

【研究ノート】

Empowering Nepalese Villagers with Health Literacy through Maintenance of Personal Health Records in a Health Database

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[Background] Personal health management is an essential skill to examine one's own health status and maintain good health. In many Nepalese villages, weight and blood pressure are hardly measured because of poor access to health services and the financial burden thereof. Furthermore, health records tend to be poorly managed.

[Purpose] The purpose of this study was to improve the health management skills of Nepalese villagers and develop a database of medical records in Nepalese villages.

[Method] Physical measurement along with health education was conducted for adults in community and students at government schools in a village. A health records program was designed so as to develop a database. A workshop on managing health records was conducted.

[Results] Three government schools in central Nepal, measured their students' height and weight, and tested their vision. Furthermore, two village community groups had their weight, height and blood pressure measured. Health education was conducted with the co-operation of community group members.

The data was put on an excel spreadsheet and subsequently, onto the database.

[Conclusion] The participants were eager to examine their own health status by checking their physical measurements and learning health education. Further intervention is needed to enhance the initiatives of the participating schools and community groups to improve health management.

Key words : Health management, Nepal, Health database

Background

Keeping personal health records is one of the fundamentals in health literacy and a basic element to improve one's health. In Nepal, access to physical examinations is very limited and schools and institutions are not mandated to provide health checkups to students and employees. Having no access to hospitals makes it difficult to have your weight and height measured and blood pressure taken, and these basic health data are rarely measured due to poor access to health services and financial burden, especially in rural areas. Moreover, paper based health records may be poorly managed. At government schools, health education is usually imparted through textbook instruction. The lack of hygienic sanitation facilities prevent students from being accorded the opportunities of practicing hygienic behaviors such as washing their hands with soap or using toilets with clean water. Weighing scales, height measures, eye charts, and other equipment for physical measurement are not available at schools run by the government.

Since the National Health Insurance Policy was settled in 2013, the Nepal government has been trying to establish a social health insurance scheme¹⁾. Until a scheme is implemented, Nepalese need to pay for health expenses from their pockets. The United Nations reported Nepal as the third poorest among 58 countries in Asia with the sixth lowest human development ranking, ranking 149th out of 189 countries and regions worldwide²⁾. For low-income families, health expense is a huge burden³⁾. Hence, keeping health record is indispensable to empower health literacy and being healthy.

Purpose

This study aims to strengthen health literacy of Nepalese villagers through regular physical examinations and keeping their health records in a database.

Method

This study has been conducted as a part of community health promotion project in the southern part

of Nepal, with village committee A in Lalitpur district in the Kathmandu valley, and village committees Band C in Makwonpur district. The village committees liaise between residents and government schools in each community to implement physical measurement and health education (Table 1). Duration of this study is from August 2018 to March 2020.

Table 1 Study participants

	<u>A village in Lalitpur district</u>	<u>B and C Village in Makwonpur district</u>
Local partner	A Village Development Committee	B Village Committees C Village Committee
Main Participant	Government School D Age 5 to 16 (550 students :)	Government School E Age 5-16 (200 students) Government School F Age 5-10 (200 students)
		B Village Women’s Group (30 -40 members) C Village Women’s Group (30-40 members)
Local Health Service	1 Government health post 2 Private clinics 1 Community health post	1 Government Health Post
Hospital Access	30-60 minutes by local bus (Many hospitals in Capital)	30 minutes to city hospital (poor quality) 1.5-2 hours by local bus to qualified hospital
Population/household*	4,254/728 (2011 Nepal census)	13,099/2,751 (2011 Nepal census)

Participants

Village A is located at the outskirts of Kathmandu city. Its population is growing rapidly, especially after the 2015 earthquake. Although there are no qualified medical institutions in village A, certified hospitals in Kathmandu are accessible from the village in terms of distance (Table 1). Many students of the government school C belong to poor families who lost jobs and homes because of the earthquake. The number of students per class has increased from around 40 to around 50.

Villages B and C in Makwonpur district have poor access to hospitals. Government health posts offer very limited medical services (Table 1). Villagers must travel between one and two hours to reach certified medical institutions. The government schools D and E are located in the B village.

Makwonpur has become one of the fastest growing districts in Nepal. Commodity price keep rising due to the rapid economic development and affect low-income families. Most students attending the government schools belong to underprivileged backgrounds.

