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SOCIAL RESPONSE STUDY DESIGN

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KORO SOCIAL RESPONSE : STUDY DESIGN

Social support and cultural reference are the two most important socio-medical variables for any episode of 'mental contagion' (Kaplan et al., 1977). Mechanic (1977) therefore stresses the due importance of a socio-cultural perspective and states that the concept of illness refers to objective symptoms while illness behaviour ascribes the personal and social meaning of symptom. Illness perception and response are socially learned phenomena because the magnitude of symptoms and the resultant disability are products of the sum of subjective experience and social expectations and/or social definitions of distress. How people in a community respond to a sick person model and sustain that sickness (Waxler, 1974) is immensely important because social sanction is the one of the most crucial pre-requisites for any madadaptive behaviour to be labelled as "illness". Social support systems play a decisive role here since the network of friends and/or primary relationships provides a role model for one's behaviour that in turn leads social credibility and positive sanctions to the individual's behaviour (Stahl, 1982). So social labelling requires a positive illness paradigm of a given symptom for its acceptance. Once the concept or idea of an illness is accepted, the process begins to induce expectations into the patient as to how he should behave as a sick person (Scheff, 1968). This individual social interaction and reciprocal cognitive exchange is a well established socio-psychological mechanism in the genesis and spread of mental contagion (Colligan & Smith, 1978; Colligan & Murphy 1979) in the community (Fig.1)

The process of social labelling involves the expectations of all concerned about the sick-role playing of any of its members. The cultural atmosphere is important in the labelling process. The content of beliefs about the aberrant behaviour held by the family and treatment people, and the hypothetical risk and danger of the behaviour assessed are important determinants of the conditions under which a behavioural abnormality earns the illness character (Scheff, 1966). Beliefs about illness lear-

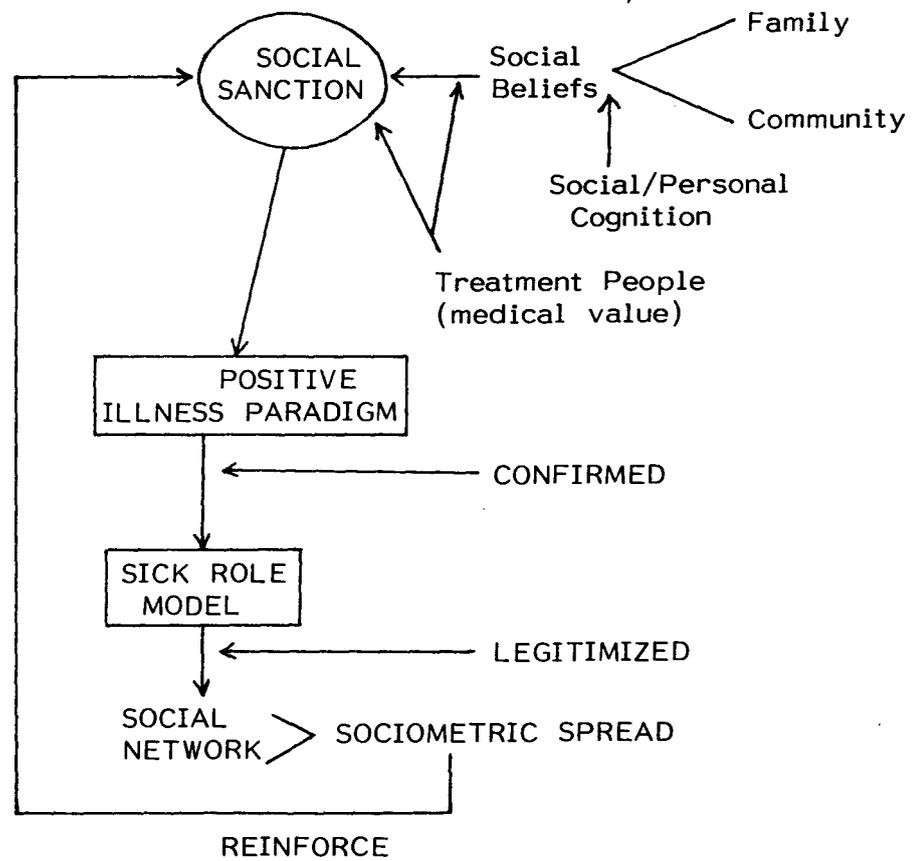


Fig.1. Psychosocial dynamics of 'Positive Illness Paradigm'.

ned through folklores, jokes and stories and through social and personal experience and interactions may guide the expectations of everyone including the patient. Thus through interaction with others, the patient internalizes the 'proper' sick-role and acts accordingly. Once the symptom patterns are received and confirmed as illness, one may expect a very high rate of prevalence that would occur by the transmission of the illness model through different sociometric channels (Sirois, 1982). The social response theory suggests that the labelling of deviation in the form of messages to the patient about the sick role, is consistently strengthened and reinforced by the opinion and the help-providing system of treatment people in the community (Raman & Murphy, 1972). Denitz et al. (1961) states that sickness may be confirmed by the reliance of a bureaucratic structure of the care-giver system including the records of diagnosis and prognosis made by the treatment people of a community, which "may circulate through many hands and may become the sole basis for a treatment person's message to him". Illness and its associated behaviour, so viewed by Mechanic (1977), is not a static, rather a dynamic, response to changing personal and social cognitive interactions. A clinician should guide the process by providing constructive explanation, but should not reinforce the maladaptive behaviour. The doctor is a highly important person because his scientific opinion assigns medical value to the illness in question (Menzel, 1960). He should be an important helper in the process of adaptive response of the patient, otherwise people accommodate illness perception through the constructs of social cognition viz. search for meaning, socio-cultural attribution and social comparison (Cobb, 1976; Mechanic, 1972, 1975).

Once an illness serves as a model of a set of social relationships, it provides a referential basis for defining the model and the contagion enters into the social network and will disperse with increasing rapidity in a chain reaction. Turner & Killian (1972) here stress the concept of "emergent norm" which may explain the phenomenon of the spread of the illness or contagious behaviour. In any collective behaviour, milling behaviour must precede any collective action. Milling behaviour

is such that persons circulate among one another and share their perceptions of events that are occurring. From these shared perceptions, definitions of the situation arise which are communicated to others in the environment. These shared and communicated perceptions, obviously reflect the cultural resources and ethnomedical concepts, then emerge as the basis for norms regarding the model of the deviant behaviour, and the coping strategy of the situation thereafter. The acceleration of the message of illness or the illness 'acting-out' itself is really a part of the fact that, as more cases appear, the behaviour becomes increasingly legitimized in the community (Smelser, 1963). Since such a contagion is at the very root of psychiatric epidemics, it soon forms, with its accelerated and greater legitimation in the society, a phenomenon of such a proportion that its (illness) credibility can no longer be denied, thus increasingly reinforcing the 'illness paradigm' and vice versa among the affected as well as non-affected segment of the population (Lang & Lang, 1961; Lionberger, 1953).

'Credibility' of a case is the initial determining factor in the community perception of contagiousness insofar as the psychiatric epidemic is concerned. Kerckhoff (1982) puts this contention nicely.

"There is also a reciprocal reinforcement process involved in the validation of the threat. One or two cases of illness might not impress many of those present. However, as the number of cases increases, it is difficult to avoid believing that *something* must be making those people sick and the more an individual believes in the reality of the threat, the greater the tension (s)he is likely to experience, and the more likely (s)he is to experience symptoms associated with tension. Such symptoms are then very likely to be associated with the suggested threat, and the individual may well become a "case" (P-204).

Scheff's (1966) classical work on contagiousness of mental illness is noteworthy here. He provides a series of propositions in this regard :

- (1) The repeated signs of illness is noted in such outbreaks which follow a stereotypic swooning pattern.
- (2) Every victim learns the common clinical signs, thus the cases basically express the same learned phenomenon.
- (3) The immediate peer group reaction is critical in determining both the duration and the outcome of the disability.
- (4) In some situations, there may be a reward for playing out the stereotyped behaviour. The victim shares the experience with others, thus making the behaviour a collective one and reinforcing the actor's own perception of the reality of the event.

The Psychiatric Epidemic Process

Sirois (1982) describes elegantly the different perspectives of epidemic hysterical manifestations. He very aptly points out that any episode of mental epidemic is a conjoint agendum for psychiatrists, psychologists, sociologists and anthropologists. The interactions among all the aspects are crucial for the understanding of a psychiatric epidemic viz. the psychological attributes like personality, anxiety profile, suggestibility of the individual; his spectrum of coping strategies and strength of defense mechanism, conflict areas and morbidities (signs/symptoms), the social support system and the sociometric communicative networks and his environment - the cultural beliefs and attitudes, folklore and mythological references. The masterful analysis of Sirois of the last hundred and ten years (1870-1980) world literature consisting of 88 reports of epidemic hysteria is a valuable document in this context.

Sirois (1982) divided the psychiatric epidemic process into three main components, viz. Prodrome, Epidemic Moment and Rebound. These are not any water tight components of contagious psychopathology. A careful observation and precise study of any mental outbreak usually corresponds to those divisions. Different study approaches for each may be helpful in providing

a coherent picture of an episode of socially shared psychopathology.

The following is a brief outline of each of these components.

The study of 'Prodrome' is suitable for a slowly developing outbreak. The study approach here is psychodynamic in nature since it deals mainly with the psychic elements eg. underlying fantasies behind and before the outbreak (Benaim et al., 1974).

'Epidemic moment' constitutes the different profile or epidemic curves over a definite place, person and time. It is best studied by an epidemiological approach since it concerns the clinical aspects of the distribution of the outbreak. There are five distinct types of a mental epidemic (Sioris, 1982), viz.

- (1) Sudden onset explosive type - symptoms appear rapidly, involving at once many people and are usually short lived.
- (2) Explosive type with an identifiable prodromal period - Isolated cases are first detected followed by a gradual build up of community tension leading to explosive outbreak like the first type.
- (3) Cumulative outbreak - Small groups are usually affected and the transmission of symptoms occurs over a longer span of time - 2 weeks to a month, as a slow chain reaction.
- (4) Rebound outbreak - A handful of cases appear rapidly and in the following days a bigger second wave is seen. This type lasts for months with several peaks and involves larger groups of people.
- (5) Large diffuse outbreak - It affects a large geographical segment of people without any group specificity. People of any age and both sexes can be affected.

