

CULTURAL PERCEPTIONS AND NUTRITIONAL DISORDERS: A JAMAICAN CASE STUDY¹

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This article brings out differences in the way protein-calorie malnutrition (PCM) in Jamaica is regarded by women who use medical services, women who do not, indigenous health practitioners, and trained health workers. It is suggested that these differences have a considerable influence on the occurrence and outcome of PCM cases.

Introduction

Medical knowledge of how to prevent and treat protein-calorie malnutrition (PCM) does not necessarily assure that PCM incidence will be reduced. Nor does the availability of appropriate foodstuffs assure that these foodstuffs will be used. Factors like persistent adherence to traditional diets lacking appropriate nutrients, biases against using certain foods, and, perhaps most important, lack of understanding about the relationship between food and disease can greatly affect the situation. Nor is there any doubt that the incidence of PCM is related in part to such factors.

The underlying assumption in this paper is that scientifically trained health personnel hold concepts involving PCM that differ fundamentally from those held by the indigenous populations they serve. Investigation of such "diagnostic" differences may provide useful information about factors underlying PCM incidence in a specific locale. Where PCM oc-

curs, one might suspect that the larger the gap between lay and professional concepts, the higher the PCM incidence, and vice-versa. That is because beliefs about the diagnosis of any disease are thought to underlie various actions taken to alleviate its apparent symptoms. Recognizing the existence and nature of these conceptual differences may consequently help in planning ways to bridge the gap (6).

Every human group has both a concept of a healthy norm and a systematic way of identifying and dealing with deviations from it. In the event of a deviation, efforts are made to answer five basic questions: Am I sick? What kind of disease do I have? What are my chances? What causes this disease? Why did it happen to me, of all people? (10). The collective answers to these questions constitute the folk concept or theory of disease and provide the framework for action or therapy.

In modern medicine, these answers are organized into taxonomic categories labelled etiology, susceptibility, and diagnosis. But modern and folk taxonomies often bear cross-cultural resemblances. For example, the taxonomies of infant diarrhea used by indigenous Samoan and modern Western practitioners show remarkable resemblances (4). Such similarities may permit the coexistence of traditional and modern medical routines (24).

More frequently, intracultural or subcultural differences tend to coincide with socioeconomic variations—such as differences in

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education, occupation, income, and ethnic group. A glance at the literature on a wide range of diseases shows that different theories about their causes, prevention, and treatment are held by lay and professional people, and that there is considerable variability among the professionals themselves (1, 15, 18, 22, 23, 24, 25, 27).

Disease theory, in this context, may be related to a pattern of behavior or habit which influences an individual's action in a given situation. When various individuals share this theory, it shapes the related complex of customs of the group or the community (11). The present study attempts to identify and examine some of the qualitative PCM-related differences of this sort found among Jamaican practitioners and lay persons. It is hoped that this may provide a basis for bridging the observed intracultural gap between existing disease concepts.

PCM in Jamaica

Recent public health literature suggests that in some developing countries kwashiorkor is declining while marasmus is increasing. This is happening mostly in areas undergoing rapid socioeconomic change and considerable internal migration. The "no-culture" of present-day urbanism is a predominant factor behind the rising incidence of marasmus (27). However, a recent study in Jamaica indicates that not only the urban areas, but any areas that provide employment opportunities and hence experience heavy immigration, will exhibit a high incidence of the disease. Conversely, the effect on rural areas of disorganization following emigration also produces a milieu which fosters an increased incidence of marasmus (7).

It is estimated that PCM in Jamaica is responsible for between 50 and 85 per cent of all deaths among children 1-4 years of age, if two related causes (gastroenteritis and respiratory infections) are included in the mortality index (21). Among the possible variables affecting this situation, a significant correlation

has been observed between PCM incidence and the mother's education (7, 21). A study on St. Lucia has produced similar findings (20).

As noted earlier, the gap between correct and incorrect information concerning PCM may be both an indicator and a determinant of PCM incidence. The problem in such cases is to fill the gap with information which will significantly decrease the incidence.

New knowledge will most readily be accepted when presented in a form compatible with prevailing custom and belief. Therefore, an effective education program must be related to the basic disease concepts held by the target population (8). Too often, however, program planning is based on modern medical disease concepts, it being assumed that these correspond to indigenous views. The literature provides evidence that this faulty assumption may cause programs to fail (25, 27). The PCM issue is further complicated because there are various medical opinions about certain aspects of the kwashiorkor-marasmus syndrome, particularly with respect to diagnosis (28). It is imperative, therefore, to establish ground-rules before initiating program activities.

