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RESEARCH NOTE

DRINK BOILED WATER: A CULTURAL ANALYSIS OF A HEALTH EDUCATION MESSAGE

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Abstract—Water boiling is recommended by health eduators in Sri Lanka, and boiled water is given to ill and vulnerable people, but it is not widely consumed by the public. The reasons for this behavior derive from long-standing notions about health care. This study complements one presented some years ago by Wellin, based on the health culture of Peruvians.

How are public health messages interpreted by people in developing countries? Messages that fail to take the lay health culture into consideration are open to misinterpretation, compartmentalization and desensitization to priority issues. My purpose is not to preach the importance of a cultural perspective in health eduation since the literature is riddled with this sermon. But I would like to present a new case to illustrate the point. The example concerns the most basic of health messages, 'boil drinking water'.

Three decades ago Wellin [1] published a frequently cited account of water boiling education in Peru. Demonstrating how this behavior was influenced by the culture, he wrote:

> A trained health worker can perceive "contamination" in water because his perceptions are linked to certain scientific understandings which permit him to view water in a specially conditioned way. A Los Molinos resident also views water in a specially conditioned way. Between him and the water he observes, his culture "filters in" cold, hot or other qualities that are as meaningful to him as they are meaningless to the outsider.

The present case from Sri Lanka complements Wellin's ethnography of Peru. In contrast to Peru, 90% of the men and 82% of the women in Sri Lanka are literate. They are also within easy reach of health facilities, with the average person living within three miles of one or another clinic. Over the last two decades, the country has experienced a notable decrease in infant mortality, which is presently 37 per 1000 births. Even so, diarrhoeal diseases remain a leading cause of morbidity and mortality, accounting for 53% of all infectious disease deaths in 1979. In the same year, they were the third leading cause of death for the population at large, with 44.9 deaths per 100,000 [2]. One study [3] has indicated that deaths from water-borne diseases increased by 49% in the 5 years between 1971–1976. Reviewing existing morbidity/mortality data, Pollack [4] observed:

> The trend of decreasing disease specific mortality in hospitals without parallel decreases in morbidity, suggests that, for specific diagnosis (e.g. gastroenteritis, typhoid fever, and malnutrition), there is an awareness of the availability of curative intervention, but the preventive intervention components have not been emphasized or have been unsuccessful.

To learn why preventive intervention has been unsuccessful for water related diarrhoeal diseases, I studied the main forms of behavior in the spread of these diseases: defecation habits, food handling and drinking water. This paper is confined to the latter variable.

Public health inspectors and family health workers have encouraged people to drink boiled water for well over three decades. Despite their efforts, field workers know that the message is largely unheeded. One health inspector with whom I spend considerable time in the field, estimated that less than 10% of the rural families he visited regularly used boiled drinking water. Why do literate Sri Lankan people pay so little attention to this health precaution? Health workers who urge boiling water have a respectable status in the community [5], so it cannot be that they are dismissed as outsiders. Let us consider two other possibilities:

(1) Is the underlying issue one of fuel scarcity? In some areas of Sri Lanka this may be an important variable, but it was not important in the Horana–Ratnapura region of southwest Sri Lanka. Firewood was available, and even wastefully used.

(2) Is the underlying issue that the local culture does not attend to the qualities of water? This certainly is not the case anywhere in Sri Lanka. Indeed, one of the few material possessions a Sinhalese Buddhist monk is prescribed to carry is a water filter, and everywhere the taste, smell and inherent qualities of water are important concerns. Villagers are keen to see the source of their drinking water. This is one reason that closed wells are not popular. Another reason is that a limited amount of sunlight is considered necessary for keeping water fresh. Drinking water of unknown origin is considered a hardship. In fact, one way a villager expresses to a friend the hardship of having to remain in Colombo city for a period of time is to exclaim "ayyo! pipe water—you have to drink and bath in it!"

While daily commuting to Colombo from a village, I observed passengers in crowded buses jostle their water bottles and lunch packets. Bringing lunch packets was easy to understand in relation to microeconomics, but water? My commuter friends ex-

plained that they did not trust Colombo 'pipe water'. They spoke of pipe water as *marana vatura*—dead water or *kirul vatura*—water tasting of iron and associated with urinary problems. They disliked the 'medicinal' smell of chlorinated water. On the other hand, they felt that boiled water was tasteless [6], so they preferred to transport small bottles of unboiled well water an hour and a half by crowded bus. Why did they ignore the public health advice, which they all knew very well, to boil their drinking water?

