

Access to Treatment Drug for Diabetes Patients in Rural Cambodia

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Abstract: Diabetes has become a significant threat to the livelihoods of many peoples. In order to address management practices for this chronic disease, there is a need to understand the cultural constructions of diabetes throughout developed and developing countries. In this work, I consider the Cambodian production of a diabetic patient and how the tools utilized by these patients construct the disease. In order to do this, ethnographic fieldwork was carried out with a Non-Governmental Organization based in rural looking at the use of technology and self-management routines and how this shaped diabetes for impoverished Cambodians. While strategies for diabetes management appear to be crude and lacking in knowledge and resources, I will demonstrate that impoverished Cambodians are more than capable of dealing with their disease. The benefit packages of existing social health protection schemes and services in the public health sector should be adjusted to cater for the needs of people living in rural Cambodia. Initiatives that offer active disease management strategies and promote patients and community participation appear more successful in increasing treatment adherence and decreasing the risk of financial hardship.

Keywords: Access to treatment, Diabetes Drug, Rural, Cambodia.

1. INTRODUCTION

Cambodia is a low income country in Southeast Asia and has a total land area of 181,035 square kilometers [1], with the population of 16.28 million in statistics 2019. In large part of rural population is up to 12.22 million and for urban population is 4.06 million. Whereas gender ratio for woman is 8.27 million (51%) and man 8.01 million (49%). for life expectancy for woman is 68.67% and man 65.56%. Cambodia is one of the fastest-growing economies in the region, albeit from a small base. Cultivation of rice is the dominant activity in rural areas, which contain 80% of the population of the country. Life expectancy at birth is 54 years for men and 58 years for women. Infant and childhood mortality to age 5 years is 124 per 1000 livebirths [12]. Gross national income per head is US\$320 per year, country rank 187 in the world [13]. Population growth is 1.36% per year, and adult literacy rate is 74% [11]. The capital city, Phnom Penh. Lifestyle and ethnicity also differ between different regions of the country. Therefore, to gain a full understanding of the burden of non-communicable diseases for the country as a whole, assessment of several population samples is needed. Diabetes is a chronic metabolic disease characterized by elevated levels of blood glucose (or blood sugar), diabetes affect more than 220 million people worldwide, 80% of deaths occurring in low and middle income countries. This disease cannot be cured but can be managed through practicing good eating habits, exercising regularly, and taking insulin or other medication if it is required. Cambodia is known for innovative health financing schemes aimed at improving access to care and providing financial protection for the poor. They were, however, not designed with the burden of NCD in mind and therefore, it is unclear whether they offer any protection for people living with diabetes.

2. LITERATURE REVIEW

The national estimated prevalence of diabetes mellitus is 3.0 % [14]. The Cambodian society and its health care system show traces of a long period of war from the 1970's to the 1990's, followed by a post-war reconstruction phase with massive influx of foreign development aid and rapid economic development. Although development aid has decreased drastically in recent years, the government health budget continues to be complemented by external resources. In the public health services, treatment for people with diabetes is hampered through a lack of medicines and training of staff [15]. The half of patients with diabetes in Cambodia remained untreated in rural area.

The private health sector has grown steadily and many small-scale health service providers, especially lower echelon providers, get most of their revenues through selling pharmaceuticals. Diabetes is costly to patients and their families so that need to treatment this disease as soon as possible. Peoples lived in rural area can't self-manage their condition by creating networks of community-based diabetes peer educators who share their knowledge with other patients. It was based on a common vision of public health system to teated diabetes disease that delivering what would now be called primary treatment. In the last decade, the Council of Ministers officially approved the Health Coverage Plan mapping the country into "Operational Districts", with a health center as first point of contact delivering a Minimum Package of Activities by trained health staff, treated by rural hospital, meant to serve the health needs of 100.000 to 200.000 people.