Indigenous and Modern Health Practitioners

Jamaica, like all developing countries, suffers from severe shortages of medical personnel. This discussion confines itself to the facilities provided by the Ministry of Health to rural, low-income areas of the island. Here the lack of doctors frequently impedes establishment of a physician-patient relationship. In the area of maternal and child health care, the pathway to the physician generally follows one of three routes:

- I. Patient → Midwife/ → Nurse/ → Physician
- II. Patient → Nurse/ → Physician
- III. Patient → Indigenous Practitioner/ → Midwife/ → Physician
→ Nurse/ → Physician

The slash (/) mark indicates that the patient's course may terminate at any point before reaching the physician. Particularly in

routine matters, direct patient-physician contact may not be established because auxiliary personnel may adequately handle the situation at the patient's home or at the clinic.

Consequently, the public health nurse and midwife are key members of the medical team. This is particularly so because their constant circulation through local communities often brings them into contact with women who may not be able to visit a clinic. Of the two, the midwife usually has an educational level closer to that of the target population, and she often has more frequent contact with the patients than does the public health nurse.

In addition to the services of trained public health workers, Jamaicans may seek and receive medical care and advice from one or more of three indigenous sources:

1) The *Nana*: A practical midwife who perpetuates magical customs relating to childbirth, and who serves as an influential lay adviser on traditional child care.

2) The *Balmyard*, where a revivalist male or female healer, considered to possess prophetic powers, cures by removing spells, ghosts, and other forms of black magic inflicted on an individual.

3) The *Obeah-man* (or *-woman*), who cures by putting spells on people, animals, or objects (19).

It is not uncommon for people in developing countries to seek and follow concurrent diagnostic and treatment regimens obtained from indigenous and modern workers, sometimes giving priority to the former. In Jamaica, Ministry of Health employees estimate that roughly 30 per cent of the target population regularly attends prenatal and child health clinics. The remainder attends only in emergencies, sporadically, or not at all. This latter group, the bulk of the population, generally receives and accepts most of its child health information from indigenous practitioners and from influential lay persons—despite the fact that use of indigenous practitioners is discouraged by the Government.

Most Jamaicans live in rural communities and receive a rudimentary formal education.

In these outlying areas, education in child care is achieved primarily through direct observation and through instruction received from "significant others," rather than being achieved with formal methods. Most of the information is passed along by older, more experienced women (usually relatives) belonging to the mother's same socioeconomic class.

Households are composed chiefly of women, often three generations in depth. Since marriage is unstable before the age range of 30-40 years, many children are born out of wedlock. Though a male person may be present in the household, the biological father is generally absent (29). *My Mother Who Fathered Me*, Clarke's widely-used book on Jamaican social structure, succinctly describes the situation (2).

Women, the main decision-makers about child care, are therefore the most appropriate target population for education concerning PCM. However, it may be incorrect to assume that they form a homogeneous group. For purposes of educational planning it appears reasonable to define the target population as being divided into three categories that are likely to have different theories about PCM because of differing sources of information and therefore differing types of child care information acquired.

- Category 1: Women who seek and utilize modern medical services.
- Category 2: Women who seek and utilize indigenous medical services.
- Category 3: Women who seek and utilize both systems, often giving priority to indigenous services.

One might expect that women in category 1 would have theories and customs concerning PCM similar to those of the health worker—as personified by the public health nurse and midwife. Women in Categories 2 and 3 might be expected to have theories and customs similar to those of indigenous practitioners—particularly the *nana*, since she is the type most often represented in the population. It is important to keep these distinctions in mind,

as they will be referred to often in the remainder of this paper.

Method of Investigation

To investigate these assumptions, this case study examines mothers' theories of PCM, comparing them with one another and with theories held by modern medical and indigenous practitioners. It was expected that this would show varying degrees of correct information that could be rated on a sliding scale, especially with regard to PCM etiology, susceptibility, diagnosis and treatment.

Interviews were conducted with public health nurses and midwives, with mothers who did and did not attend child health clinics sponsored by the Ministry of Health, and with *nanas*. A number of women representing each category were selected in various different kinds of rural settlements on different parts of the island. Several interviews were also obtained with *balmyard* practitioners and *obeahmen*. In all, fifty interviews were conducted. Informants were recruited by the midwife serving the area visited, and interviews were conducted either at the clinic or, more frequently, at the informant's home. The people selected were not chosen so as to provide a representative random sample of adequate size, but rather for their willingness to communicate.

The results must therefore be used only as a qualitative indication of conceptual differences about PCM. Also, it is quite likely that more mothers fall into category 3 than either category 1 or 2; but as this could not be corroborated, the analysis has been made in terms of two groups, Group 1 taking in clinic mothers and health workers and Group 2 including non-clinic mothers and *nanas*. Overall, the nature of the data does suggest that different PCM-related theories coexist in rural Jamaica, and that the theories held depend upon whether the mother's information has been acquired through contact with health workers or with indigenous practitioners.

