an online queue application is designed and features are provided to access the nearest health facilities along with temporary queue numbers that can be accessed via smartphone. This application makes queueing effective and efficient, so patients can manage time optimally for other activities and improving the quality of tiered referral services so that the quality of health services and health access can increase.

Key findings:

1. BPJS still has many obstacles, such as referral system where the patients have to queue for hours at primary health care.
2. The use of social media and mobile applications reached 92 million users in Indonesia with a variety of ages.
3. This digital transformation can be one of the opportunities as a solution for BPJS to improve its services.
4. Online queue application makes queueing effective and efficient, so patients can manage time optimally for other activities and improving the quality of tiered referral services so that the quality of health services and health access can increase.

Barriers to Accessibility of Safe and Legal Abortion Among Mothers and the Lack of Access to Psychological Support in Shelter Homes for Teenage Mothers (AMSA-MALAYSIA)

Authors: Goh Kay Vee, AMSA Malaysia, Monash University Malaysia

Pregnancies out of wedlock and abortion are underrated topics of healthcare in the Malaysian society. It is a controversial topic and compromises a degree of personal, cultural and religious beliefs in terms of its legalization. Highlighted issues include; Malaysia's restrictive legislation and strong religious rulings as barriers to accessibility of legal and safe abortion among mothers, the effect of conscientious objections from medical providers regarding abortions and ostracism from society in fueling the growth of unsafe abortion services, and the minimal access to psychological support for teenage mothers in shelter homes. Our stand in the abortion legislation should receive frequent reviews and reconsideration towards a more liberal policy, taking into considerations potential adverse implication on the future psychosocial aspects instead of only focusing on the mother's present physical and mental health during gestational period as indications for legal abortion. Perhaps it is time for the legal counsel and National Council for Fatwa Islamic Affairs Malaysia to establish a consensus and standardized guide on abortion policies. Trainings on reproductive health surrounding all aspects, including safe and legal abortion must be integrated in the current medical curriculum and offered to practicing doctors. Specialized healthcare centers can be established to cater for reproductive health that includes provision of safe and legal abortion services, besides acting as a common information center. Psychological support for teenage mothers should now be extensively offered as an outpatient program in health clinics or by standardizing policies of shelter homes on the minimal delivery of counselling sessions. The proposed solutions are not completely infeasible, however, strong cultural and religious values that our society holds can impose significant challenges toward a more liberal legislation. There are limitations to how much amendments of the existing law can be made, but stigmatization, objections and ostracism among the society can be eliminated via education.

The Devolved Healthcare System in the Philippines and its Role on Access to Health (AMSA-PHILIPPINES)

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Access to healthcare is a means of evaluating the state's ability to fulfill its obligation in ensuring the health of its people. In the Philippines, six out of ten Filipinos die without seeing a medical professional. One of the biggest factors causing this inaccessibility to healthcare stems from the devolution of healthcare responsibilities to the local government. Not only are a number of the Local Government Units (LGU) unprepared to effectively assume these responsibilities, but the Local Health Boards (LHB) created for each LGU are also untrained for the position and lack power in the prioritization and continuation of health programs. LGUs face problems in resource allocation for health programs due to insufficient budgets and the lack of standardization in data monitoring and healthcare guidelines. The shift from the District Health System (DHS) to the devolved healthcare system brought with it breaks in the coordination between the different governing bodies, which created a disabling environment for collaborative health programs such as health referrals, health information sharing, and cost sharing. In order to achieve equitable and accessible health care for all, it is necessary to identify the appropriate level of decentralization that optimizes the advantages of both centralized and devolved systems. Re-institution of the DHS and re-centralization to the provincial level ensures consistent implementation across districts while maintaining quality healthcare delivery at the grassroots level. It is also essential to capacitate health workers with administrative skills and the local government heads with knowledge about the healthcare system. Medical school curricula should be improved with the incorporation of public health and management. Lastly, recognizing the multifactorial nature of health and its social determinants, LHBs should have intersectoral representation, including representation from the community members themselves, to address not just the biological but also the economic, social and political aspects of health.

Financing Your Access (AMSA-SINGAPORE)

Authors: Chrystie Quek, Grace Shen, and Sarah Chan

National University of Singapore

Access to healthcare is an undeniable human right. Singapore has succeeded in achieving Universal Health Coverage (UHC) in terms of equity in accessing health services and quality of health services, but lacking in ensuring adequate financial protection – the third goal of UHC. This compromises on Singaporeans' access to healthcare. Through assessing the coverage, adequacy, eligibility, benefit and efficiency of the healthcare schemes, we analysed the current healthcare financing policies and evaluated how well Singapore provides financial access to healthcare.