Because all individuals with diabetes only and patients with diabetes were included in the final phase of sampling, only the first two weights were applied to these groups. The final weight is the product of the three weights calculated and is the same for individuals in a given OD and strata. The screening happened in May 2013 while structured interviews took place in July-August of the same year. The 709 individuals were interviewed by qualified researchers, following training in concepts of NCD and use of a questionnaire using a mix of pre-coded structured and open-ended questions. The questionnaires were pre-tested and queried about issues related to diagnoses, treatment, reasons for consulting the type of frequented health provider, health seeking behavior and associated expenditure for outpatient consultations in the 30 days prior to interview and hospitalization in the last 12 months, sources of money and coping mechanisms for dealing with the costs of their illness. Respondents were also questioned on household's debt, including self-reported formal and informal credits incurred at household level as defined previously by Ir et al in the Cambodian context. Respondents were asked whether they took traditional medicines obtained through the Khmer traditional healers; other treatments received in clinics, pharmacies, health centres and hospitals were categorized as "allopathic". Furthermore, data collectors recorded the names of medicines used by respondents for diabetes. Recorded medicines names were later converted in their International Non-proprietary Name (INN) and compared to the NEML; the medicines were coded as "according to NEML" if they were on that list. If the medicine was not on the list, it was coded as "not on NEML" and if the interviewee was unable to remember or show the medicine, this was coded as "don't know".

A total of 7,361 households were approached during the screening process; 1559 individuals reported suffering from diabetes; 120 (2%) adults had diabetes and 82 (1%) both conditions. Of the 1,559 interviewees reporting with one or both of the concerned conditions, 53% were enrolled with one or more scheme: 18% (281) HEF, 13% (198) CDC, 9% (134) CBHI, 7% (109) PEN and 7% (108) multiple schemes. The subsequent total number of interviewees was 14% (97) with diabetes. Fifty percent did not belong to any scheme (Table 1). Their mean age was 56 years and two thirds were female. The majority were diagnosed more than 3 years prior to interview.

Table 1: Sample Characteristics

	CBHI	HEF	CDC	PEN	NS	TOTAL
N	73	134	113	34	355	709
%	10%	19%	16%	5%	50%	100%
Province						
Baray Santuk	0%	31%	87%	60%	32%	39%
Samrong	5%	24%	6%	33%	24%	19%
Kirivong	95%	45%	7%	7%	44%	42%
Mean age (SD)	54 [12]	59 [16]	56 [12]	56 [10]	55 [13]	56 [13]
Gender						
Male	28%	35%	43%	25%	34%	34%
Female	72%	65%	58%	75%	66%	66%
Time Since Diagnosis						
<1year	18%	18%	8%	7%	7%	15%
1year	24%	17%	11%	18%	28%	21%
2years	12%	15%	21%	30%	16%	16%
3years	14%	18%	15%	14%	12%	14%
4+years	32%	32%	45%	30%	36%	34%

The proportion of people receiving allopathic treatment at the time of interview varied significantly between schemes ($p < 0.001$). Interviewees covered by PEN and CDC were more likely on allopathic treatment (85% and 57% respectively), than HEF beneficiaries (48%) or CBHI members (32%). The proportion of interviewees without treatment at the time of interview was 40%, with the highest figure amongst CBHI members (59%) and the lowest amongst PEN members (10%). Reasons for dropping out of treatment were multiple and included beliefs that the disease was not serious, feeling better and financial constraints (figures not shown in table). In total, only 8% across schemes reported taking traditional medicines. A little less than a quarter of interviewees used multiple sources of treatment (22%). Private providers, both formal and informal, were a frequent source of treatment for all respondents (43%). However, people covered under CDC (62%) and people not belonging to a scheme (46%) used private providers more frequently than HEF, CBHI and PEN beneficiaries (32%, 33% and 7% respectively, $p < 0.001$). Of those covered by HEF and CBHI, a third or less got treatment from public facilities while only 14% of CDC patients reportedly did, despite the fact that CDC clinics belong to the public sector.

In all five groups, the two main reasons for not having treatment were feeling better (49%) or being unable to afford treatment (45%). For those who never received any treatment, insufficient knowledge about their disease and its outcome was the main reason and 44% of them reported they would seek treatment in the future. There was a significant difference of care seeking attitude between people who chose public and private health services ($p < 0.001$). Fifty-two percent of respondents chose PEN services because these were covered by the scheme they belong to. On the other hand, trust in provider was the main driver of choice for people seeking care in private clinics (53%) and private pharmacies (42%). Quality of services and medicines were reported as core elements of trust.