The 'Rebound' phenomenon is only apparent in a large or long lasting outbreak. The ideal method of study is the socio-historical and cultural approach since it deals with the contextual elements surrounding the collective psychopathological manifestation.

The Metaphoric Model of Psychic Infectivity

The element of contagiousness in psychiatric epidemic is an issue of much debate. The word 'contagion' of an infectious medical model dictates that some psychic element is being transmitted from individual to individual. Sioris puts it as : "a wish whose vector is a fantasy that circulates in a reservoir of susceptible persons. The susceptibility is defined by the conditions of participation to the group where the outbreak appears" (Sirois, 1982, p.231).

Sioris (1982) asserts that epidemic mental contagion is an acute group syndrome which serves to the abreaction of a conflicting situation. In many episodes the conflict stems from a fantasied (Champion et al, 1963; Jacobs, 1965) or a real threat (Knight et al., 1965). The response of pathological defense to the conflictive issue rather than the usual coping is dependent on at least four psychodynamic attributes of the individual, viz. (1) the identification of the people in the group with the wish of the index cases; (2) the regression fostered by the group situation, (3) the unconscious or preconscious nature of the conflict or the underlying fantasy and (4) the neurotic/suggestible personality disposition of the persons involved. They are the intrinsic or personal vulnerability factors. The extrinsic vulnerability factors include : (1) cultural acceptance of the odd behaviour as truly pathognomonic; (2) existing myth regarding the justification of stress of the conflictive/fantasied situation and (3) conducive social and geo-political situation of the affected population. Both the factors, i.e. intrinsic and extrinsic, guide the manifestation of the conflict through displaced or symbolic maladaptive behaviour.

Fig.2 shows the schematic flow chart of mental contagiousness, the process of epidemic wave and its weaning in a simplified manner.

In keeping with these general social perspectives of psychiatric epidemic in mind, the present investigation was planned to explore the different social responses to the epidemic of Koro in the Darjeeling district. This study attempts to examine some of the extrinsic or socio-cultural factors that are intimately related with the social acceptance of Koro as well as the acceleration of the Koro-contagion in the community. Some of the social factors are assessed longitudinally and other cross-sectionally to understand the mass psychic component in this epidemic.

The following is the summary heading of this Koro Social Response study design.

1. Positive Illness Paradigm of Koro as perceived by :

- I. Community
 - A) Rural group
 - B) Urban group
 - II. Professional Group
 - III. Intra-and intercomparison of both the groups.
- } Longitudinal study

2. Koro Cause Cognition by :

- A) Community
 - i) Rural group
 - ii) Urban group
- B) Treatment people
- C) Koro patients - Ethnomedical study.

3. Treatment Cognition for Koro by :

- A) Community
 - i) Rural group
 - ii) Urban group
- B) Treatment people.

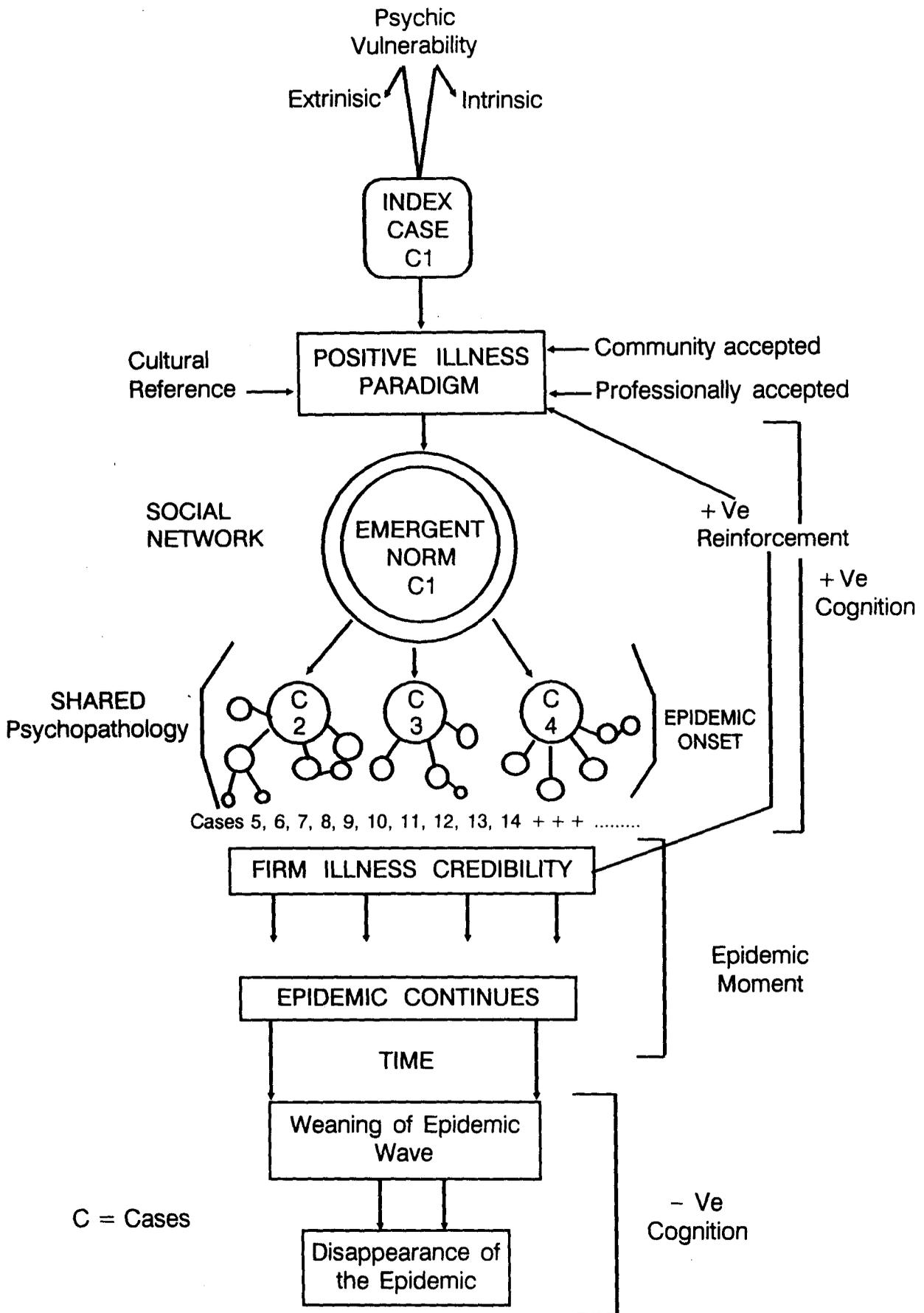


Fig. 2. Flow Chart of Mental Contagiousness in a Psychiatric Epidemic.

4. **Account of Social Treatment of North Bengal epidemic Koro cases .**
5. **Profile of Koro Acquaintance Source of the total samples studied.**

MATERIALS AND METHODS

1. Study Population :

A. Rural Sample : Koro social responses were taken from 70 heads of families (all males) of two villages (Naxalbari and Kharibari) of Darjeeling district. These families had no Koro affected members. From these, 45 responses were taken by random sampling without replacement for this study. Similarly, responses of 43 family heads were taken by random sampling from a total of 63 who had at least one Koro affected member in their family, from the Dabgram village of the same district. Thus a total of 88 responses were studied and are referred here as the Rural sample.

B. Urban Sample : Koro Social Responses of 60 family heads (male persons) of non-Koro affected families were taken by random sampling from a total of 98 responses, from three municipal wards (Nos.3,6,11) of Siliguri town of Darjeeling district. From the same localities, responses of 58 heads out of 72 responses from Koro-affected families were taken by random sampling. Thus a total of 118 responses were taken for this study under the urban group.

In the text, Koro affected and non-affected family members are referred to as KF and NKF respectively.

C. Professional Group : Koro Social Responses were elicited from four groups of treatment people (professional, para-professional and paramedical staff) working in modern medicine, of the Darjeeling district. They are: Physicians (having diploma or degree in any branch of medicine); General Practitioners (medical graduates); Surgeons (having diploma or degree in any branch of Surgery) and Para-

medical Staff (working in medical laboratories and physiotherapy/optometry clinics). 40 responses were taken randomly from each of the four groups, viz. 61 Physicians (P); 87 General Practitioners (GP); 51 Surgeons (s) and 47 Paramedical Staff (PMS). Thus a total of 160 persons were taken here as constituting the professional group.

All the responses were collected by the author through field visits.

2. Instrument :

Social Response Pattern Schedule :

It is a simple 12-item forced choice questionnaire (Appendix - 3) for recording the social responses to Koro illness, made in consultation with the Department of Sociology and Social Anthropology of North Bengal University, Darjeeling. It has five parts :

1. Brief Demography,
2. Illness Paradigm of Koro,
3. Koro etiology,
4. Koro Treatment option and
5. Koro Acquaintance Source.

Illness Paradigm of Koro : This section includes the following items :

- a) Identification of Koro Illness type as either physical/mental or nil.
- b) Grades of Koro Seriousness, viz. nil/mild/moderate and severe.
- c) Infective Potential of Koro, viz. nil/mild/moderate/severe and highly infectious.
- d) Risk imposition by Koro, viz. nil/life threatening/risk of sexual power loss/risk of general health problems or combination of the last two.

Each respondents was asked to express his best estimate of the items of his choice in each category.

Koro Positive Illness Paradigm study was done longitudinally over time in the same rural and urban samples.

Koro Etiology or Cause Cognition : This part includes enlistment of nine items. Eight of them except 'mischievousness' (unknown, high fever, physical strain, excessive body heat, sexual reason, supernatural cause, fear and mental), were selected on the basis of the finding of most frequently expressed (57%) cognition, related to illness causation in this region elicited in a previous pilot study on the 'Social Cognition of Mental Illness' at the Psychiatry Unit of North Bengal Medical College and Hospital, Darjeeling. The item 'mischievousness' was added while working with the Koro social cognition study because of the attribution of this by many of the respondents.

Social Treatment Choice : The treatment option section includes four response categories, viz.

1. Treatment Option - i.e. medical (allopathic)/natural (folk treatment) or no treatment. The Natural treatment refers to the prevailing mode of socio-ritualistic treatment of Koro cases which was widely practised by the people of the region.
2. Medicine Option - i.e. nil/allopathic/homeopathic/kabiraji or ayurvedic.
3. Natural (folk) Treatment Option - Water pouring/penile pull, either manual or mechanical /salt-water feeding.
4. Mental Treatment Option - i.e. whether the respondent would consider any scope of (yes/no) mental treatment in Koro cases.