The foundation of Singapore's healthcare financing is the 3Ms – Medisave, MediShield, Medifund, which promote affordable healthcare. However, strong emphasis on individual responsibility in the form of high copayments and withdrawal limits compromise financial accessibility of healthcare (Khalik, 2014).

The Pioneer Generation and Merdeka Generation packages benefit elders who require more healthcare support. However, younger generations are also exposed to financial risks, and repeatedly creating age-based financing packages for specific generations is unsustainable (Teo, 2019). ElderShield caters to the severely disabled, but payouts are limited in duration and inclusivity (Gove, Loo & Soontornwipart, 2015).

Subsidies for long term care (LTC) services have given lower income families financial support for LTC services. However, the subsidies and eligibility cut-offs have proven to be unsatisfactory (Basu, 2018). Meanwhile, CareShield has succeeded in risk-pooling the financial risk of disability and old age. While a significant improvement from ElderShield, glaring problems of inequality against females and the already disabled exist (Thomas, Margaret & Soin, 2018).

To address these concerns, we recommend boosting education and publicity efforts, especially towards those of lower income and education levels. Withdrawal and subsidy limits should be consistently re-evaluated to keep up with escalating healthcare costs. Schemes should be better integrated to reduce fragmentation and allow for more efficient application, claims, and payouts, to improve the accessibility of healthcare for all.

Access to Healthcare for Non-domestic Migrant Workers in Singapore (AMSA-SINGAPORE)

Authors: Bernard Ong, Vasundhara Kandarpa Lakshmi, Tricia Tan Hui Ling, Aubrey Ng Ding Rui, Poon Wynne Hsing, Phoebe Aw

Low and semi-skilled non-domestic migrant workers (NDMW) have long been a bulwark of Singapore's labour-intensive industries. However, these workers are also the most vulnerable to workplace injuries and health insecurity. While the Ministry of Manpower (MOM) has guidelines and laws governing employer-employees, Non-governmental organisations (NGOs) on the ground report worrying data of NDMWs having poor healthcare access and poor support in cases of injury and illness.

This paper explores the barriers faced by foreign workers with orthopaedic injuries when accessing local healthcare services, and provides an analysis and evaluation of solutions proposed by various institutions. The role of a NDMW in Singapore and the relation of their occupation to orthopaedic injury is discussed, relevant legal acts and guidelines are introduced, and a brief summary of the Singapore Healthcare System is given.

Key barriers NDMWs face in accessing healthcare are their lack of choice of healthcare provider, poor healthcare financing, and vulnerability from exploitation and threats of repatriation. Taking inspiration from suggestions put forth by NGOs involved in helping the NDMW community in Singapore, we propose a set of novel solutions in this paper to alleviate this problem. In addition, recommendations to address the obstacles and further develop the suggested solutions are also discussed.

Increasing the Stability and Accessibility of the Democratic People's Republic of Korea's Healthcare System: the importance of inter-Korean cooperation (AMSA-KOREA)

Authors: BAE Joonyong, CHO Su Hyun, CHOI Seung Ju, HWANG Suhyeon, JANG Yerin, KIM Ee, Jin, KIM Yujin, KWON Hyukbin, KWON Nahyun, LEE Jungyeun, LEE Kyu Seung, LEE Yoon Gyu, OH Eojin, YANG Siseung

Despite being the recipient of many humanitarian aid projects, the Democratic People's Republic of Korea (DPRK) still faces many health crises today due to its underdeveloped healthcare system. Amongst many of the medical issues that undermine the DPRK's health security, Tuberculosis, Hepatitis B, Malaria, and Parasites are the most prevalent. From the sheer fact that the DPRK has been constantly identified as one of the 30 high TB burden nations by the WHO, it is pertinent to conclude that combating the spread of communicable diseases in the DPRK has become a matter of urgency. Flaws in the DPRK healthcare system, effects of UN sanctions, regional disparity, and overemphasis on the unreliable practices of Goryeo-Medicine have all led to the downfall of the DPRK's healthcare. To help ameliorate this situation, the Republic of Korea (ROK) has provided a substantial amount of assistance, mostly in the form of material aid or emergency relief. However, such actions had limited success and halted frequently due to the fluctuating nature of the ROK-DPRK relationship. Under the principle of promoting humanitarian values and considering that the ROK and DPRK have the same ethnic origin, it is only natural for the ROK to assume responsibility and help advance the DPRK's healthcare system forward. Thus, the recent improvement in the ROK-DPRK relationship can be seen as the perfect opportunity for the ROK government to actively engage in the DPRK's health situation. Although promoting the notion of 'healthcare without borders' is crucial, it is important to note that the DPRK's healthcare is a politically sensitive issue and thus none of the solutions proposed should infringe upon the DPRK's national sovereignty. Signing a bilateral medical treaty, establishing a specialized organization, and changing the direction of ROK governmental approach will all help improve the DPRK's healthcare system while promoting inter-Korean cooperation.