The scheduled interviews were designed to

elicit information from the subjects concerning PCM etiology, susceptibility, clinical picture, course of illness, complications and sequelae, diagnosis, differential diagnosis, and therapy. Photographs showing three PCM cases were given to each informant, who was asked to diagnose and assess various aspects of each child's condition (see Photos 1, 2, and 3). Subsequent responses by the interviewer depended upon the initial diagnosis of the photographs, on the assumption that diagnosis was made on the basis of visible signs.³

Findings

The pages which follow summarize the types of answers obtained, citing the most frequent responses of women in each group.⁴ These responses suggest that there are indeed conceptual differences about PCM, particularly with regard to etiology, susceptibility, diagnosis, and treatment. An interesting finding is that the informants (except for most health staff members) diagnosed marasmus and presented information and beliefs about it rather than about any other syndrome in the PCM spectrum.

There were many similarities between responses of clinic and non-clinic mothers, but those of clinic users more closely resembled responses of public health nurses and midwives, while those of non-clinic users resembled responses of the *nana*. This may have been due to the method of selecting informants, but other factors could have influenced responses as well. For example, clinic mothers, in particular, may have been inclined to report what they felt was expected of them, rather than what they actually believed and acted upon. However, this criticism is counterbalanced somewhat by the fact that the responses of non-clinic mothers, who were recruited by the same method, showed marked differences.

³The complete interview form is reproduced in Fonaroff, 1968 (5).

⁴See reference (5).

1) Etiology

Informants viewing photos 1 and 2 were asked: Why does a child get to look like this? What causes marasmus (*marasmi*, *marasma*)? Answers provided by all the mothers show that they regard improper feeding as an etiological factor. However, food is not the prime reason for marasmus according to *nanas* and non-clinic mothers. These latter groups regard diet as only a contributory factor, which further predisposes an already susceptible child who:

(a) has a cold resulting from improper care and exposure to drafts and wetness;

(b) has "bad blood" caused by the mother's improper prenatal behavior or by a cold that has settled in the blood;

(c) has been invaded by a "duppy" (ghost) because of the mother's improper sexual behavior, the improper burial of a close relative, or the recent death of the mother.

An earlier study in rural Jamaica (3) also indicates that the etiology of most illnesses, particularly those of childhood, is attributed to "bad blood" or *obeah* (witchcraft).

2) Susceptibility

Informants were asked to identify the characteristics of children who contract marasmus, including their age, health status, immunity, and maternal care. As with etiology, a major difference between the groups was association of marasmus with a cold rather than a nutritional state. A *nana's* remarks aptly describe the situation:

"Proper feed keeps baby strong, but what keeps *marasmi* away are herbs, purgatives at times, cough syrups, a little tin feed . . . and keep it out of wet."

Responses by several clinic mothers illustrate the coexistence of modern and traditional beliefs. Along with the importance of proper diet to reduce susceptibility, half of the clinic mothers reported that cleanliness and good blood keep children from contracting marasmus.

Socioeconomic factors were also pointed to as important determinants of PCM. Mothers and practitioners in both Groups 1 and 2 believe that children are more susceptible to marasmus when the mother is working, and particularly when she is forced to migrate to find work, leaving relatives and friends. This observation is substantiated by the relatively higher incidences of PCM found in areas of heavy migration (7).

Substitution of other practices for breastfeeding, prompted either by the mother's workday routine or her preference for prestigious canned foods, frequently produces serious consequences (17). Jamaican public health nurses report that while clinic mothers appreciate the properties of good infant diets, they often make mistakes, particularly in formula preparation. For example, mothers tend to excessively dilute milk, failing to realize that the resulting formula has little food value. While modern medicine perceives these developments as serious threats to the child's nutrition, most mothers apparently do not.