Koro Acquaintance Source : This section deals with the source of Koro acquaintance of the respondent, viz. direct viewing of a case of Koro or hearsay.

3. Time of Social Response Ratings

The responses (all cross-sectional studies) were collected at the height of the Koro epidemic in the district. The mean time intervals from the onset of the epidemic in the district (9th July) were 2.4 ± 1.7 weeks for the urban group; 3.5 ± 2.1 weeks for the rural group and 3.2 ± 1.2 weeks for the professional group.

A. Longitudinal Study of the "Positive Illness Paradiigm" of Koro from the rural and urban gropus was done. For this the same respondents, twice in the rural group and thrice in the urban group, were rated. The details of the time intervals of these longitudinal ratings are given in the respective sections.

4. **Statistical Analysis** of the response data was done by using the 't', Chi square, 'z' and Tau tests of significance.

POSITIVE ILLNESS PARADIGM

I. STUDY OF THE COMMUNITY SAMPLE

A. RURAL GROUP

B. URBAN GROUP

II. STUDY OF THE PROFESSIONAL GROUP

III. STUDY OF THE TOTAL SAMPLE

IA. STUDY OF RURAL GROUP**SUMMARY**

Infectivity is a biological construct of Preventive and Social Medicine. In psychiatric epidemics the nature of infectivity is of psychological quality. The construct of psychic infectivity is the product of the cultural cognition of an illness model. The nature and extent of positive illness cognition of affected and non-affected population in respect of Koro illness at the background of a Koro epidemic from a rural setting is examined. The social cognition of Koro as a serious, risky and highly infectious disease enriches the element of psychic infectivity of Koro and accelerates its spread in the region.

INTRODUCTION

The cultural impact on the perception of health and illness has been documented in many studies (Mechanic, 1980; Zola, 1966). Culture shapes the cognitive and behavioural options for help-seeking attitudes of an individual and the society.

In organic illnesses, the basic nature of symptoms, the host-pathogen immunological reactions and the therapeutic response to specific antidotes are not directly related to the cultural dimension and psychological disposition of the risk individual or his society. The disease progression model by microbes gives rise to the concept of 'infectivity' and in Preventive and Social Medicine this context of infectivity has been categorized by different mechanisms, which are mostly independent of the cognitive status (of the illness) of the individual.

A series of researches in biological psychiatry have failed to pinpoint any substantial evidence in favour of direct biological causative organisms in mental illness. Cultural aspects of cognitive disposition of an individual or of a group, on the

other hand, claim to play an important role in the labelling and help-seeking attitudes for abnormal behaviours (Kelinman, 1980; Obeyesekere, 1978). The cognitive process concerning the sick-roll model is the basis which not only fosters a cognitive differentiation between categories of normal and abnormal behaviours (Angel & Thoits, 1987), but also generates an element of psychic infectivity which accelerates the spread of mental illness among vulnerable individuals in the community. This dynamic reciprocal psycho-social construct of cognitive shift (of an illness model) from an individual to the group has been claimed to be operational at the root of sociometric patterns in hysterical contagion (Kerckhoff & Back, 1965) in the community or in the dissipation of mass psychogenic illness (MSI) in industries (Hocking, 1987).

Study Design :

Koro Social Response Rating from 88 respondents (45 from non-Koro and 43 from Koro affected families) was elicited by home visits. The First rating was done during the height of the epidemic (3rd/4th week of July and 1st week of August). Second rating from the same respondents was done at an interval (from the first) of 36.8 ± 5 days.

R E S U L T S

ILLNESS PARADIGM : STUDY OF RURAL GROUP

1. Pattern and comparison of responses in First and Second Social Response ratings.
2. Pattern and comparison of responses between members of Non-Koro (NKF) and Koro families (KF) in the First Social response rating.
3. Pattern and comparison of responses between members of Non-Koro (NKF) and Koro families (KF) in the Second Social response rating.
4. Pattern and comparison of responses of members of Koro affected families (KF) between First and Second Social Response ratings.
5. Pattern and comparison of responses of members of Non-Koro family members (NKF) between First and Second Social Response ratings.

1. **Pattern and comparison of responses in First and Second ratings.**

Table 1 shows the comparison between the two ratings on 'Illness Cognition'. In the first rating 100% of the respondents identified Koro as a form of physical illness, while in the second rating 13.6% identified it as a form of mental illness. This change in 'Illness Cognition' from one rating to the other is highly significant ($P < .01$).

Table 1. Rural 'Illness Cognition' responses (n 88).

	First Rating		Second Rating		χ^2 (df=1)
	No.	%	No.	%	
Nil	-	-	-	-	12.88**
Physical	88	100	76	86.4	-
Mental	-	-	12	13.6	-

** $P < .01$.

Table 2 depicts a comparison of the 'Seriousness' cognition responses. In the first rating there was no 'nil' response, all the responses endorsed varying from mild (6.8%) to moderate (19.3%) and severe (73.9%). In the second rating, not only 19.3% of the responses referred to the 'nil' category but the distribution of responses in other severity intensities also changed remarkably, i.e., 25% mild, 28.4% moderate and only 27.3% severe. This change in seriousness cognition from first to second rating is highly significant ($P < .01$).

Table 2. Rural 'Seriousness' cognition (n 88).

	First Rating No.	%	Second No.	Rating %	χ^2 (df=3)
Nil	-	-	17	19.3	46.55**
Mild	6	6.8	22	25	-
Moderate	17	19.3	25	28.4	-
Severe	65	73.9	24	27.3	-

**P < .01.

Table 3 displays the comparison of 'Risk' cognition between first and second ratings. In the first rating everyone perceived that Koro entailed a definite risk, so the 'no danger' response was virtually unendorsed. In the second rating, however, 12.5% of the respondents thought that Koro carried no danger to the sufferer. The response to the 'life threatening' item also demonstrated a changed cognition from 48.9% to 18.2% in the second rating. 'Weakness and general health problem' though perceived by only 10.2% of the respondents in the first rating, in the second rating more respondents (28.4%) positively endorsed this item. These differences in the pattern of risk perception between the two ratings are highly significant ($P < .01$).

Table 3. Rural 'Risk' cognition (n 88).

	First Rating No.	%	Second No.	Rating %	χ^2 (df=4)
No danger	-	-	11	12.5	31.21**
Life threatening	43	48.9	16	18.2	-
Sexual power (S)	29	32.9	27	30.7	
General health (H)	9	10.2	25	28.4	
S + H	7	8.0	9	10.2	

** P < .01.

Table 4 presents the comparison of Koro 'Infectivity' cognition between the ratings. In the first rating the highest endorsement was to 'highly infectious' (56.8%) and the lowest was 'nil' response (2.3%). In the second rating the picture was quite contrary, i.e., the 'highly infectious' response scored the lowest percentage (9.1%) and the 'nil' response was increased was increased to 18.2%. These changes in cognitive appraisals over time are highly significant ($P < .01$).

Table 4. Rural 'Infectivity' cognition (n 88).

	First Rating		Second Rating		χ^2 (df = 4)
	No.	%	No.	%	
Nil	2	2.3	16	18.2	54.29**
Mild	4	4.6	19	21.6	
Moderate	14	15.9	25	28.4	
Severe	18	20.4	20	22.7	
Highly Infectious	50	56.8	8	9.09	

** $P < .01$

OBSERVATION

The first social response of illness cognition about Koro was elicited at the height of the epidemic. It is evident from the results that a cognition construct of Koro as a form of 'physical illness' of 'serious' nature, of 'high risk' (life threatening) and 'highly infectious' were the predominant social responses. This positive illness paradigm (Fig.1) was instrumental in the spread of Koro through these cognitive pathways. With the passage of time, a negative shift occurred in this cognition which eventually restricted its occurrence and spread as the disease cognition waned gradually (Fig.2), as evinced in the second ratings.

2. Pattern and comparison of responses between members of Non-Koro (NKF) and Koro families (KF) in the First Social Response rating

Table 5 exhibits a comparison of 'Illness cognition' between the non-Koro and Koro families in the first social response rating, which shows virtually identical responses, viz. Koro as a physical illness, between the two family members.

Table 5. 'Illness cognition' of NKF and KF members in the first rating.

	NKF (n 45)		KF (n 43)	
	No.	%	No.	%
Nil	-	-	-	-
Physical	45	100	43	100
Mental	-	-	-	-

Table 6 reveals a comparison of 'Seriousness' cognition between the two family groups in the first rating. The NKF group perceived that Koro entailed mild (13.3%), moderate (22.2%)