Health literacy: The Border we do not “KNOW” (AMSA-TAIWAN)

Authors: Yi Ching Wang (王奕青)、Lan Lin (林蘭)、Zh Lin Li (李知霖)

Introduction

Speaking of the access to healthcare in Taiwan, we highlight on borders like the insufficiency of individual's health literacy, language barriers, and improvements needed by medical professions. As for the insufficiency of individual's health literacy, one out of every two adults in Taiwan did not have sufficient health literacy, the spreading of fake health news is also a proof and a popular social issue. While foreign residents increase in numbers in Taiwan, they also have language barrier apart from lacking health literacy. Furthermore, medical professions can also cause the gap between patients and medical care without knowing. A survey shows that up to 78% of patients had experience not understanding medical professions.

Problems and Policy/Solutions

In this “health literacy lacking” and “better doctor-patient communication needed” society, we outlined four problems that are associated respectively with medical professions, individuals, foreign residents, and an integration platform of health informations.

Solutions came by two angles, one is by raising individual's health literacy, the other one is by creating a more suitable medical environment for people of all levels of health literacy. We proposed ideas such as developing instant translation software; training medical professions to use plain language; creating an app as an integration platform of health informations. Hoping that with everyone's effort and accurate methods applied, we can raise people's health literacy and break the border of their access to healthcare.

Key findings

#Individual: The insufficiency of health literacy in Taiwan / The spreading of unconfirmed health information on the Internet

#Foreign residents: The language barrier between them and medical care

#Medical professions :The difficulties of people understanding informations provided by medical professions

Preventive medicine for elderly in Taiwan: Promotion in students' contribution and data management (AMSA-TAIWAN)

Authors: Chieh-Yu Wang, Pei-Yu Shih, Shih-Han Chuang

Chung Shan Medical University

Taiwan is an aged society. According to the growing population of the elderly, the government conducts the policy of long-term care. However, several problems have arisen, such as the uneven geographical distribution of community care centers, the low utilization of long-term care services, and the imbalance of demand and supply in long-term care. To alleviate the problems, enhancing preventive medicine is an urgent task. Therefore, we are willing to propose our policy:

The student volunteering project

“Care for the elderly” would be set as compulsory subject for all medical-related students. To compensate for the lack of human resources in elderly care, students could do their volunteer work from community nearby schools to deviated rural areas. Next, we could make use of students' contribution to provide daily care services, promote the concept of long-term care as well as basic hygiene and health education, and hold senior activities to better the elderly's physical and mental status. Furthermore, by touring in deviated rural areas, students could bring the service deep to every family, enhancing the mobility and flexibility of long-term care service.

Combined with the student volunteering project, students could help the elderly upload the health data to online database. Next, the database would monitor the elderly's health status and automatically analyze the uploaded data, and send out suggestions to go to a doctor when the measures are abnormal. With the online database, doctors could have fast access to the patients' health information, leading to more precise medical treatments and higher efficiency of medical resource usage.

Together with other policies, we hope the student volunteering project and online database could put the concept of preventive medicine into practice. We firmly believe that our policy will not only benefit the elderly but also promote the welfare of the whole society.

Mitigation of the Invisible Border between Family Caregivers and the Healthcare System (AMSA-THAILAND)

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Family caregivers play a very important role in assisting patients with chronic diseases. The responsibility of providing care leads to an adaptation of lifestyle. This adaptation may instigate negative emotions such as stress and depression, which may consequently contribute to caregiver burden, or even burnout. Nevertheless, many caregivers tend to neglect their own burden. Moreover, the importance of caregiver burden is not significantly addressed by the healthcare system and community since patients are considered to be the major concern. This attitude leads to the problem that caregivers may not receive appropriate care. Accordingly, there is an 'invisible border' between caregivers and the healthcare system, which is an important issue and should be handled pertinently.