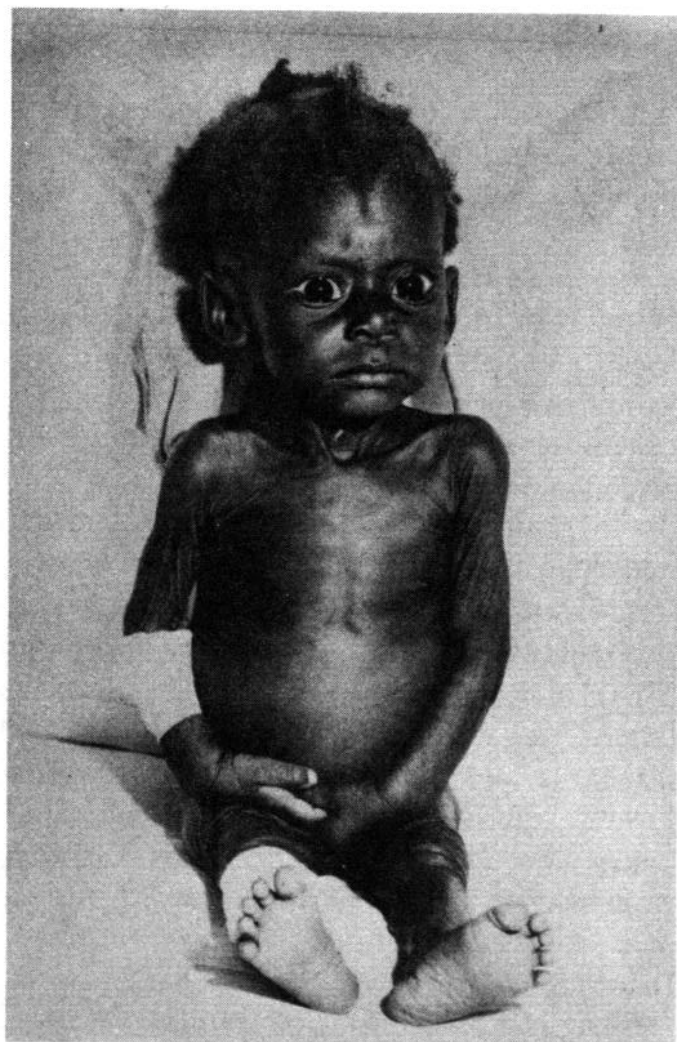
An attempt was made to gauge the threat perceived from marasmus by asking informants to list the common ailments or sicknesses expected for every child. The most common responses were worms, "swallowing of teething water" (a local name for loose bowels associated with teething, thought to be caused by swallowing saliva), colds, fevers, and measles. Mothers were also asked to name illnesses they hoped the child would not get. These included polio, tuberculosis, and bad fevers such as typhoid. Nutritional marasmus or "marasmi cold" was not named in either case.

While modern health personnel recognize the serious threat of PCM to the Jamaican child, indigenous practitioners and mothers do not appear to share this insight. The discrepancy may be related to the latter groups' misdiagnosis of PCM signs and symptoms. Diagnostic symptoms recognized by modern medicine as indicating marasmus are identified by non-clinic mothers and *nanas* as worms or swallowing of teething water. These latter are perceived as threats to the child, but at the

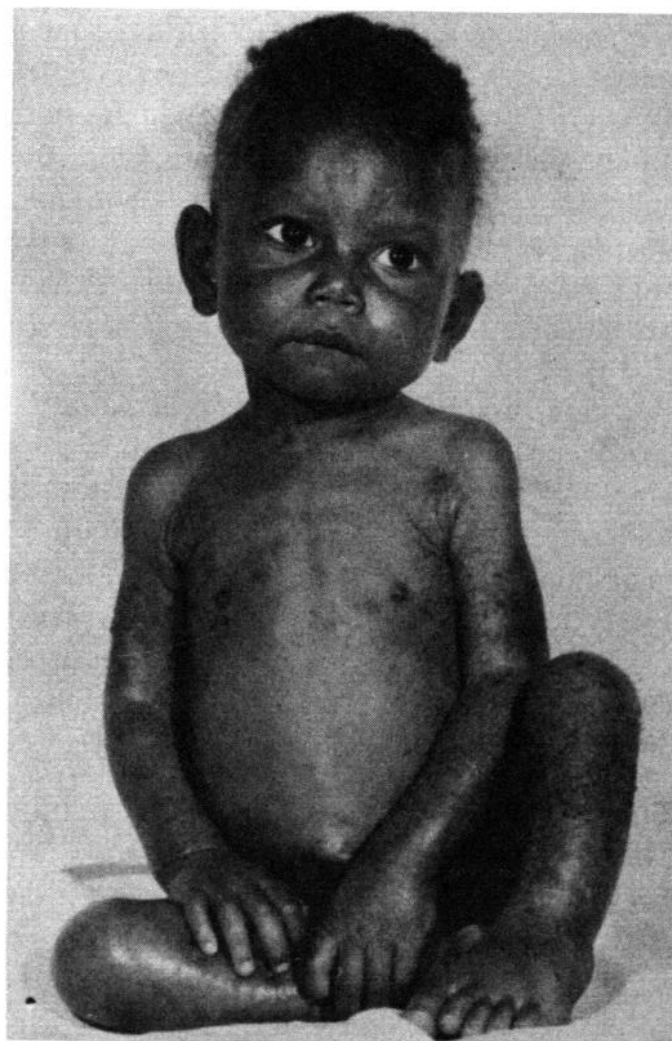
Marasmus refers to a state of general undernutrition resulting from a deficiency of calories, as opposed to kwashiorkor, in which calories are supplied but protein intake is deficient.



(1) Moderate marasmus (left).



(2) Severe marasmus.



(3) Kwashiorkor.

same time they are apparently viewed as ordinary occurrences of childhood and are not considered especially harmful. It is only when they are prolonged and complicated with cold symptoms that the child's condition is rediagnosed as serious.