Before considering why people do not do something, it is more prudent to consider why they do what they do. In the present case, I talked to people about my observation that boiled water was routinely prepared for ill people, but not consumed by other members of the household. The reason offered to me by public health colleagues seemed insufficient, for they reasoned that because the advice to drink boiled water was originally introduced and most adamantly repeated during epidemics of cholera, typhoid and gastroenteritis, people associated the practice with illness [7].

I identified three reasons for boiling water in discussions with lay people. The first requires an appreciation of indigenous water management. The qualities of water from different sources affect the purposes for which it is used. When water is plentiful villagers use different sources for drinking and bathing in accord with the clarity of the water, the depth from which it comes and its exposure to the sun. When water is scarce, an available source is used for many purposes, but efforts are differentially expended to transform the qualities of water used for drinking. Strong and healthy people are little concerned about the water they routinely use, unless its color, smell or taste changes. When people are ill or in a transitional body state, e.g. infants and pregnant women, the qualities of water are tended to. For example, water from a deep well is thought to have a cooling quality that is harmful to someone who is suffering from or vulnerable to illnesses associated with coolness, such as stiffness and pain, or with an excess of phlegm [8]. On the other hand, water directly exposed to the sun is said to be 'sun baked' [9] and inappropriate for someone who is suffering from or prone to heating illnesses. When these are the only sources of water, healthy people use them without giving the issue much thought. When water from these sources are the only ones available for ill or vulnerable people to drink, then it will be boiled in an attempt to mitigate its properties. For bathing, traditional prescriptions that specify appropriate times will be more rigorously followed [8].

Water is also heated to reduce its shock affect on ill or vulnerable people. Shock is an important health concept in South Asia. Emotional distress like fear, and hot or cold physical distress may cause or compound illness. Shock occurs when a person in a vulnerable state is subjected to an excess of hot or cold. People at risk to phelgm problems will not consume cold liquids on hot days. Similarly, ill people only consume and wash with tepid water. Villagers interpret advice to drink boiled water in relation to the concept of shock.

Because villagers do not associate boiling water with killing bacteria, they place more emphasis on administering tepid water to the ill than on fully boiling it. They may boil water for the ill or vulnerable person, and then recontaminate it by adding cool unboiled water to make it tepid. Nevertheless the point not to be lost sight of is that the preparation of water is an act of caring accorded positive social value. This introduces some irony into the context of hospital care, where tepid water is not available even though patients and their families feel that they need it. This fact is cited by laypeople as an example of the poor care in public health institutions.

Another idea associated with boiled water involves the Sinhala concept of *sehellu*, lightness. Digestion is a central health concern in Sinhalese popular culture, and in the learned system of ayurvedic medicine. Dietary regulations vary in accord with the ascribed characteristics of different illnesses. Regardless of the specific characteristics of an illness, however, a general restriction will prevail against the consumption of heavy, *bhara*, foods. A light diet helps to restore normal digestion to an ill person. Indeed, it is fundamental to balancing the humors, and the restriction against heavy foods includes a conception of heavy water. Well water is considered to be heavy unless it is boiled. Boiling causes water to lose some quality or residue that renders it light. The heaviness of unboiled water is considered good for health when one is in a normal state. Clear unboiled well water, *hondai vatura*, is said to satisfy thirst better than light boiled water. Furthermore, unboiled well water is considered 'fresh', 'full of life' and 'having strength' in contrast to pipe water, which is 'dead', and boiled water, which lacks strength. In one informant's words:

> The *guna*, character, of water is like the *guna* of green leafy vegetables. When you eat them fresh, they have life. If you pluck them, transport them and keep them for sale, they lose their life and wilt. When you cook vegetables, they lose their freshness rapidly. It is like that with water. When water is running or in a well exposed to the sunlight, it is fresh. If you collect it and transport it through pipes it is *marana vatura*, dead water; if you boil it water loses its guna, its strength.

Except in the evening, when it may be health promoting, drinking boiled water is associated with illness. Some cooling foods are also avoided in the evening. Since heavy food and heavy water are relatively difficult to digest, some people regularly drink 'light' tepid water in the evening. Their reasoning reflects a general concern that digestion is weakest during inactivity and sleep. The advice to drink boiled water is thus interpreted by some villagers in accord with the concept of *sehellu*, and deemed most relevant for people who have a weak digestive capacity. This interpretation, like that involving shock is supported by the advice about food that ayurvedic practitioners give to pregnant women, the mothers of infants and ill people.