There is little awareness of the problems caregivers face, so effective policies should be proposed. To demolish the border, it is essential for family caregivers to have sufficient information. Caregivers should have adequate awareness of the help available as well as being able to access appropriate healthcare.

A suggested policy would be to provide information and to raise awareness in related fields. The related fields should include family caregiver society, healthcare professionals, and the community. A healthcare protocol, along with online support system, is suggested in terms of providing information. The healthcare protocol should include a mental health assessment, providing information and some tailor-made training. This healthcare protocol would be supported by the online system. The platform would host five sections, which cover areas that would be able to tackle caregivers' burdens: knowledge; a forum for sharing experiences; self-assessment; services and resources; and an area providing research and innovation. Both self-awareness and general awareness could be raised in three ways: short advertisement, awareness posters, and public health curricula. Corresponding to the suggested policies, these measures would possibly lead to the improvement of caring for caregivers.

Key Words: caring for caregiver, family caregiver, chronic disease, caregiver burden, healthcare access, raising awareness, self-awareness, healthcare protocol, online support system

Access to Healthcare for Undocumented Migrants and Asylum Seekers (AMSA-UNITED KINGDOM)

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Access to primary and emergency healthcare is often a struggle for asylum seekers and undocumented migrants within the UK. The London School of Economics released a report in 2007 estimating that there are roughly 500,000 undocumented immigrants in the UK, many of whom need medical support for chronic, physical or mental illness. There have been legislative changes to the National Health Service (NHS) over recent years, allowing for easier access to basic medical treatment such as registration with a General Practitioner (GP), the main primary healthcare provider. However, cultural stigma, traditions of immigrants, lack of knowledge, fear of discrimination or deportation, and cost of medication still proves to be a problem.

Establishment of Asylum Bridging Teams through NHS Trusts, aiming to raise awareness of the essentiality and entitlement to basic NHS healthcare to asylum seekers and undocumented migrants, while collaborating with local Religious Centres, Community Centres or Youth Centres, forms the core of the proposed policies. Aspects of training within all medical professions should also be implemented to ensure that these groups are cared for appropriately when they seek medical care.

Periods, Let's Not Whisper: A Cross-Sectional Study to Determine Barriers in Access to Menstrual Healthcare

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Introduction

- Adolescence is a period of transition and adolescent girls take time to adapt to changes like menstruation both socially and psychologically.^[1]
- Menstrual disorders are a major cause of morbidity in adolescents.^[2]
- The prevalence of menstrual disorders among adolescent girls are as high as 70% for painful menses, 46% for heavy menstrual bleeding and 22% for irregular menstrual cycles.^[2]
- Menstruation reportedly restricts the daily activities of a third of adolescent girls while 12% reported school absenteeism.^[3]
- Knowledge of menstrual disorders is quite inadequate among females such that chronic excessive menstrual blood loss is neglected and has resulted in life-threatening anemia.^[4]
- Adolescent girls also tend to under-utilise health care services for menstrual disorders.^[5]

Objectives

1. To assess the healthcare seeking behavior of adolescent girls suffering from menstrual disorders
2. To explore the barriers that stop them from accessing health care for the same

Methods

Study Design: Cross-sectional study.

Study setting: Two government schools in Delhi National Capital Region.

Study population: Girls aged 12-18 years who have attained menarche.

Sample Size: 103 adolescent girls attending the schools were interviewed for eligibility and participants having any menstrual disorders in the past one year were included in the study.

Study procedure: A pretested semi-structured questionnaire was administered to the study participants. Data about their age, education, socioeconomic status, menstrual practices, disorders, their perception towards menstruation and healthcare seeking behavior was collected.

Statistical analysis: Data was entered into a spreadsheet and analysed using NumPy and SciPy Python libraries.