Rosenstock (26), Hochbaum (14), and others believe that the motivation for health-related action depends upon the interaction between perceived susceptibility to a health threat and the perceived severity of that threat. The relationship between beliefs about etiology, susceptibility, diagnosis, and treatment is therefore critical.

3) Clinical Picture

There were remarkable similarities in the reporting of initial and secondary clinical features. When women were asked "What happens to make you know the child might have marasmus?" wasted appearance, diarrhea, general lethargy, and poor eating habits were universally cited. But only women in Group 1 named edema and hair-color changes as initial signs. Secondary signs identified in both groups included vomiting, diarrhea, rash, dry and scaly skin accompanied by continued wasting of muscles and fatty tissue, and a large head in relation to the body. Without proper care, women in both groups agreed that the infant would die.

Again, the largest discrepancy between the groups involved association of marasmus with a cold. When this sign was noted by Group 1 subjects it was cited as a complication of marasmus resulting from the child's lowered ability to resist infections. In Group 2, respiratory infection in the form of a wheeze or cough was cited as a predispositional, initial, and continuing sign of marasmus.

4) Diagnosis

When asked to describe the child on the left in Photo 1 and the child in Photo 2, women in both groups accurately identified them as marasmic (local terms: marasmi, marasma). However, women in Group 2 con-

sidered marasmus more as a cold, usually a respiratory infection, than as a nutritional disorder. Comments on the other photographs turned up a rather clear diagnostic difference. Only women in Group 1 identified children in all three photographs as having some form of malnutrition, and the term "kwashiorkor" was only used by public health nurses in referring to the child shown in Photo 3.

Women in Group 2 most frequently diagnosed all three children as suffering from worms or swallowing of teething water. Only when treatment for these conditions failed and the symptoms persisted was a rediagnosis made, this time one of marasmi cold.

The diagnostic criteria of women in both groups appeared to consist primarily of signs and symptoms and only secondarily of etiology. The implications of this diagnosis have been touched upon in the preceding discussion of susceptibility and will be further considered under therapy.

5) Differential Diagnosis

Diagnostic choices are quite similar in each group. Marasmic signs and symptoms may frequently be misdiagnosed as worms, swallowing of teething water, tuberculosis, or other infectious diseases. Nurses differentiate between heart or kidney problems, enlarged liver or spleen, gastrointestinal infections, and worms. Among *nanas* and non-clinic mothers a conclusive diagnosis of marasmus is based on cold symptoms.

Interesting contrasts are used by clinic and non-clinic mothers in distinguishing marasmus from worms, swallowing of teething water, tuberculosis, and other respiratory infections (5). The signs and symptoms used as deciding criteria to distinguish between worms and marasmus are that the baby with worms "swells up" while the one with marasmus "pines away" and its hair drops out. Children with worms, in contrast to those with marasmus, are said to grind their teeth in sleep. Diarrhea, accompanied by slobbering while teething (i.e., swallowing of teething water), is not considered marasmus unless the child re-

fuses food and does not regain strength. Respiratory conditions are differentiated from marasmus by the presence of a "heavy cold" in contrast to the general runny nose or cough of marasmus, the latter often being accompanied by blood rather than phlegm.

6) *Course of Illness*

There is no difference between the way women in both groups report the natural course of the illness, except for the *nana's* reference to the presence and disappearance of a cough. The illness is considered concluded when the child gains weight, becomes bright and cheerful, and continues to feed well. Three to twelve months is generally considered necessary for recovery.

7) *Complications and Sequelae*

It is interesting to note that both groups report psychological anomalies occurring in the marasmic child as the disease progresses. Complications are attributed to the child's fretful dissatisfied nature, and to the consequent dissatisfaction of others with the child when he or she fails to respond. It is also interesting to note that women in both groups report that for a healthy prognosis it is necessary to have "proper care"—meaning a combination of affection, adequate diet, and doctoring. This similarity of belief may be one of the most positive building blocks for educating mothers on the prevention and treatment of PCM.

8) *Therapy*

Therapy must be discussed in relation to etiology, susceptibility, and diagnosis. One of the most significant differences between the theories concerning PCM seems to be that women in Group 2 do not regularly associate marasmus with nutritional deficiency, nor do they consider well-balanced diet a central part of the treatment. Rather, the condition is more likely to be identified as a marasmi cold, leading to subsequent treatment for a respiratory condition. Indigenous cold therapies

often require removal of important nutrients at certain stages, such as avoidance of milk because it tends to "curdle the cold."