The height, weight, BMI, and blood pressure were measured for adults. A health record sheet was provided to each participant to maintain a record of personal measurements (Figure 1). Blood pressure was gauged via a digital wrist blood pressure monitor to avoid disturbing the tight sleeves of the tradi-

tional blouses worn by women. Correspondingly, the height, weight, BMI, and eyesight were evaluated for the school students. A health record card was distributed to each student for the self-maintenance of their health data (Figure 2).

Height and weight were measured on the flat floor in school corridor using height measuring equipment and weight scale. BMI chart was made by the author according to the BMI formula. BMI result was written to each participant's record using the BMI chart. (Figure 3).




Health education was provided to strengthen the health literacy of the participants and to make them

BP		MY HEALTH RECORD	BMI	
Normal	~ 119 / ~ 79		Low	~ 18.49
Border	120 ~ 139 / 80 ~ 89		Normal	18.50 ~ 24.99
High	140 ~ / 90 ~		Overweight	25.00 ~ 29.99
		Name		
		Age _____	Ht. _____	
DATE				
General	Poor So so Good Very Good			
BP	/ /	/ /	/ /	/ /
Wt.	Kg	Kg	Kg	Kg
BMI				

Figure 1 Health record for Adult

SCHOOL PHYSICAL MESUREMENT Date: _____

Grade: _____ NAME: _____

My Height	My Weight	My Eye Vision	
Cm	Kg	Right	Left

Figure 2 Health record for student

aware of the importance of constant physical measurements. The instruction also aimed at improving the basic health behavior of participants and to encourage acts such as washing hands with soap and brushing teeth before going bed.

The data pertaining to the physical measurements were entered into an excel spreadsheet and were subsequently uploaded onto the database.

Ethical considerations

This study was approved by the ethical committee of Sonoda Women’s University. The purpose and method of this study was orally explained to participants in Nepalese. Verbal informed consent was obtained from the two village committees and from the legally authorized representatives of the three government schools.

Results

Physical measurement and health education were conducted at government schools in village A and B (Table 2). Workshops on health education and physical measurement were conducted every 4 to 6 months in the two villages in Makwonpur (Table 2). The height, weight, BMI, and blood pressure of

Table 2 Villagers’ participation in health programs from 2017 to 2019

		2017		2018			2019			
		Augst	December	March	August	December	March	August	December	
A	School D	n	400					23	109	
			Ht. Wt. Eye sight measure-ment					School teacher Work-shop	Ht. Wt. Eye sight measure-ment	
B	School E	n		112					98	
				Ht. Wt. measure-ment HandWashing Education					Ht. Wt. measure-ment Oral Health Education	
	School F	n			141					142
					Ht. Wt. measure-ment, Hand Washing Education					Ht. Wt. measure-ment Oral Health Education
Women’s Group	n		30	83	50	70		33	19	
			Wt&BP measure-ment, Oral health education	Wt&BP measure-ment, Diabetis Edu-cation	Wt&BP measure-ment Nutrition edu-cation	Wt&BP measure-ment		Wt&BP measure-ment	Wt&BP measure-ment	
C	Women’s Group	n		37	22			30	33	28
				Wt&BP measure-ment Blood pres-sure education	Wt&BP measure-ment			Wt&BP measure-ment Hand Wash-ing Education	Wt&BP measure-ment Oral Health Education	Wt & BP me measure-ment

around 40 to 50 participants were examined at every intervention and were followed by a session on health education. Record sheets for measurement data were distributed to each participant for them to retain their data. The health education sessions sought to empower participants through knowledge and to make them aware of the importance of regular examinations of the measured health indicators.

In village B, the workshop was generally held at the residence of a member of a village women's group. Hence, other members were encouraged to participate in the workshop (photo 1). The house faced the main road, and new participants kept entering the workshop; this uncertainty in the participation made it difficult for the researchers to track health records. The health record sheet was given to participants in a file case to prevent loss of the record due to damage. Nonetheless, some participants kept losing their record and asked for another sheet at every session. However, the willingness to manage physical health measurements was evident among the women's group members. Several of the women tried to use the wrist monitor on their own with the help of instructions from the researchers and wrote the measurement data on their health records (photo 2 and 3). A wrist monitor was provided for the women's group on its request so that the women could check their blood pressure more often.