COGNITIVE SHIFT OF SOCIAL RESPONSES FROM FIRST TO SECOND RATINGS

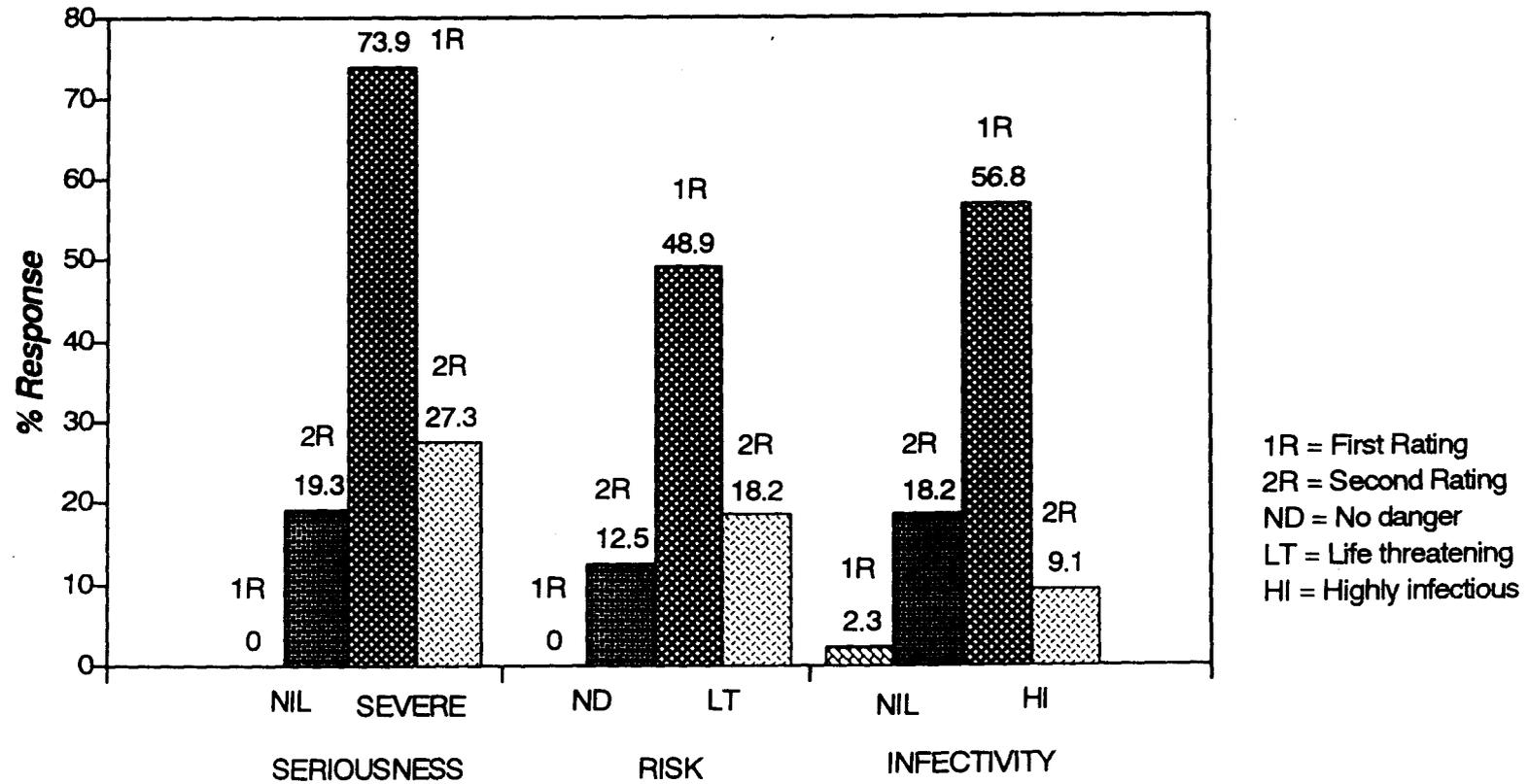


Fig.1.

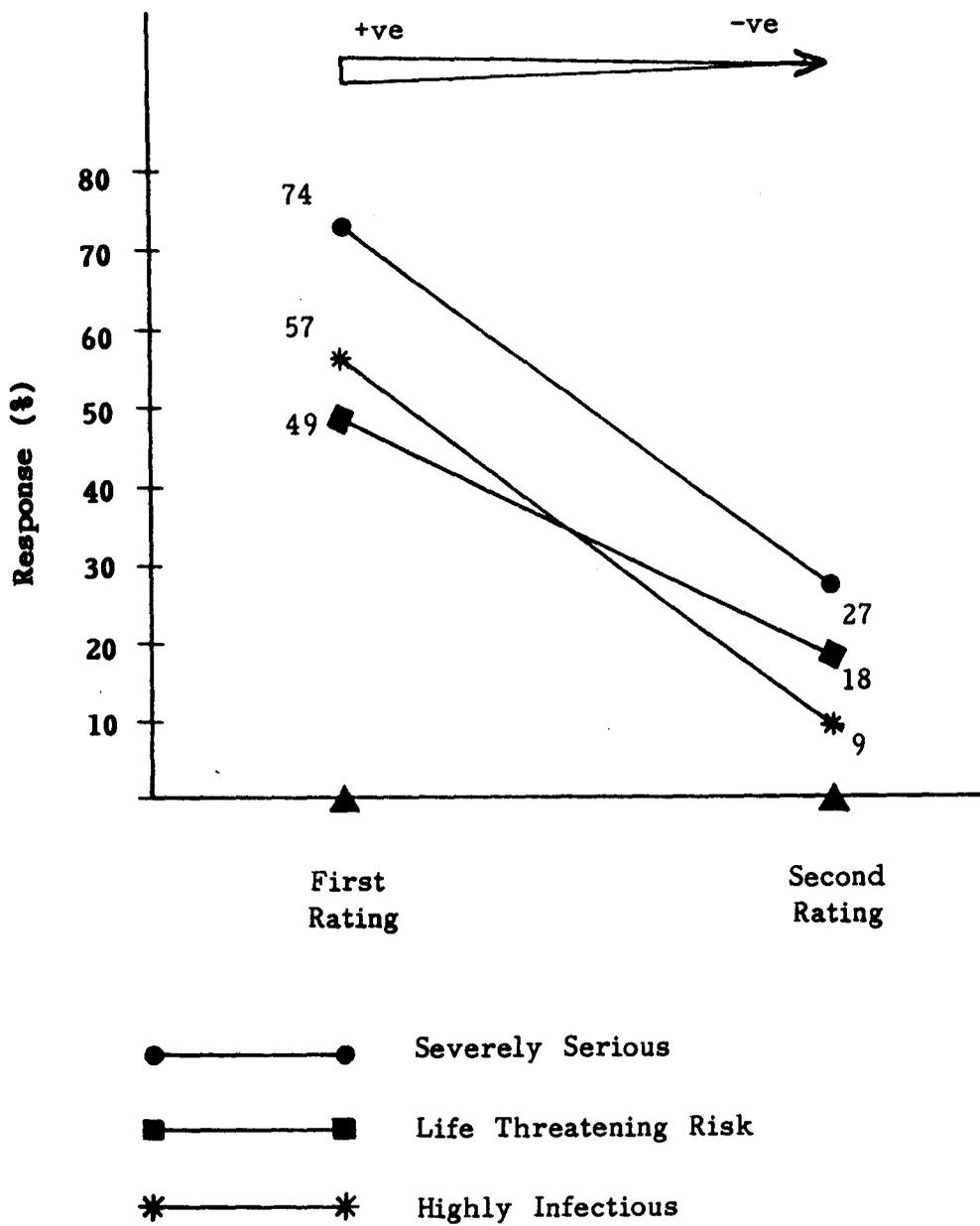


Fig.2. Cognitive shift from positive to negative illness paradigm overtime.

and severe (64.4%) seriousness in contrast to the KF responses of only moderate (16.3%) and severe (83.7%) categories. These differences were significant ($P < .05$).

Table 6. 'Seriousness' cognition of NKF and KF groups in the first rating.

	<u>NKF (n 45)</u>		<u>KF (n 43)</u>		χ^2 (df=2)
	No.	%	No.	%	
Nil	-	-	-	-	7.24*
Mild	6	13.3	-	-	
Moderate	10	22.2	7	16.3	
Severe	29	64.4	36	83.7	

* $P < .05$.

Table 7 indicates a comparison of 'Risk' cognition between NKF and KF groups in the first rating. The NKF group showed higher endorsement in all the items except 'life threatening' in contrast to the KF group. This difference is highly significant ($P < .01$).

Table 7. 'Risk' cognition of NKF and KF groups in the first rating.

	<u>NKF (n 45)</u>		<u>KF (n 43)</u>		χ^2 (df=3)
	No.	%	No.	%	
No danger	-	-	-	-	14.88**
Life threatening	14	31.3	29	67.4	
Sexual power (S)	18	40	11	25.6	
General health (H)	6	13.3	3	6.9	
S + H	7	15.6	-	-	

** $P < .01$.

Table 8 exposes the comparison of 'Infectivity' cognition between NKF and KF groups. Though few NKF members endorsed nil (4.4%) and mild (8.9%) infectivity potentials, the responses of both groups showed no significant difference.

Table 8. 'Infectivity' cognition of NKF and KF groups in the first rating.

	NKF (n 45)		KF (n 43)		χ^2 (df=4)
	No.	%	No.	%	
Nil	2	4.4	-	-	7.40(NS)
Mild	4	8.9	-	-	
Moderate	5	11.1	9	20.9	
Severe	10	22.2	8	18.6	
Highly Infectious	24	53.3	26	60.5	

NS = Non-significant.

OBSERVATION

The KF members showed more positive responses as regards the seriousness ('severe') and the risk ('life threatening') than NKF members. So far as the infectivity cognition is concerned, both groups evinced almost identical cognition, which definitely played a role in the epidemic spread of Koro in the region (Fig.3).

3. Pattern and comparison of responses between members of Non-Koro (NKF) and Koro families (KF) in the Second Social Response rating.

Table 9 shows the comparison of 'Illness' cognition between the NKF and KF groups in the second rating revealing no differences between them.

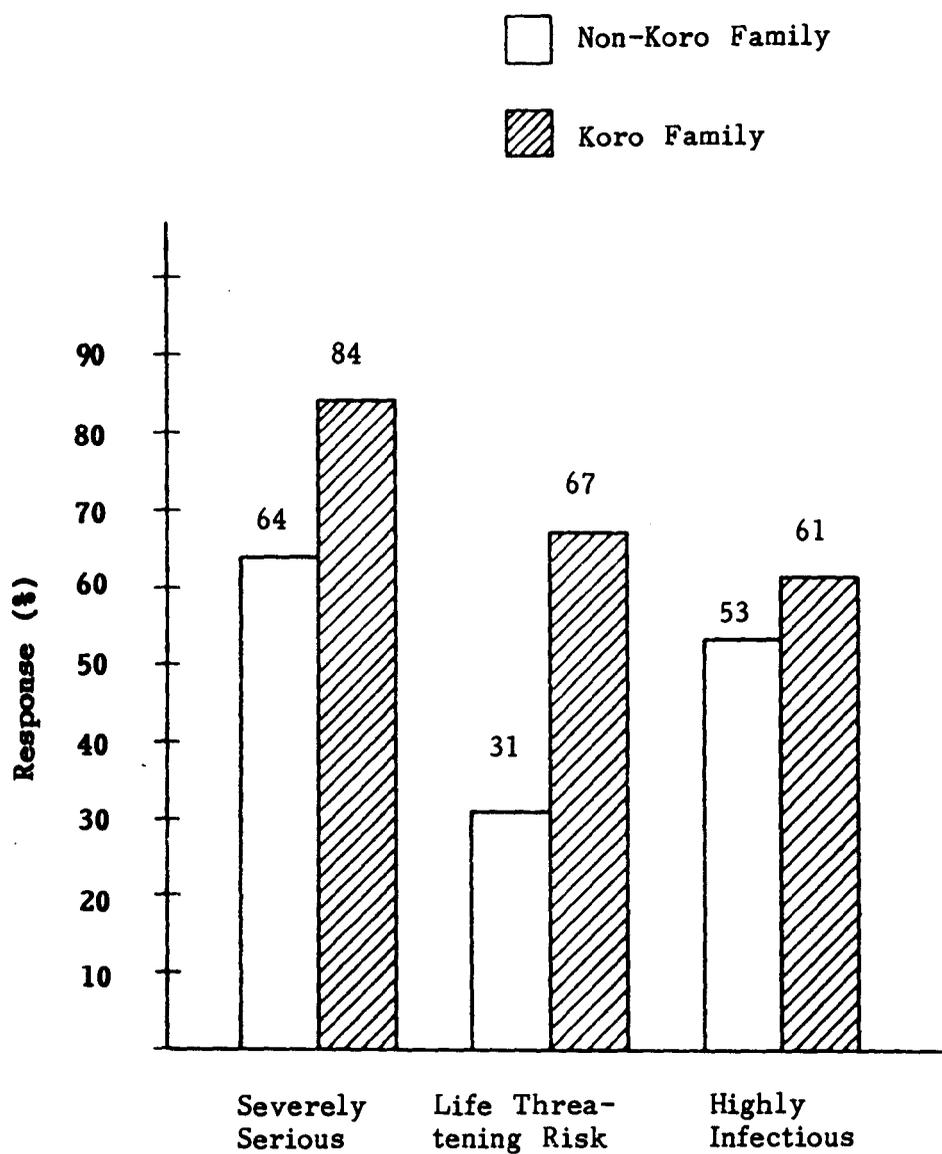


Fig.3. Comparison of Non-Koro (NKF) and Koro family (KF) members' responses in the First Social Response rating.