Indigenous therapy frequently includes visits to the *balmyard*, where prescriptions are based on etiological factors described earlier. The *obeah-man* may also be consulted, but usually not until the child reaches an extreme stage of emaciation and lethargy. Indigenous practitioners prescribe one or more of the following: (a) herb baths, (b) wearing of special amulets, red clothing, or strings, (c) rubbing of asafoetida⁵ in the hair, (d) placing a bible at the head of the bed, often with crossed scissors over it, (e) herb teas and a semi-liquid diet, (f) tightly closed windows and doors and avoidance of all drafts, and (g) numerous patent medicines.

Conclusions and Implications

In Group 1, proper diet is seen as an etiological factor as well as a component in the treatment of nutritional marasmus. In Group 2, proper diet is also considered important, but primarily in terms of the child's susceptibility to a cold. *Nanas* and non-clinic mothers note that children who do not get "right feed" may get marasmus, but this is only one of several reasons for its occurrence and by no means of prime concern.

"Right feed" is variously defined as including cereal and vegetables, enhanced by bush or herb teas and "body-building tonics." As one *nana* reported, "even a fine-boned child can be healthy with these things." However, mothers and practitioners become disturbed when the marasmic child falls into the cycle described by one *nana* as "feed and vomit," which in her mind indicated a need to omit food.

It is not surprising that initial responses to PCM are determined by identifying signs and symptoms. All over the world, mothers observe and treat a symptom without necessarily asking "Why does this symptom appear?"

⁵A fetid gum resin of certain oriental plants in the carrot family.

Etiologic concern apparently develops when action does not effectively curb symptoms. At that stage, if not earlier, women in both groups report consulting older relatives for advice, and home remedies, usually varieties of bush teas and herb baths, are prescribed.

Women in Group 1 are more likely to visit a nurse or clinic when home remedies fail. In Group 2, however, women usually fear "duppy" (ghost) invasion, a diagnosis leading most often to treatment at the *balmyard* or by the *obeah-man*. As an addendum to their own remedies, a number of these practitioners prescribe "doctor treatment." However, by this time the child may already be in a critical state of health and beset with complications including intestinal or respiratory infection. This delay could explain why many marasmic cases of PCM appear late at the hospital or clinic. In contrast, contact with kwashiorkor cases is reported most frequently at child health centers or clinics where mothers are bringing children for reasons other than kwashiorkor. This may be because a child with kwashiorkor can look robust, healthy, and well-fed, especially in the Caribbean, where "sugar-baby" variants are fairly common. Identification of a child with kwashiorkor as a "healthy baby" emphasizes the fact that mothers may not consider its moon-face and subcutaneous fat as deviations from the norm.

The label "marasmi cold" focuses on diagnosis and treatment of cold symptoms rather than malnourishment and may reflect the non-clinic mother's failure to associate food with her child's condition. On the other hand, women who have been influenced by public health workers seem to make a definitive cause-and-effect connection between food, signs of malnutrition, and treatment.

With incorrect diagnosis there is the potential for inappropriate changes in child care. Hence an afflicted child may be exposed continually to an unfavorable environment, which in turn may prolong and complicate his condition.

It seems almost redundant to state that

Jamaican infants and children are clearly in no position to determine whether they do or do not become malnourished. These toddlers form what has been aptly defined as a "stress group" which has nutritional decisions pressed upon it by others (9). These "significant others" may be considered as belonging to two groups:

- 1) Women whose decisions about child care are based on a theory concerning the etiology of PCM which is compatible with modern knowledge, thereby minimizing potential nutritional stress.

- 2) Women whose decisions about child care are based on a non-scientific concept concerning PCM, thereby perpetuating potential nutritional stress.

The nature of the information gap in rural Jamaica can be summarized as follows:

- 1) All mothers believe that improper prenatal and postnatal care creates susceptibility to and occurrence of marasmus, whether it is defined as a cold or a nutritional problem, although some women do not stress nutritional status as a prime factor associated with the condition.

- 2) All mothers believe that proper care to prevent and treat marasmus involves cleanliness and "right feed," although some women have inaccurate information as to what constitutes "right feed."

- 3) Delayed diagnosis of malnutrition by some mothers results in treatments which prolong and increase the child's exposure to environmental hazards.

As mentioned earlier, therapy is not undertaken until a diagnosis is made. Decision-makers whose actions are based on diagnostic error may thus extend PCM symptoms, often into the danger zone. Therefore, principal efforts to combat PCM may best be related to proper identification of symptoms. Also, it appears that symptoms are often treated before their cause has been determined, and that the relationship between an adequate diet and PCM is not frequently established. This is another area where there is an obvious educational need. To accomplish this task will require that Jamaican mothers and indigenous practitioners be convinced both that food is a

prime etiological and therapeutic factor and that the quality and quantity of food influence a child's susceptibility to PCM.

