

## An Integrated Behavioral Health to Non-communicable Disease in Cambodia

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### Abstract

Noncommunicable diseases (NCD's) such as type 2 diabetes and hypertension are increasing in Cambodia. Clinicians in Cambodia do not routinely offer behavioral interventions to address the lifestyle behaviors such as poor nutrition, lack of physical activity and tobacco smoking that contribute to poor outcomes for NCD's. Behavioral conditions such as depression and substance use disorder that are frequently comorbid with NCD's also contribute to poor clinical outcomes are also not routinely addressed in medical settings in Cambodia. Integrated healthcare is the systematic, team-based approach to delivering behavioral interventions to address lifestyle and behavioral conditions that underlie poor outcomes for NCD's delivered by a Behavioral Health Consultant (BHC). Research on type 2 diabetes and hypertension risk factors such as nutrition, physical activity, tobacco smoking and alcohol misuse demonstrates the need for a new workforce of BHC's to improve quality and outcomes. A model of integrated behavioral health designed by this research team uses a Health Risk Assessment, a social worker or community health worker in the BHC role, and smartphone app platform for patient health self-management is recommended.

**Keywords:** Behavioral Health, Non-communicable Disease, Diabetes and Hypertension

### Introduction

Noncommunicable diseases (NCDs) increasing dramatically in low- and middle-income countries, accounting for 82% of deaths [1]. Four behavioral health risk factors; physical inactivity, poor nutrition, tobacco use, and excessive alcohol, are major causes of NCD's [2]. Dramatic economic transitions in Asia have resulted in a change from low calorie, high fiber foods to processed foods high in fat, salt, and sugar [3,4], and decreased levels of physical activity [5,6].

Integrated behavioral health is the primary care or hospital-based, coordinated treatment of NCD's in primary care and hospital settings with a focus on adding a Behavioral Health Consultant (BHC) to deliver behavioral interventions for lifestyle and behavioral conditions that underlie poor outcomes for NCD's. Integrated care is as an urgent necessity in Asia [7]. Integrated care results in reduced hospital admissions and readmissions, decreased hospital length of stay,

improved patient treatment adherence, improved quality of life, and reduced healthcare costs. However, a lack of standardized approaches to defining and measuring integrated healthcare contributes to a lack of consensus among stakeholders on implementation and funding of integrated care globally [8].

### NCD's in Cambodia: Diabetes and Hypertension

Rapid economic development and demographic shifts in Cambodia has resulted in an increase in the prevalence of major NCDs, such as diabetes and hypertension [9]. According to the Cambodia WHO STEPS survey, the prevalence of diabetes was 7% in 2010, up from 5% I 2000, 16% have hypertension, 20% have high cholesterol and hypertension in 2010 was 2.9% and 11.2%, respectively [10]. Ath found the prevalence of high blood pressure in men and women is 12.8% and 9.6% respectively; in urban areas the prevalence of high blood pressure was 16.9% while in the rural areas the prevalence of high blood pressure was 10% [11].

The Cambodian healthcare system is very limited in the capacity to provide adequate care for NCDs, resulting in patient left untreated or having care interrupted due to lack of financial resources, barriers to access of care, shortages of medication, and supplies providers lack confidence and training to treat diabetes [12]. Patients often wait years until their diabetes is diagnosed, often struggle to afford and take medications when diagnosed, and have difficulty making behavior changes to improve health [13]. Nonogaki, et al. found that only 49.3% of diabetes patients in poor urban areas of Phnom Penh reported high adherence to diabetes medication. Higher medication adherence was associated with higher family income, absence on diabetes-related complications, greater utilization of health services, following a special diabetes diet and abstinence from alcohol [14].

### Risk Factors

Diabetes and hypertension risk factors in Cambodia include tobacco use, the harmful use of alcohol, unhealthy diet and lack of physical exercise. Male sex, increasing age and \ cardiovascular associated factors of higher Body Mass Index (BMI), dyslipidemia, impaired fasting glycaemia, and abdominal obesity were all associated with an increased prevalence of hypertension [15]. The WHO STEPS survey found daily smoking of tobacco at 26.4% of the population between the ages of 25-64 years, 49.3% men and 4.8% women, unhealthy diet (low fruits and vegetables) for 84.3% of the population and 10.6% had low physical activity, with moderate and high levels at 13.3 and 76.1%. Poverty, low education levels, inadequate public health and lack of public policy to address behavior change contribute to these unhealthy behaviors [10]. Body mass index (BMI) and Waist circumference (WC) are key predictors of T2DM and HYP and when adjusted to lower cut-offs for the Cambodian population show that 25% of the population is overweight based on BMI and 20% have high WC [16].