Results

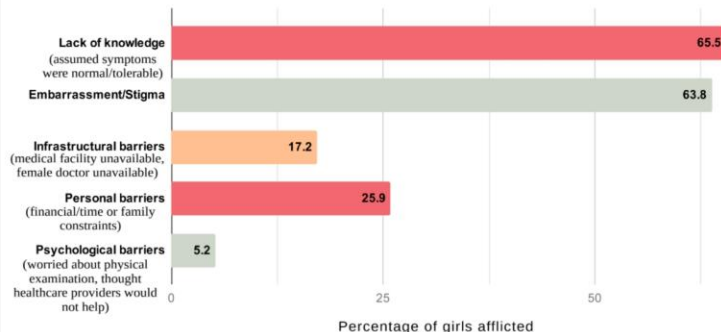
1. In 103 study participants, the incidence of menstrual disorders in the last 1 year was found to be the following:



2. 56.3% participants were found to have suffered from a menstrual disorder in the past year.
3. 56.9% of them did not seek medical help for the same.



4. The barriers that stop adolescent girls from accessing health care for menstrual disorders were found to be:



5. The healthcare seeking behaviour of girls who felt comfortable talking about menstruation was found to be significantly better than those who found it embarrassing. (p-value = 0.003)

6. 63.6% girls believed that menstrual blood was dirty and thus heavy bleeding would leave their bodies cleaner and healthier.

7. 37.8% girls missed school while menstruating.

8. 79% girls abstained from offering prayers while menstruating.

Discussion

- Only 43.1% of the girls suffering from menstrual disorders consulted a doctor.
- 65% girls who had any menstrual disorder assumed that their symptoms were normal. 91% girls said that their mother was the primary source of information as well as the first person they would inform in case of a menstrual problem. This indicates that there is a pressing need to educate girls as well as their mothers to enable timely recognition and management of menstrual disorders.^[7]
- 63.6% participants believed that menstrual blood was dirty and thus heavy bleeding would leave their bodies cleaner and healthier. Harboring this belief can lead to neglect of menorrhagia which puts girls at risk of developing anemia.^[8]
- 63% girls felt too embarrassed to discuss a menstrual issue. In India, menstruation has historically been regarded as "impure" and has been surrounded by taboos and myths that exclude women from many aspects of socio-cultural life.^[9] This perpetuates an atmosphere of secrecy and embarrassment which further impedes their access to timely help.
- 37.8% participants revealed that they miss school while menstruating, the chief reason being painful menses. School absenteeism has ripple effects on the economic and intellectual development of communities as a whole. Therefore, these are not just women's issues but societal issues.

Conclusion

- Lack of knowledge and stigma were found to be the most significant barriers impeding access to healthcare in the study population. This shows that there is an indispensable need to educate girls on normal menstrual patterns and enable them to identify a disorder. An understanding of this natural biological process and encouraging conversations about menstruation will ameliorate the stigma that surrounds it and destroy a significant barrier that stands in the way of healthcare.

References

1. Ravi, R., Shah, P. B., Edward, S., Gopal, P., & Sathyaasakaran, B. W. C. (2017). Social impact of menstrual problems among adolescent school girls in rural Tamil Nadu. *International journal of adolescent medicine and health*, 30(5), doi:10.1515/ijamb-2016-0088.
2. Rahitgaurkar, V., Wakankar, A., Oka, G., & Kamble, S. (2018). Menstrual disorders and treatment seeking behaviour of adolescents. *International Journal Of Community Medicine And Public Health*, 5(10), 4248-4253. doi:10.18203/2394-6040.ijcmph20183886
3. Chan SS, Yiu KW, Yuen PM, Sabota DS, Chung TK. (2009). Menstrual problems and health-seeking behaviour in Hong Kong Chinese girls. *Hong Kong Med J*, 15(1), 18-23.
4. Nelson AL, Ritchie JJ. (2015). Severe anemia from heavy menstrual bleeding requires heightened attention. *Am J Obstet Gynecol*, 213(1), 97.e1-97.e6.
5. Chauhani MG, Patel H, Solanki H. (2016). Reproductive Health Problems and Treatment Seeking Behavior among Adolescent Girls of UHTC Field Practice Area, Govt. Medical College, Bharuagar. *NJ J Community Med*, 7(3):355-358.
6. Shaw, W., Howkins, J., & Hudson, C. N. (1977). *Shaw's Textbook of Operative Gynaecology* (17th ed.). Edinburgh: Churchill Livingstone.
7. Kaur D, NK, Sharma MK, Kaur G. (2016). Menstrual problems of school going unmarried adolescent girls and their treatment seeking behavior in Chandigarh, India. *Int J Community Med Public Health*, 3(11), 3106-3116
8. Gang, S., & Anand, T. (2015). Menstruation related myths in India: strategies for combating it. *Journal of family medicine and primary care*, 4(2), 184-186. doi:10.4103/2249-4863.154627