3. PROGRAM OF ACCESS TO TREATMENT AND DIABETES DRUG IN CAMBODIA

We initiated the diabetic treatment program in March 2002 in Siem Reap province (population 700,000) and in March 2003 in Takeo province (population 800,000). The programs consisted of outpatient clinics at the public referral hospital level and operated similarly in both locations. We provided integrated, patient-centered care (similar to that offered to HIV-positive patients) for those with diabetes, as has been described previously [7]. For diabetes, we enrolled patients with types 1 or 2 and, while we included only patients >15 years old at Siem Reap, patients of all ages were seen at Takeo. Many patients had been previously diagnosed with diabetes, either by a local health provider or a laboratory. Between a quarter and a third of individuals were taking oral anti-diabetic drugs at time of first consultation. The clinic staff included general practitioners and nurses trained in diabetes care, drug educators, adherence counselors, a receptionist and support staff to facilitate patient flow. Those same health personnel also attended patients with other chronic conditions (HIV/AIDS). MSF subsidized care: patients were required to pay the initial registration fee (US\$1.00), a fee for diabetic for a 3-month treatment of glibenclamide and US\$4.50 for a 3-month treatment of metformin) until mid-2005, and transportation costs. However, from mid-2005 onward, all drugs were free of charge. Transportation costs for patients were never covered by the program. We defined criteria for the diagnosis of diabetes type 2 as: fasting blood glucose greater than 126 mg/dl on at least two occasions, or random blood glucose (RBG) greater than 200 mg/dl on one occasion with accompanying symptoms and signs of diabetes. We defined diabetes type 1 as child-onset diabetes. Patient admissions were somewhat restricted in 2007 due to high workload. Advice on exercise and appropriate diet was given to patients on an individual basis. Until 2005 this was provided at the end of the consultation by the doctor, and after 2005 by a nurse in a separate counseling session. However, due to human resources constraints (until 2007 only one nurse was involved in health education), most patients attended only one to two 40-min sessions. We employed an oral hypoglycemic agent as monotherapy when medical treatment was required: metformin if body mass index (BMI) ≥ 23 kg/m², and glibenclamide if BMI < 23 kg/m² and/or if there were contraindications to metformin. A second oral agent was added for patients failing to reach glucose control with monotherapy. We reserved insulin therapy for patients with child-onset diabetes, pregnancy, or those with moderate to severe renal impairment. Other non-diabetic drugs such as antihypertensive drugs were used if required clinically. Antihypertensive drugs were started immediately in patients with BP $>130/80$ and target organ damage. Otherwise, pharmacotherapy was initiated if BP was not controlled ($<130/80$) 3 months after advice on lifestyle modifications was given to the patient. Angiotensin-converting enzyme (ACE) inhibitors were prescribed as first line antihypertensive therapy. A β blocker was used in patients with cardiac disease. Drugs from other classes, diuretics and calcium inhibitors were added if combination therapy was needed.

4. METHODOLOGY

This instrumental case study aims to access to treatment for diabetes of patient-centred programme within the overall health system, and draw lessons for other patient-based initiatives [6]. This case was purposively selected based upon the content of the programme, the innovative approach used to ensure access to treatment, the context and the access to informants and data for analysis. Themes followed from the strategy analysis and research questions and included: 1) the role of the peer educators in the community and within the health care system; 2) the Revolving Drug Fund (RDF); 3) MoPoTsyo's role in organising health services; and 4) collaboration with and integration into the national health system. We show the conceptual approach used for the analysis in Fig. 1.