Jelliffe (16) stresses that customs which are "neutral or harmless" to specific disease syndromes should be by-passed, while efforts to institute change should be directed toward those practices which seriously impede good health. In the case of PCM, there would be no harm if women maintained their etiological beliefs about duppy invasion, for example, provided they knew that children with ample diets would be less susceptible to duppy invasion involving PCM. Similarly, there is no reason to eliminate non-toxic bush teas from therapy, provided that mothers know that teas constitute only a minor part of the well-balanced diet. Children should certainly be kept out of drafts and avoid colds, but *via* a sanitary environment and proper diet and *not via* closed, unventilated surroundings. Mothers should treat "marasmi colds," but must recognize that the cold is a complication of a nutritional disorder. In short, coterminous rather than conflicting theories may effectively help to decrease the incidence of PCM.

It is vital, however, to consider the gap between what people know and what they do. Decision-making is not necessarily a process based on a series of rational or logical steps. While most of what we do affects our health, much behavior is not based on health-related criteria. The sum total of a given individual's conscious daily behavior probably contains only a small part that is performed for clearly discerned health reasons (30). This observation is certainly applicable to decisions affecting PCM incidence. Not only are foods selected on non-nutritional grounds, but it has been noted that there are direct health implications for children when mothers are forced or elect to leave home for reasons of work.

The data reveal fair amounts of similar behavior by women in Groups 1 and 2. It is quite possible, and more than likely, that although women in Group 1 recite a PCM theory comparable to that of public health workers, they continue to adhere to certain

traditional methods of child care. On the other hand, non-clinic mothers reveal many positive beliefs which can be used as foundations for instilling modern techniques of child care. Moreover, as health clinics and personnel increase their efforts in rural communities, the maternal decision-maker's participation in a social network may put her into more frequent contact with those who have been influenced by modern medicine. This may result in better models for instruction in child care.

Research findings suggest that the unit of practice for health education should be the family, or that group which has greatest influence on the behavior of individuals (12). In Jamaica, the basic social unit is the household, which, as has been noted, is composed predominantly of female relatives belonging to several generations. Social networks exist within and between these households and extend to other communities where relatives and friends reside (29). It is these networks which channel much information, including where, when, and how to obtain health care. Influential members of this network include indigenous practitioners and older female relatives. Depending upon the nature of contact situations, doctors and nurses may also be influential in guiding health behavior.

A practical, albeit a difficult approach in trying to achieve effective education about PCM might be to recruit and train lay health leaders from the ranks of indigenous practitioners. Not only are women such as *nanas* respected and relied upon as sources for diagnosis and therapy, but they are essentially workers in disease prevention, instructing people in the fundamentals of traditional child care. If new and accurate information were included in the traditional repertoire, public health efforts could be extended to significant numbers of women.

Programs are more likely to succeed if planners permit a dual pattern of medical care to persist. This requires that planners become "other-oriented" and willing to accept values and beliefs which may differ from their own

(11). To bring about this kind of behavioral change, innovators must suspend their own standards of what is normal and must learn to accept the standards of others (14).

The direct implication of this approach to reducing PCM in Jamaica is that effective education might occur if new information could be added to the prevailing complex of customs associated with PCM, particularly if such information were added by the natural and recognized leaders of the community. When people have an opportunity to test out a new idea without giving up what is old and familiar, there may be a greater chance for their new behavior to become permanent. Behavior *can* change even though values and attitudes remain the same, and vice-versa (11).

Filling the information gap can be most effectively achieved by responding to the positive felt needs of the Jamaican woman, who characteristically wants her children and wants them healthy. She aspires to provide her children with what she considers a prestigious way of life. Admittedly there are gross errors in the way she seeks to do this. However, the most frequent response to the question "How would you feel if you found your child had marasmus?" is "I'd be ashamed." This sentiment can be built upon by providing the target population not only with knowledge or with supplementary foods, but with what has been called "good knowledge"—that which will motivate people to act on what they know (13).

SUMMARY

This case study brings out differences in the way protein-calorie malnutrition (PCM) in Jamaica is regarded by women who use medical services, women who do not, indigenous health practitioners, and trained health workers. The study reveals that women who utilize modern health clinics are able to identify appropriate techniques for reducing a child's susceptibility to PCM. But women who rely on indigenous medical services, as well as the actual providers of such services, frequently misdiagnose PCM as a "marasmi cold" and treat it as such. This treatment often involves actions which decrease the child's resistance to nutrition-related disorders.

Both groups of women, and also the indigenous practitioners, provided more information about marasmus than about kwashiorkor, and often identified the latter as a form of robust good health. All of the mothers believed that improper prenatal and postnatal

care would increase a child's susceptibility to marasmus, although some mothers did not associate the condition with nutritional deficiency.

These and other findings are used to recommend ways of organizing and disseminating information about PCM to the public at large. Such educational efforts should emphasize that food is a prime etiological and therapeutic factor, and that the quality and quantity of foods influence a child's susceptibility to PCM. Education programs, however, need not attempt to change indigenous practices which are neutral or harmless; ideas about PCM which parallel rather than conflict with traditional beliefs may stand the best chance of altering PCM incidence. It is also recommended that influential family members and native practitioners such as the *nana* be enlisted as local sources in the effort to provide health information about PCM.