### Alcohol and Tobacco

The 2014 National Adult Tobacco Survey indicated that that 16.9% of the population were daily smokers (32.9% of men and 2.4% of women) aged  $\geq 15$  with about 4.9% using smokeless tobacco. Alcohol use disorder and heavy episodic drinking were 25% and 31%, respectively in rural communities in Cambodia, and risk factors were male, younger age, and increasing income [17]. A survey of alcohol use among school-going adolescents found that 10% reported current alcohol use, 10.8% lifetime intoxication, and 2.8% problem drinking, with older age, being male, bullying victimization, close friendships, suicide attempt, drug use, father/male guardian alcohol use were associated with problem drinking [18]. A study of alcohol and tobacco use among patients with NCDs four that 15.5% were current smokers, 14.5% current smokeless tobacco users, 20.7% daily total (smokers and smokeless), 9.3% problem drinkers and 4.1% both daily tobacco users and problem drinkers [19]. A study of alcohol and tobacco prevalence found that men who smoked were twice as likely to drink alcohol, and that by age 18 - 25 47% of the male smokers drank alcohol, increasing to > 55% through the 50's [20]. Drunk driving is a significant problem with 17.5% of fatal auto accidents involving alcohol in 2014, a 34.9% increase from 2012 [21]. Problem drinking is a significant problem for female entertainment

workers, often related to pressured or coerced alcohol use in settings such as beer gardens and massage parlors, increasing risk for HIV or other sexually transmitted disease [22].

### Psychiatric Disorders

Until recently reliable epidemiological data on psychiatric conditions was lacking. Earlier studies found high levels of anxiety (40-53%), depression (11.5 - 42.4%) and post-traumatic stress disorder (PTSD) (7.3 - 28.%) [23,24]. A recent study by Seponski et al. reported high prevalence of anxiety (27.4%), depression (16.7%) and PTSD (7.6%), with women reporting higher rates of psychiatric problems than men, and women who were in debt, widowed/divorces, or low education levels reporting the highest symptomatology [25]. A study of patients in Southeastern Asia (e.g., Vietnam, Cambodia, Myanmar) found prevalence for anxiety at 17% and depression at 39.1%, psychosis at 15% and schizophrenia at 18% while 9 provinces in Cambodia specifically reported a high incidence of suicide attempts [19,26]. A study of cancer patients in Cambodia reported 58.5% had depressive symptoms, and quality of life was significantly lower in depressed patients [27].

There is a lack of infrastructure for psychiatric services in Cambodia, resulting in long-term institutionalization and imprisonment. Families are often de facto caretakers which can lead to loss of social capital, maltreatment and caging or chaining of individuals with severe mental illness [28]. Psychiatric problems were strongly negatively associated with measures of economic status, and PTSD was related to high poverty [29]. The mean duration of untreated mental illness in patients with Schizophrenia was 47 months [30]. Individuals with psychiatric problems face high stigma and discrimination [31] are isolated, excluded from social and economic activities, to attend school and find employment, resulting in high rates of disability and premature mortality [32].

Research has shown discrimination, stigma, and finances as barriers to Cambodian's willingness to access services. Study findings suggest there are few trained mental health specialists, an over-representation of services in urban versus rural areas and limited services for males, people with disabilities, individuals exploited for labor, and those with more serious mental illnesses [33]. Raising awareness and strengthening collaboration between key stakeholders, integrating mental health services among the community, improving accessibility to effective psychiatric medications, training multidisciplinary and competent health professionals, and providing community-based care for those with chronic mental health disorders would be ideal to enhancing mental health services in Cambodia [28,34].

### Integrated Healthcare in Cambodia

The need for integrated healthcare in Cambodia is striking. NCD's are treated with medication only, but results are poor due to lack of medication and poor treatment adherence. Providers lack the education, training and resources to provide lifestyle behavioral interventions for poor nutrition, lack of physical activity, tobacco and alcohol use [35]. There is an even greater lack of infrastructure for treating psychiatric conditions [34]. A recent survey showed clear support for integrated medical and mental health services [36].

Recommendations for improved integrated care for NCD's include patient health education and treatment and improved health insurance coverage, a sufficient supply of medication, provider training and disease management services, and health technologies such as telehealth and smartphone apps to support patient self-management of health behaviors [35]. This includes provider training in behavioral change for lifestyle problems [9]. Opportunities for improving and integrating psychiatric care into routine medical settings include developing a strategy of stakeholder collaboration, organizing multidisciplinary approaches to team-based treatment, reducing stigma through provider and public education, and services appropriate for the Cambodian culture and context [34]. In addition, there is a need to improve the training of all provider types on psychiatric care, improving access to psychiatric medication, and providing community-based care [34]. Ozano et. al., recommend developing a workforce of community health workers (CHW's) including CHW training in behavior change strategies and techniques [37].