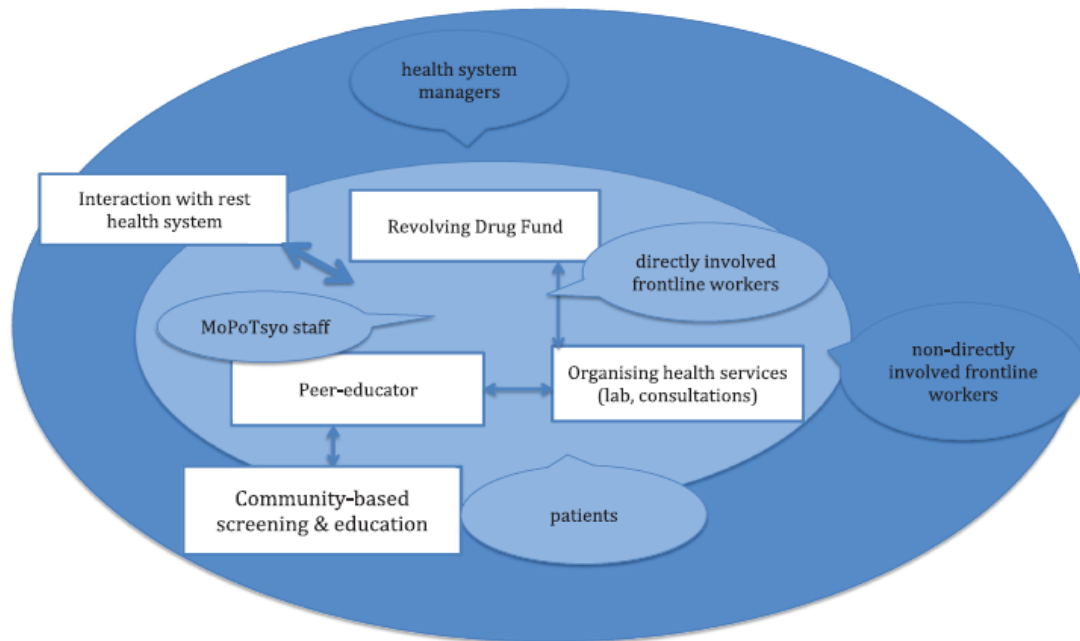


Fig. 1 The conceptual approach for the analysis of the MoPoTsyo function as perceived by health system stakeholders

MoPoTsyo was established in 2004 to empower people living with diabetes to self-manage their condition by creating networks of community-based diabetes peer educators. A major driver was the observation of a poor exchange of information and communication between patients and health care providers. The observed 'mismatch between what patients wanted to know and what they were allowed to ask and get in terms of information' was striking. Especially for people with chronic diseases such as diabetes, providing adequate information can contribute to better (self-) management, which may in turn decrease the development of complications and the need for more specialized care, keeping costs affordable. The initial aim of the programme was therefore to provide access to information for people with diabetes. The programme trains people with diabetes in self-management and it also teaches them how to become a peer educator. Candidates are identified based upon their motivation, literacy level and social skills. The 6-week training curriculum (in Khmer) was developed by doctors, pharmacists and experienced peer educators and trains candidates to self-manage their disease. After the exam, they return to their own community to form new patient groups through active community screening, going to people's houses, providing education on diabetes and offering to have their urine checked. They are linked with other peer educators and MoPoTsyo staff within the health district forming a network, through which reporting, supervision, continuous education, monitoring and evaluation can be organized. The number of diabetic patients per peer educator varies from 20 to 100, with most covering strips), and host weekly patient gatherings and education sessions in their homes, which act as patient information centres. Their activities (on average three half days per week) focus on providing people with diabetes with reliable information on nutrition and exercise and teaching them basic skills such as self-measurement of blood glucose levels, blood pressure and bodyweight. The peer educators are trained to perform blood glucose tests and general follow-up. In case a patient does not show up for follow-up, the peer educator will visit the patient at home to motivate him/her to continue treatment. The educators receive a travel cost reimbursement and financial incentives for service and performance, including incentives for activities such as screening, monitoring, and patient gatherings. On average, the monthly incentive adds up to USD 40. Around 60 patients. Peer educators receive basic equipment and supplies (e.g. a handheld glucometer and blood and urine glucose).

5. CONCLUSION

In conclusion, this study has shown that improvement in access to treatment for diabetes can be obtained in large numbers of individuals. The main social health protection schemes in Cambodia offer very limited financial access to medicine for members with diabetes in the country's rural areas. Disease specific interventions established for this purpose perform better though to a limited extent. The nature and content of health services at public health facilities and consequently the benefit packages of social health protection schemes should be adjusted to cater for the needs of people living with diabetes. Key features were a chronic disease structure to the program, standardized diagnosis and treatment protocols, multidisciplinary team, and heavily subsidized care. Complementary actions at the population level to promote lifestyle changes and achieve healthy body weight are also necessary components of good diabetic care and need to be established. These and other interventions in resource-poor settings require further operational research to improve care. However, our results do offer encouragement for the scaling up of care for chronic diseases such as diabetes, as they are a large and growing burden of illness in developing countries.

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