REFERENCES

- (1) Bertrand, A., and C. A. Storla. *Lay Knowledge and Opinion about Heart Disease*. Louisiana State University and Louisiana Heart Association, July 1955.
- (2) Clarke, E. *My Mother Who Fathered Me*, Second Edition. Allen and Unwin, London, 1966.
- (3) Cohen, Y. A Study of Interpersonal Relations in a Jamaican Community. Doctoral dissertation, Yale University, 1952.
- (4) Epling, P. J., and N. Siliga. Notes on infantile diarrhoea in American Samoa (a sketch of indigenous theory). *J Trop Pediat* 13: 139-149, 1967.
- (5) Fonaroff, A. Differential concepts of protein-calorie malnutrition in Jamaica: An exploration.

- tory study of information and beliefs. *J Trop Pediat* 14 (2): 82-105 (Monograph 4), 1968.
- (6) Fonaroff, A., and L. S. Fonaroff. A field model for predicting malnutrition in developing countries. In: *Symposium on Nutrition and Behavior, Annual Meeting*. American Association for Advancement of Sciences, Boston, December 1969.
- (7) Fonaroff, L. S. Settlement typology and infant malnutrition in Jamaica. *Trop Geogr Med* 21: 177-185, 1969.
- (8) Foster, G. Relationships between theoretical and applied anthropology: A public health program analysis. *Human Org* 2 (5): 1-16, 1952.
- (9) Fox, H. Personal communication, 1967.
- (10) Frake, C. O. The diagnosis of disease among the Subanon of Mindanao. *Stanford Med Bull* 19: 105-119, 1961.
- (11) Goodenough, W. *Cooperation in Change*. Russell Sage Foundation, New York, 1963.
- (12) Griffiths, W. Achieving change in health practices. *J Sch Health* 36: 311-322, 1966.
- (13) Hochbaum, G. M. The Problem of Abuse of Stimulants and Depressants. Paper presented at a meeting of the Alcohol-Narcotics-Tobacco Advisory Committee held in June 1964.
- (14) Hochbaum, G. M. Some Implications of Theories of Communication to Health Education Practice (mimeographed). Produced for the Seminar on Communications in Public Health, School of Public Health and Center for Communications Study, University of Minnesota, 1959.
- (15) Jelliffe, D. B. *Assessment of the Nutritional Status of the Community—with Special Reference to Field Surveys in Developing Regions of the World*. World Health Organization, Geneva, 1966. (WHO Monograph Series, No. 53.)
- (16) Jelliffe, D. B. *Child Health in the Tropics*, Second Edition. Edward Arnold, Ltd., London, 1966.
- (17) Jelliffe, D. B. Culture, social change and infant feeding: current trends in tropical regions. *Am J Clin Nutr* 10: 19-45, 1962.
- (18) Jelliffe, D. B. Clinical variation and the practical pediatrician. *J Pediat* 49 (6): 661-671, 1956.
- (19) Kerr, M. *Personality and Conflict in Jamaica*. Collins, London, 1963.
- (20) Lees, R. E. M. Malnutrition: the infant at risk. *West Indian Med J* 15: 211-216, 1966.
- (21) McKenzie, H. I., H. G. Lovell, K. L. Standard, and W. E. Miall. Child mortality in Jamaica. *Milbank Mem Fund Quart* 45: 303-320, 1967.
- (22) McLaren, D. S. Trends in tropical child health. *J Trop Pediat* 12: 84-85, 1966.
- (23) Mead, M. *Food Habits Research: Problems of the 1960's*. National Academy of Sciences, National Research Council, Washington, D.C., 1964. (Publication 1225.)
- (24) Nash, J. The logic of behaviour: Curing in a Maya Indian town. *Human Org* 26: 132-140, 1967.
- (25) Paul, B. *Health, Culture and Community*. Russell Sage Foundation, New York, 1955.
- (26) Rosenstock, I. M., G. M. Hochbaum, et al. Determinants of Health Behavior. In: *White House Conference on Children and Youth*,—E. Ginzburg (Ed.), Columbia University Press, New York, 1960.
- (27) Saunders, L. *Cultural Differences and Medical Care*. Russell Sage Foundation, New York, 1954.
- (28) Scrimshaw, N., and M. Béhar. Protein malnutrition in young children. *Science* 133: 2039-2047, 1961.
- (29) Smith, M. G. Introduction. In: *Clarke, My Mother Who Fathered Me*, Allen and Unwin, London, 1966.
- (30) Steuart, G. W. Health, behavior and planned change. *Hlth Educat Mngprh* 20: 3-26, 1965.