Table 9. 'Illness' cognition of NKF and KF groups in the second rating.

	NKF (n 45)		KF (n 43)		χ^2 (df=1)
	No.	%	No.	%	
Physical	40	88.9	36	83.7	0.49(NS)
Mental	5	11.1	7	16.3	

NS = Non-significant.

Table 10 shows a comparison of 'seriousness' cognition between the two groups in the second rating. NKF members endorsed more the nil (37.8%) and mild (26.7%) categories whereas KF members did so in the moderate (37.2%) and severe (39.5%) items. These cognitive differences between the groups were highly significant ($P < .01$).

Table 10. 'Seriousness' cognition of NKF and KF groups in the second rating.

	NKF (n 45)		KF (n 43)		χ^2 (df=3)
	No.	%	No.	%	
Nil	17	37.8	-	-	23.28**
Mild	12	26.7	10	23.3	
Moderate	9	20	16	37.2	
Severe	7	15.6	17	39.5	

** $P < .01$.

Table 11 displays a comparison of 'Risk' cognition between the NKF and KF groups in the second rating, revealing no differences.

Table 11. 'Risk' cognition of NKF and KF groups in the second rating.

	<u>NKF (n 45)</u>		<u>KF (n 43)</u>		χ^2 (df=4)
	No.	%	No.	%	
No danger	4	8.9	7	16.3	5.36(NS)
Life threatening	5	11.1	11	25.6	
Sexual power (S)	15	33.3	12	27.9	
General health (H)	15	33.3	10	23.3	
S + H	6	13.3	3	6.9	

NS = Non-significant.

Table 12 exhibits a comparison of 'Infectivity' cognition between NKF and KF groups in the second rating, indicating no significant differences between their responses.

Table 12. 'Infectivity' cognition of NKF and KF groups in the second rating.

	<u>NKF (n 45)</u>		<u>KF (n 43)</u>		χ^2 (df=4)
	No.	%	No.	%	
Nil	8	17.8	8	18.6	0.75(NS)
Mild	10	22.2	9	20.9	
Moderate	13	28.9	12	27.9	
Severe	9	20	11	25.6	
Highly Infectious	5	11.1	3	6.9	

NS = Non-significant.

OBSERVATION

The most interesting finding in this second social response rating is that members of both non-Koro and Koro affected families showed almost identical cognition in all the items of positive illness paradigm except the serious nature of Koro illness (39.5% in contrast to 15.6% of NKF responses). This positivity was probably due to the distress family members underwent during the Koro affection of their members. This cognitive endowment, even well after the epidemic, will help to maintain the illness paradigm of Koro in the community for many years to come.

4. **Pattern and comparison of illness paradigm of Koro cognition of Koro-affected family members (KF) between the First and Second Social Response ratings.**

Table 13 depicts the changing pattern of 'Illness' cognition of KF members from the first to the second social response rating. In the second rating they endorsed Koro as a mental illness also (16.3%). These differences were significant ($P < .05$).

Table 13. 'Illness' cognition of KF group between first and second ratings.

	KORO FAMILY MEMBERS (n 43)				
	First Rating		Second Rating		χ^2 (df=1)
	No.	%	No.	%	
Physical	43	100	36	83.7	7.62*
Mental	-	-	7	16.3	

* $P < .05$

Table 14 exhibits the changing pattern of 'Seriousness' cognition of KF members from the first to the second rating. In the second rating there were endorsements to the 'mild' (23.3%) item along with

less percentage loading on the severe category (from 83.7% to 39.5%). These cognitive differences were highly significant ($P < .01$).

Table 14. 'Seriousness' cognition of KF group between first and second ratings.

KORO FAMILY MEMBERS (n 43)					
	First Rating		Second Rating		χ^2 (df=2)
	No.	%	No.	%	
Mild	-	-	10	23.3	20.33**
Moderate	7	16.3	16	37.2	
Severe	36	83.7	17	39.5	

** $P < .01$.

Table 15 evinces the changing pattern of 'Risk' cognition of KF members from the first to the second rating. The most remarkable change in the second rating is the endorsement of the 'no danger' (16.3%) category with a reduced percentage response in the 'life threatening' cognition from the first rating (67.4% to 25.6%). These differences were highly significant ($P < .01$).

Table 15. 'Risk' cognition of KF group between first and second ratings.

KORO FAMILY MEMBERS (n 43)					
	First Rating		Second Rating		χ^2 (df=4)
	No.	%	No.	%	
No danger	-	-	7	16.3	21.91**
Life threatening	29	67.4	11	25.6	
Sexual power (S)	11	25.6	12	27.9	
General health (H)	3	6.9	10	23.3	
S + H	-	-	3	6.9	

** $P < .01$.

Table 16 exhibits the changing pattern of 'Infectivity' cognition of KF members from the first to the second rating. The significant ($P < .01$) change was the endorsement of 'nil' (18.6%) and 'mild' (20.9%) categories with remarkably fewer responses in the 'highly infectious' category (from 60.5% to 6.9%) in the second rating.

Table 16. 'Infectivity' cognition of KF group between first and second ratings.

KORO FAMILY MEMBERS (n 43)					
	First Rating		Second Rating		χ^2 (df= 4)
	No.	%	No.	%	
Nil	-	-	8	18.6	36.15**
Mild	-	-	9	20.9	
Moderate	9	20.9	12	27.9	
Severe	8	18.6	11	25.6	
Highly Infectious	26	60.5	3	6.9	

** $P < .01$.

OBSERVATION

The most notable change from the first to second responses of Koro family members is the diminishing perception of positive illness paradigm of Koro over time. This cognitive change reflects the reality inherent in the course of Koro illness itself and heavily influences the threat perception (from Koro) in all the important dimensions, viz. seriousness, risk and infectivity, of illness cognition of the population.

5. Pattern and comparison of illness paradigm of Koro cognition of non-Koro affected family members (NKF) between the first and second social response ratings.

Table 17 presents the changing pattern of 'Illness' cognition of NKF members from the first to the second social response rating.

In the second rating 11.1% of the respondents endorsed Koro as a form of mental illness. This difference in perception was significant ($P < .01$).

Table 17. 'Illness cognition of NKF group between first and second ratings.

NON-KORO FAMILY MEMBERS (n 45)					
	First Rating		Second Rating		χ^2 (df=1)
	No.	%	No.	%	
Physical	45	100	40	88.9	5.29**
Mental	-	-	5	11.1	

** $P < .01$.

Table 18 demonstrates the changing pattern of 'Seriousness' cognition of NKF members from the first to the second rating. In the second rating a significant ($P < .01$) shift from 'more serious' to 'less serious' estimates has been noted and was reflected in the 37.8% endorsement in the 'nil' item and increase in the 'mild' item from the first rating (13.3% to 26.7%) and decrease in the 'severe' item (from 64.4% to 15.5%).

Table 18. 'Seriousness' cognition of NKF group between first and second ratings.

NON-KORO FAMILY MEMBERS (n 45)					
	First Rating		Second Rating		χ^2 (df=3)
	No.	%	No.	%	
Nil	-	-	17	37.8	32.49**
Mild	6	13.3	12	26.7	
Moderate	10	22.2	9	20	
Severe	29	64.4	7	15.5	

** $P < .01$.

Table 19 discloses the changing pattern of 'Risk' cognition of NKF members from the first to the second rating. In the second rating a significant ($P < .05$) positive endorsement was noted in 'no danger' (8.9%) and 'general health' (from 13.3% to 33.3%) items and more negative in the 'life threatening' item (from 31.1% to 11.1%).

Table 19. 'Risk' cognition of NKF group between first and second ratings.

NON-KORO FAMILY MEMBERS (n 45)					
	First Rating		Second Rating		χ^2 (df=4)
	No.	%	No.	%	
No danger	-	-	4	8.9	12.47*
Life threatening	14	31.1	5	11.1	
Sexual power(S)	18	40	15	33.3	
General health(H)	6	13.3	15	33.3	
S + H	7	15.6	6	13.3	

* $P < .05$.

Table 20 demonstrate the changing pattern of 'Infectivity' cognition of NKF members from the first to the second rating. The significant ($P < .01$) change observed was the shift from the positive towards the negative cognition as reflected in the endorsement of 'nil' (from 4.4% to 17.8%), 'mild' (from 8.9% to 22.2%) and 'highly infectious' (from 53.3% to 11.1%) items.

Table 20. 'Infectivity' cognition of NKF group between first and second ratings.

NON-KORO FAMILY MEMBERS (n 45)					
	First Rating		Second Rating		χ^2 (df=4)
	No.	%	No.	%	
Nil	2	4.4	8	17.8	22.23**
Mild	4	8.9	10	22.2	
Moderate	5	11.1	13	28.9	
Severe	10	22.2	9	20	
Highly Infectious	24	53.3	5	11.1	

** $P < .01$.

OBSERVATION

The gradual shift of positive illness cognition (in terms of type, seriousness, risk and infectivity) to a negative one over time is well evident in those family members also who had no Koro affection in their families, although, during the height of the epidemic they shared the same belief as that of the members of the Koro affected families.