CONCLUSION

In Sri Lanka the advice to drink boiled water is understood in the context of illness and vulnerability. Public health workers emphasize this advice during epidemics, and it is associated with ayurvedic advice to take a light diet when ill. Underscoring lay inter-

pretations of these messages are folk health concepts; ideas about the qualities of water, shock, and digestive capacity. Thus, for a health message as simple as drink boiled water to be communicated effectively, careful observation of customary behavior and the analysis of cultural systems is essential. The analysis may also generate innovative ideas by health educators. For example, the concept of *sehellu* might be used in a program to persuade parents that children under three years old are vulnerable to illness and should consume boiled water [11]. Such a program would support the notion that *sehellu* foods, including boiled water, are best for a child's developing digestive and immune systems.

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1. Wellin E. Water boiling in a Peruvian town. In *Health, Culture, and Community* (Edited by Paul B.), pp. 71–103. Russell Sage Foundation, New York 1955.
2. Statistics on diarrhoeal diseases were gleaned from the following sources: Pollack M. *Health Problems in Sri Lanka. Part I and II: An Analysis of Morbidity and Mortality Data.* U.S.A.I.D., Sri Lanka, 1983. Gaminiratne K. H. W. *Causes of Death in Sri Lanka: An Analysis of Levels and Trends in the 1970s*, p. 59. Colombo, Sri Lanka, 1984. It should be noted that district standardized death rates due to diarrhoeal diseases differ significantly. These range from 10.1 in Trincomallee and 16.5 in Matara to 127.3 in Batticaloa and 90.8 in Amparai. Percentage deaths due to these diseases range from, 1.5% in Kalutara District and 2.9% in Matara to 15.1% in Amparai and 12.6% in Batticaloa. To correct any misconception that urban conditions contrast markedly with rural conditions, it may be noted that the Colombo infant mortality rate due to diarrhoeal diseases is 158% the national average—although for all age groups it is considerably lower than the national average.
3. Pollack M., *ibid.*
4. This study, conducted by the Sri Lankan Department of Health Services, was quoted in the Marga Institute report. Intersectoral actions for health, Colombo, Sri Lanka, 1982. The report also notes that in the Mahaveli Development region, diarrhoeal disease accounts for some 40% of all persons seeking medical treatment and that the latter are largely related to contaminated water sources.
5. Public health inspectors and family health workers enjoy social status in Sri Lanka equivalent to that of a secondary school teacher. As Wellin reported of Peru, advice by the latter to alter health related behavior carries significantly less weight than the same advice offered by a doctor. This weight was more evident in respect to immunization and family planning, technical fixes, than in respect to water boiling as a long term enterprise related to preventive health. On this point I may note that in India boiled cooled water is not regularly used even by the educated. In a personal communication, Charles Leslie noted that drinking boiled cooled water is uncommon among New Delhi academics. He was told by a Professor of Social Medicine at Benares Hindu University that the highest rate of typhoid in Varanasi in the early 1970s was among faculty and students living in University housing.
6. I do not wish to underplay tastelessness as a factor negatively influencing water boiling behavior anymore than time or the cheap availability of fuel. My purpose is rather to identify other cultural factors impacting on water boiling behavior.
7. Routine water supply testing is not performed by Public Health Inspectors and attempts at well purification are only done during epidemics.
8. Nichter M. Cultural dimensions of hot, cold and sema in the Sri Lankan health culture. In *Hot and Cold Medical Theory and Practice: Cross Cultural Perspectives* (Edited by Manderson L.) Forthcoming.
9. Karunadasa H. I. Domestic use of water and sanitation: a behavioral study. National Water Supply and Drainage Board. Colombo, Sri Lanka, 1984.
10. Generalizing the *sehellu* rationale might even prove helpful in marketing a weaning food less likely to be shared in the family than the present weaning food, Triposha, which people ascribe both a strength giving and neutral quality suitable for general consumption. For a short discussion of the CARE weaning food, Triposha, see Nichter M. *op. cit.* A new supplementary weaning food might be marketed as *sehellu* just what a child needs for its developing or weak digestive system. I am suggesting this idea as an example of how cultural concepts might be used as health resources in social marketing. I do not claim that this particular idea would prove effective, but suggest that it would be worth looking into.
11. Among infants, a rate of 242 deaths per 100,000 is reported and among children 1–4 year olds, 16% of deaths are directly related to diarrhoeal diseases with many more likely to be indirectly related. During the period 1971–1979 of the ten leading causes of infant mortality, only diarrhoeal diseases showed no downward trend after 1975 (Pollack M. *op. cit.*).