Photo 1 Workshop at community member's house in village B



Photo 2 Blood pressure measuring



Photo 3 Keeping record



Photo 4 Workshop at the Community meeting center in village C

Village C is situated far from the main road. At this village, the workshops were held at the community meeting building (photo 4). The main participants were women's group members and they came to the workshops consistently. However, they were hesitant to manage the measurements on their own.

The heights and weights of the students were measured at the three government schools, and their eyes were tested. Government school C in village A has been the present project's school health program partner since 2013. Physical measurements had already been conducted at this school twice before beginning the present study. Teachers had already been instructed by the researchers in 2015 on the accurate process of measuring height, weight, and eyesight and they practiced the measurements with support from the researchers. However, many other programs were held on the scheduled date for the physical measurement, and it was impossible to obtain the cooperation of the teachers. Instead, six volunteers were recruited from among the students of the senior classes and they helped to undertake the measurements under the supervision of the researchers.

At government schools D and E, the schoolteachers were very cooperative and they performed the physical measurements and conducted the health education sessions with the authors. This physical measurement was the first such opportunity for the students at both schools. The students were very excited about participating in the health education session and happily received their health records (Photo 5). At government school E, there were no water taps but a water hose was supplied instead. The researchers prepared buckets and pitchers for the handwashing workshop in order to provide running water for students to practice handwashing (photo 6).

The measurement data were transferred into excel worksheets by the schools' computer teachers and the researchers, and was maintained in each school's computer and in the computer of the researchers. Computer education is mandatory at Nepalese government schools, but there is not enough funding for computers and internet systems. Also, the lack of qualified computer teachers causes the frequent mismanagement of computers at the three government schools. In fact, the physical measurement data of government school A were lost due to the crashing of the school computer.

A database was developed to save the physical measurements of the participants. A stable computer environment is necessary for students to access the database and check their own data. The computer



Photo 5 Physical measurement at school



Photo 6 Health education at school

rooms were under the renovation at the three government schools and the internet was being installed. The data must be maintained on excel forms until the school computer rooms are ready to use.

Discussion

Physical measurements and health records strengthen health management skills. All the participants showed great interest in their measurement data at the physical measurement occasions : they were all curious about their weight and blood pressure.

The measurement of blood pressure and weight represented a rare opportunity for the adult participants of these villages. Compared to previous data, they thought over their lifestyles and realized the importance of improving their health behaviors including their food intake habits. At the same time, the workshop provided participants the opportunity to share experiences and thoughts on the health. The participants were encouraged to improve health behaviors by listening to the efforts of others in their own community.

Digital blood pressure monitors are easy to handle but they must be correctly operated to accurately evaluate the blood pressure. Compared to arm monitors, wrist monitors are simpler and are easier for the local people to handle in the examination of their blood pressure. Such compact equipment can empower the health management skills of villagers, promote the physical measurement in rural areas, and provide opportunities for villagers to enhance community resilience by sharing information and encouraging each other.

Physical measurement is essential for the evaluation of the health status and physical development of school age children. Many students were excited to know their physical development in figures. Since female students often displayed their concerns about weight measurement, the place or timing of such measurements for girls and boys should be carefully arranged. The students of the government schools E and F were excited to participate in the health education sessions. Instead of the text-based health education style, practical health programs should be promoted in a larger way to build the interest of students in improving their health behaviors. In addition, empowering both students and schoolteachers to develop active health programs on their own is a vital element of school health education. Given the limited resources in Nepal, Government school A has been accorded more opportunities than other schools to institute different kinds of health programs by different organizations apart from the present project.

The implementation of the health database should be carefully performed to meet the current computer education environment at government schools in Nepal. ICT has been steadily promoted in education in the country, and students will become quite capable of operating computer systems even at the government schools in the near future. Students can learn excel skills through the physical measurement

database by making graphs and performing calculations. Also, the database can be used to maintain other health related information for the students' school years and can be carried forward by them when they graduate from school. An organized computer room setting is indispensable for students to learn computer skills. Further, building their abilities to efficiently utilize the information will enhance their quality of life and health.

Conclusion

The participants were eager to examine their own health status by checking their physical measurements and by acquiring health education. It was suggested that the workshop opportunities enhanced community resilience.

Further intervention is necessary to enhance the initiatives of the participating schools and community groups to improve health management skills and to utilize the health data base.

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