CONCLUSION

It is evident from this social response study on the positive illness cognition of Koro among the rural population that, during the epidemic days, people from both Koro affected and non-affected families endorsed Koro as a very serious disease with a great risk for life and sexual disability and a highly infective potential. This is the social model of Koro illness construct in the rural communities of North Bengal.

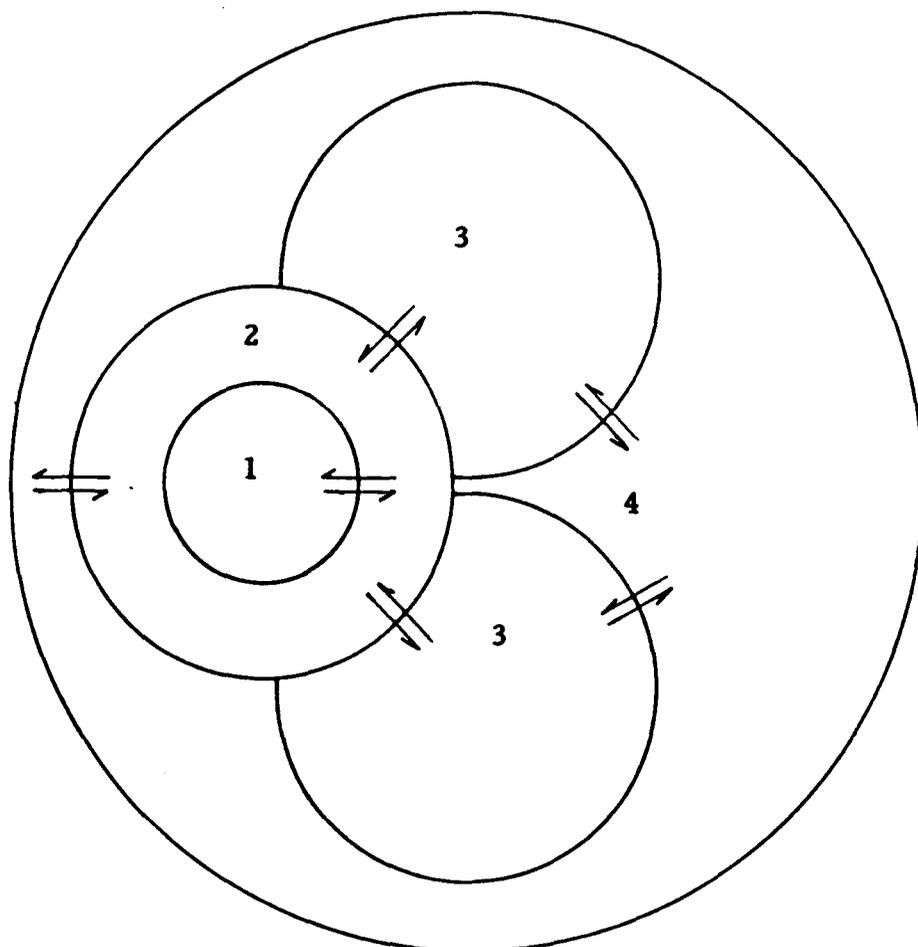
Social evaluative-cognitive dimensions of an illness mainly involve the assessment of seriousness, risk, cause and prognosis of which 'seriousness' is the most important variable (Koos, 1954; Thoits, 1985). Atypical symptoms are usually viewed as serious (Eisenberg, 1977). The unknown nature of this rare 'sexual' disease in this region had no prior cognitive reference. In addition, the very sexual nature of the illness (by virtue of its cultural and moral overtone) resulted in its assessment being of very serious nature. The simultaneous occurrences of similar cases in the community reinforce its 'infective' character with the full cognitive support of Koro-affected and non-affected family members, which in actuality generates a snowballing influence on vulnerable individuals.

Thus the message of 'Koro as a positive illness' with its 'high infectivity' from the affected families percolates through the intrafamilial communicative pathways and enriches the non-affected population with Koro informations. A positive social environment primed with the cognition of vulnerability of Koro is then generated and the behavioural dysfunction of Koro follow a 'facilitative norm'

pathway without any social resistance. The credibility increases the likelihood of more new cases and the construct of 'infectivity' becomes even more strengthened by the vicious cognitive bonds of the community (Fig.4).

The strength and intensity of these positive beliefs are reflected in the peak incidence of cases during the early part of the epidemic. The benign nature of Koro is conceived only with the passage of time, when both the positive illness cognition and the rate of incidence of cases, gradually falls and ultimately disappears. Some amount of positive social beliefs remain which serve a dual purpose, viz. as a token of prior societal acknowledgement of the illness and as a cognitive resource or background for future use in a similar context, the latter ultimately helping form the cultural construct of a particular dysfunction or disability in a particular community.

Fig.4. Dynamic force of Psychic Infectivity.



1 = Koro patient

2 = Koro family

3 = Non-Koro family

4 = Community

\rightleftharpoons Cognitive Bond

I.B. STUDY OF THE URBAN GROUP

Study Design :

Koro social response rating was done by home visits. First rating (IR) was done during the height of the epidemic (at the third week of the Outbreak). Second rating (IIR) was done at an interval from the first of 29.5 ± 3 days, and the third rating (IIIR) from the second at 30.7 ± 4 days. In the third rating due to absence or unwillingness the number of respondents were dropped down to 38 in Non-Koro families and 30 in Koro-affected families. So for the comparison between IIR and IIIR, a subsample (of the same persons who also responded in IIIR) of the IIR was drawn.

Epidemic Character

Social responses were elicited at the following background of Koro epidemic in the Darjeeling district. Out of total 151 male cases of this epidemic, 84.8% were reported in July; 3.9% in August; 7.3% in September; 2.7% in October and 1.3% in November 1982 (Fig.1).

RESULTS

Table 1 shows the response percentage distribution and comparison between first and second ratings.

In the IR most of the respondents from both Koro and Non-Koro families, perceived Koro as a physical illness with little emphasis on its mental causation and they showed no difference in their cognition of illness types. In the IIR however, this 'illness type' cognition differed significantly ($P < .01$), where physical-mental typology was endorsed with greater frequency and the previous 'physical-type' cognition showed decreased response with slight increase in 'mental-type' response. This cognitive shift of illness-type from IR to IIR was significant ($P < .01$) in the non-Koro families and in the total response.

In the cognition about Koro seriousness, both the groups differed significantly ($P < .01$) in the IR perception, where non-Koro families stressed more on the less serious nature of Koro than the Koro family respondents. In the IIR, this trend was noted in higher frequency in the non-Koro families' and in the Koro-families also this cognition shift towards 'nil' or 'mild' serious nature of Koro was evident.

These differences from more serious to less serious nature perception was significant ($p < .01$) from IR to IIR in all the sample groups.

Cognition about the assessment of infective potential of Koro showed no difference between the groups in both the ratings though there was a cognition shift from IR to IIR so far the 'nil' and 'highly infectious' endorsement is concerned. The cognition shift from IR to IIR in respect from more or less infective nature of Koro is significant ($p < .01$) in both the groups and in the total response.

Interesting cognition differences ($p < .05$) were noted in the risk perception between the groups in the IR, where non-Koro families perceived more about the 'sexual power loss' from Koro, whereas Koro families perceived more about the 'life threatening' risk. This trend was also observed in greater frequency in IIR along with the non-Koro families' endorsement of no life threat from Koro. Similarly, the Koro families perceived for the first time in IIR that Koro posed no risk along with more emphasis on the 'general health problem' as a risk of Koro. These cognition differences between the groups were significant ($p < .01$). Differences in the risk cognition from I to IIR in all the sample groups were significant ($p < .01$).

Table 2 shows the comparison between II and IIR percentage responses. In the IIR, mental or mental-physical nature in Koro illness-type were perceived in greater frequency in both the groups. In addition, non-Koro families perceived for

the first time in IIIR that Koro is not an illness at all. These cognitive differences of both the groups were significant ($p < .05$). A significant cognition shift from II to IIIR was noted in non-Koro families ($p < .01$) and in the total responses ($p < .05$).

In the 'seriousness' response, though the shift of cognition from 'severe' and 'moderate' nature in 'nil' or 'mild' seriousness was noted in II to IIIR, yet there were no significant differences were observed from II to IIIR. Similarly, in the response of 'infectivity', this type of cognitive shift from 'highly infectious' to 'nil' or 'mild' was noted though they showed no statistical significance.

In the 'risk' response, total responses from II to IIIR showed greater endorsement on 'nil' item ($p < .01$). There was significant difference ($p < .05$) between the two groups in both the ratings.

Table 1. Comparison between first and second Koro social response percentages.

	FIRST RATING(%)			SECOND RATING(%)		
	(A) NKF	(B) KF	(C) TOTAL	(a) NKF	(b) KF	(c) TOTAL
I. Illness Type :						
Physical(P)	90	91.4	90.7	35	75.9	55.1
Mental(M)	6.7	1.7	4.2	16.7	10.3	13.6
P + M	3.3	6.9	5.1	48.3	13.8	31.3

X^2_2 : A vs. B = 2.4; a vs. b = 21.03*; C vs c = 38.4*; A vs a = 40.6*

II. Seriousness :

Nil	13.3	-	6.8	40	10.3	25.4
Mild	15	-	7.6	28.3	22.4	25.4
Moderate	21.7	19	20.3	16.7	36.2	26.3
Severe	50	81	65.3	15	31.1	22.9

X^2_3 : A vs. B = 20.9*; a vs. b = 18.2*; C vs. c = 49*;

A vs. a = 22.2*; B vs b = 30.04*.

Table 2 (Contd.)

	FIRST RATING(%)			SECOND RATING(%)		
	(A) NKF	(B) KF	(C) TOTAL	(a) NKF	(b) KF	(c) TOTAL
III. Infectivity :						
Nil	23.3	17.2	20.3	65	48.3	56.8
Mild	6.7	1.7	4.2	15	17.2	16.1
Moderate	21.7	17.2	19.5	6.7	15.5	11.0
Marked	10	19	14.4	3.3	5.2	4.2
Highly Infectious	38.3	44.8	41.5	10	13.8	11.9

χ^2_4 : A vs. B = 4.5; a vs. b = 4.2; C vs. c = 57.3*;

A vs. a = 30.5*; B vs. b = 30.04.