There are a handful of examples of integrated care for NCD's in Cambodia that address these recommendations. MoPoTsyo, a Cambodian non-governmental organization, attempted to address these barriers by implementing a multi-faceted diabetes care program in the Takeo province. They provided patients with trained community-based peer educators as well as access to lab facilities, local outpatient medical consultations, and a revolving drug fund for medications. After one year of participation, 45% of patients achieved goal fasting blood glucose of less than 126 mg/dL. 51.1% reached blood pressure goal of below 140/90 [38]. In addition, medication adherence and greater utilization of peer educators and lab testing were each associated with improved glycemic control. MoPoTsyo group has also been studying the utility of mobile technology (mHealth) in facilitating patient self-management of diabetes and hypertension in resource-limited settings [39]. An mHealth intervention using text messages to support diabetes self-management in developing countries found improvements in controlled HbA1c in Cambodia, although this finding was not statistically significant [40].

### Recommendations: An Integrated Behavioral Health Model

The recommendation by this research group is an integrated behavioral health program delivered by a BHC in consultation with the medical team. The BHC role may be filled by a social worker or community health worker in consultation with the physicians and nurses. A patient Health Risk Assessment (HRA) was developed by this team and piloted in China and Southeast Asia [41] comprised of domains that reflect common mental health, substance abuse, and lifestyle health behaviors. The HRA was created using items from the *My Own Health Report* (MOHR) HRA [42] and additional screening measures. The MOHR domains are nutrition, physical activity, risky alcohol use, smoking, anxiety, depression, stress, and sleep. In addition, the Somatic Symptom Scale for common physical symptoms [43] and the Abbreviated PTSD Civilian Checklist [44] were utilized. The goal is to identify diagnoses (e.g., T2DM, HYP), lifestyle (e.g., nutrition, physical activity), psychological (e.g., anxiety, depression) demographic and Social Determinants of Health (e.g., income, marital and employment status, and health literacy) in

patients to target treatment based on a profile of risk factors. In addition, a readiness ruler [45] is used to identify the patient readiness to change for each HRA item. This is used to identify the risk areas that the patient is most ready to address in treatment.

Next, this group recommends an mHealth approach to support patient self-management of NCD's, lifestyle and psychiatric problems. Studies of smart phone app use to improve diabetes self-management show an overall reduction of 8% in HbA1c for type 2 diabetes mellitus (T2DM) compared to usual care. An example of a smartphone app Care4Diabetes that is designed to support patient self-management of lifestyle behaviors for T2DM. The *Care4Diabetes* app includes the following content: education sessions, exercise, dietary logs, medication/insulin logs, blood glucose monitoring, automatically individualized reminder, and telephone/video conference [46].

The strength of the *Care4Diabetes* app is the diabetes-specific content and an interactive nurse portal for seamless communication between patient and clinician. The nurse portal is essential for remote care management in the context of barriers to in-person care common in Cambodia. Patients will benefit from remote screening, assessment and treatment planning to improve access to care and adherence with treatment recommendations. Patients' health data are collected and reviewed in real time by the BHC, patients and their family or caregivers. Patients can review charts or graphs on physical activity, and self-reported nutrition and other patient reported outcomes (e.g., depression, stress) and their motivation based on readiness to change.

A workforce education and training component is needed for BHC's, physicians, nurses and community health workers in primary care and hospital settings. Clinical social workers are an example of the type of workforce needed to serve as BHC's on the primary care team [47]. This research team is currently piloting behavior change clinician training modules for the 5 A's approach to assessment and engagement [48], Motivational Interviewing [49], Behavioral Activation for depression [50] and nutrition and physical activity behavior change adopted for busy and resource-poor healthcare settings in Southeast Asia. The clinician training will include how to review the HRA results with the patient using the 5 A's (Assess, Advise, Agree, Assist, Arrange) approach to completing a health assessment and shared decision-making [48]. Lifestyle interventions for nutrition and physical activity will be utilized to improve health self-management. Patients will be encouraged to monitor their HRA results at home and to consult with the clinician remotely by phone or SMS text messaging. The role of the BHC is to provide the oversight to evaluate the patient progress towards health behavior self-management over time, to identify and address barriers to care, and consult and coordinate care with the primary care or hospital team.

### Summary

The integrated behavioral approach appears ideally suited to managing the combined health risks of NCD's, lifestyle behaviors, psychiatric and substance use disorders in Cambodia. The key components of integrated behavioral health include a BHC as the key point of contact, working

in collaboration with the at-risk patient to review health risks, agree and implement behavior change interventions, and provide systematic follow-up. Population health management strategies and health technologies are incorporated based on evidence for effectiveness and the need to provide care remotely due to barriers to in-person care.

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