IV. Risk :

Nil	10	-	5.1	26.7	5.2	16.1
Life threatening	31.7	55.1	43.2	-	18.9	9.3
Sexual power (S)	35	20.7	27.9	45	13.8	29.7
General health(H)	16.7	12.1	14.4	20	41.4	30.7
S + H	6.6	12.1	9.3	8.3	20.7	14.4

χ^2_4 : A vs. B = 13.1**; a vs. b = 37.1*; C vs. c = 40.7*;

A vs. a = 24.6*; B vs. b = 24.7.

*p < .01; **p < .05.

Table 2. Comparison between second and third Koro social response percentages.

	SECOND RATING(%)			THIRD RATING(%)		
	(A) NKF	(B) KF	(C) TOTAL	(a) NKF	(b) KF	(c) TOTAL
I. Illness Type :						
Physical(P)	47.4	80	61.8	36.8	60	47.1
Mental(M)	10.5	6.7	8.8	15.8	16.7	16.2
P + M	42.1	13.3	29.4	26.3	23.3	25
Nil	-	-	-	21.1	-	11.7

X^2_2 : A vs. B = 7.78*; B vs. b = 2.96;

X^2_3 : a vs. b = 8.3**; C vs. c = 11.1**; A vs. a = 10.3*

II. Seriousness :

Nil	39.5	16.7	29.4	47.4	23.3	36.8
Mild	26.3	26.7	26.5	31.6	40	35.3
Moderate	23.7	33.3	27.9	15.8	26.7	20.6
Severe	10.5	23.3	16.2	5.2	10	7.3

X^2_4 : A vs. B = 4.1; a vs. b = 6.4; C vs c = 4.5; A vs. a = 1.9;
B vs. b = 2.9.

Table 2 (Contd.)

	SECOND RATING(%)			THIRD RATING(%)		
	(A) NKF	(B) KF	(C) TOTAL	(a) NKF	(b) KF	(c) TOTAL
III. Infectivity :						
Nil	60.5	36.7	50	73.7	46.7	61.8
Mild	10.5	16.7	13.2	10.5	26.7	17.6
Moderate	10.5	20	14.7	5.3	13.3	8.8
Marked	5.3	10	7.4	2.6	6.7	4.4
Highly Infectious	13.2	16.6	14.7	7.9	6.6	7.4

χ^2_4 : A vs. B = 4.1; a vs. b = 6.4; C vs. c = 4.5; A vs. a = 1.9;
B vs. b = 2.9.

IV. Risk :

Nil	28.9	6.7	19.1	57.9	16.7	39.7
Life threatening	-	20	8.8	-	13.3	5.9
Sexual power(S)	36.8	23.3	30.9	23.7	20	22.1
General health(H)	23.7	40	30.9	13.2	26.7	19.1
S + H	10.5	10	10.3	5.2	23.3	13.2

χ^2_4 : A vs. B = 14.4**; a vs. b = 18.1**; C vs. cc = 27.7*;
B vs. b = 4.2

χ^2_3 : A vs. a = 6.6.

*p < .01; **p < .05.

DISCUSSION

Social response theory suggests that the labeling of deviance in the form of messages to the patient about how to conform to sick role, is consistently strengthened and reinforced by the significant others in the community (Raman and Murphy, 1972). The positive cognitive strength so far as the illness cognition is concerned, is one of the most important determinant factor in this reinforcing process. Time, on the other hand, is an important variable to influence the strength and direction of this cognitive paradigm because it offers the basis of facilitative observational clues and sociometric feedbacks as to the rational outcome of the initial hypothetical cognitive construct of the illness in question. Mechanic (1977) viewed this process as a dynamic response to changing personal and social comparison, in the process of cognitive shift that accommodates illness perception through the construct of social cognition. Sirois (1974) in his elegant analysis of 'Epidemic Hysteria' stressed the importance of this aspect of mass-cognition in seven psychiatric epidemics, two of which were of Koro.

The present investigation clearly displayed this social cognition pattern in reference to Koro epidemic in this region. Initially with the outbreak of Koro, the Koro as a positive illness paradigm was accepted through emergent norm theory (Markush, 1973). With the passing of time, this positive (as regard to the illness validity of Koro) cognition shifted towards negative paradigm, both in Koro-affected and non-Koro population of this region. So gradually the incidence of new cases fall to the complete non-occurrence. The dynamics of this social cognition reinforcement could be well convincing if we consider the associated epidemic pattern in this region (fig.1) and compare this epidemic curve with each of the factors of social cognition, viz. seriousness, infectivity and risk perception in reference to this time frame (fig.2,3,4). The cognitive shift from Koro as a positive illness to a negative one is well illustrated in these cognitive maps and shows how the social reinforcement turns from initial positive to negative acceptance of

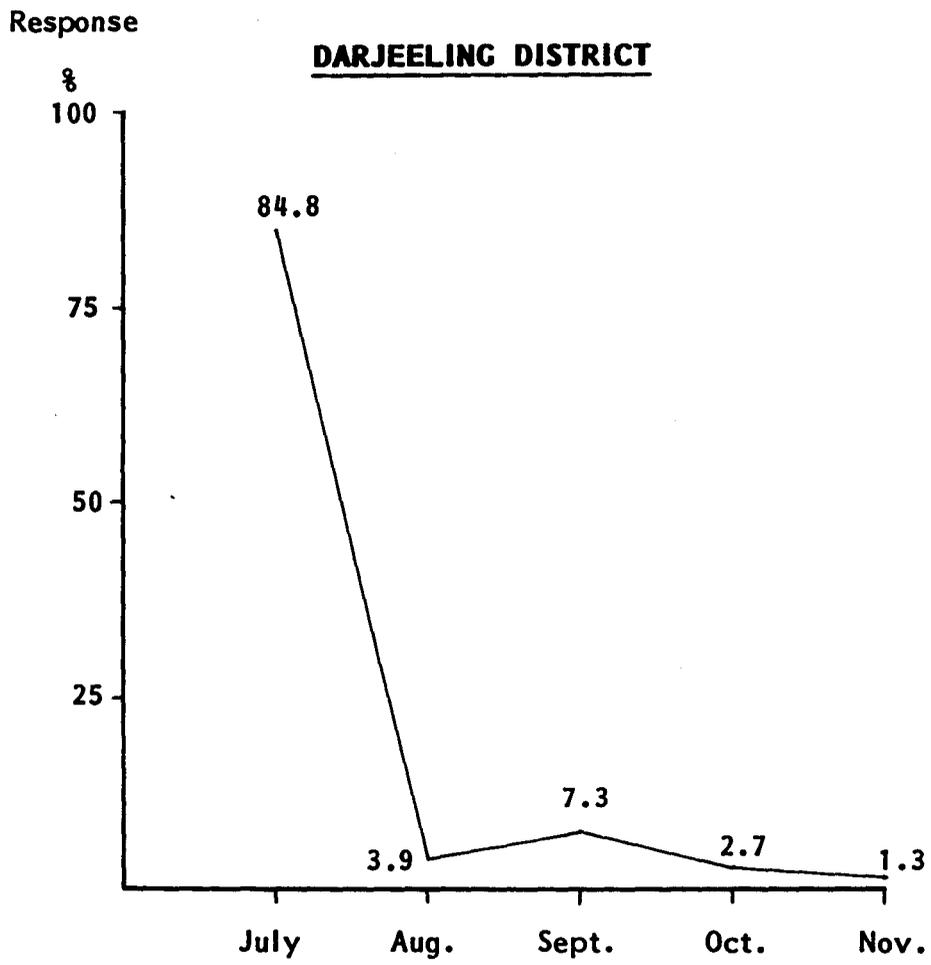


Fig.1. Male Koro Incidence of 1982 Epidemic

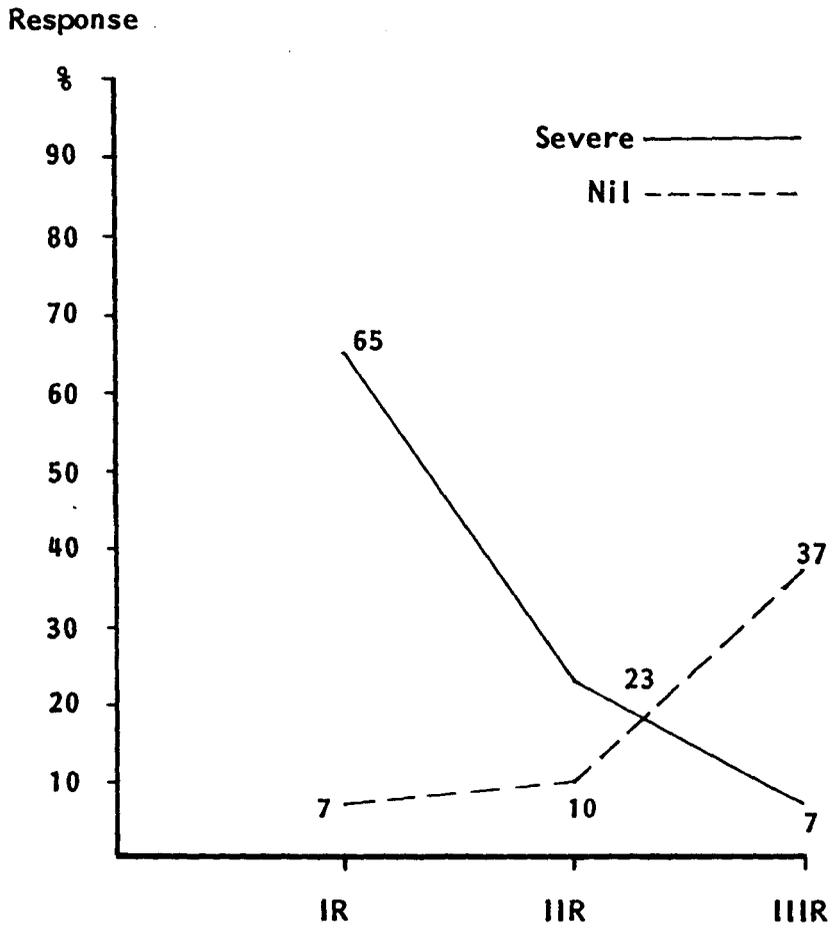


Fig.2. Longitudinal variation in 'Seriousness' of Koro cognition.

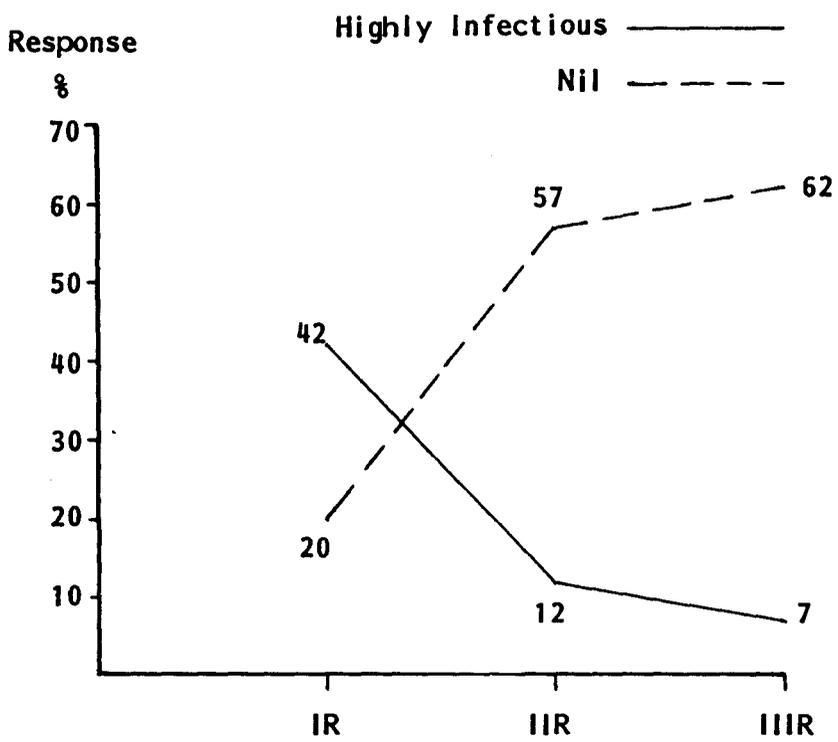


Fig.3. Longitudinal variation in 'Infectivity' of Koro cognition.

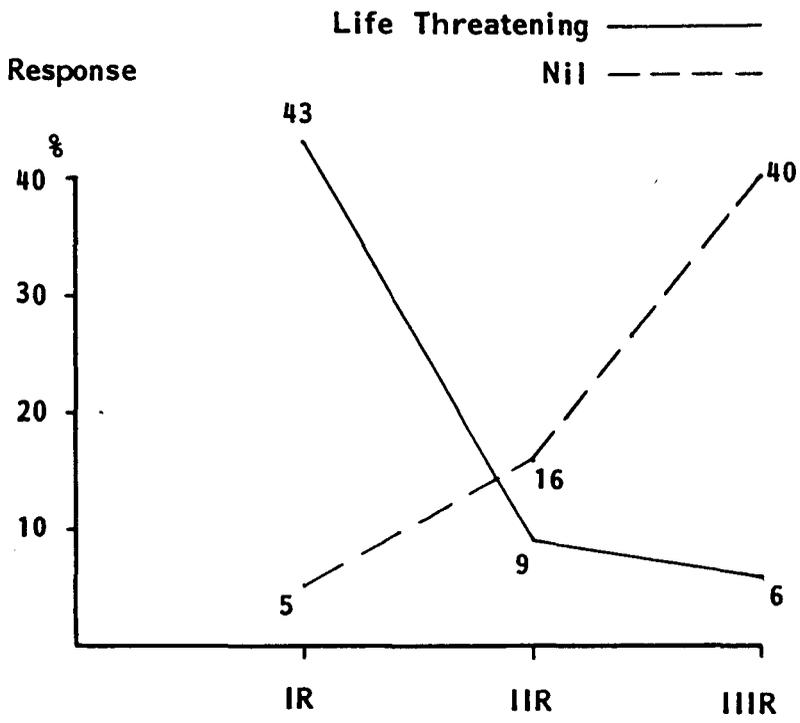


Fig.4. Longitudinal variation in 'Risk' of Koro perception.

of the behavioural abnormality gradually with the passing of time.

Time is the most important variable in any cognitive appraisal, as it offers sufficient interval for the observation of the natural course of event. The social model of Koro as a highly vulnerable illness gradually lost its cognitive intensity over time. This is a dynamic process, started from the very inception of the event in the community, but probably when it attains an arbitrary level of shift from positive towards negative cognition, then some neutralizing effects evolve, as being manifested in the reduction of incidence curve of the illness. Psychiatric epidemics so are very much well-known for their acute rise and precipitous fall with eventual weaning and fall of incidence rate (British Medical Journal, 1979; Small and Borus, 1983; Moffatt, 1982). The social dynamics of cognitive shift from positive to negative illness paradigm of Koro along with its associated impact on the epidemic character is well illustrated in this study. Social response curve, thus definitely influence the illness incidence curve in psychiatric epidemic, which is evident in the present study of Koro epidemic (Fig.5).

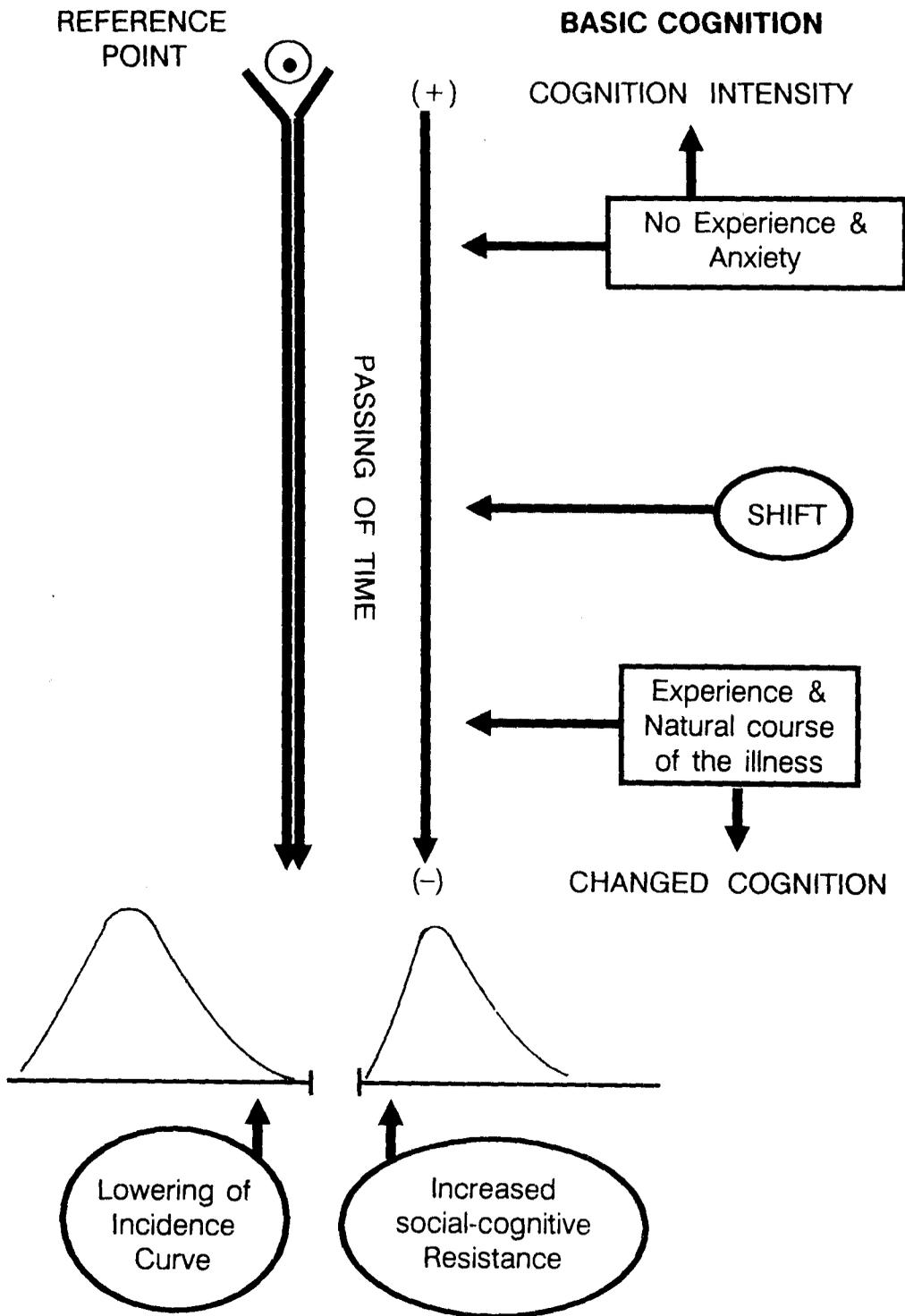


Fig. 5. Time and Social Cognition in Psychiatric Epidemic.

II. STUDY OF THE PROFESSIONAL GROUP

SUMMARY

Cognitive responses of 160 professionals (medical and para-medical personnel) were studied during the Koro epidemic in North Bengal, which predominantly favoured a positive illness model for Koro. They considered Koro to be a serious disease with risk of life and sexual disability and with high infectivity. Various categories of professionals showed differences in their cognitive responses. The implication of this medical view of Koro is discussed with respect to the social model of Koro during the epidemic time in the region.

Illness perception and response are socially learned phenomena, because the magnitudes of symptoms and disability are products of subjective experiences and social definitions (Mechanic, 1977). The process of labelling involves orientation of people about sick-role. This message to the patient as to how to conform to a sick-role is guided and reinforced by the opinion and attitudes of the help-providing therapists of the community (Ramaan & Murphy, 1972). The 'doctor' is an important person because his opinion provides scientific basis to social cognitions (Menzel, 1960). The clinician should guide the social cognitive process by providing constructive explanations, but not reinforce maladaptive behaviour (Mechanic, 1977). He thus helps in the adaptive response to deviant behaviour. Otherwise people accommodate illness perception through the constructs of social cognition such as search for meaning, social attribution and social comparison (Cobb, 1975; Mechanic, 1972, 1975).

The present investigations studies the cognitive responses of the local treatment people - physicians and paramedical staff,

to the massive Koro epidemic in the northern region of West Bengal, in relation to the illness model of Koro.

RESULTS

Table I shows the pattern of Koro 'illness type' cognition of professional groups and their intracomparison. The professional group as a whole significantly ($P < .001$) differed in their Koro illness type perception. Surgeons and Paramedical staffs endorsed higher responses for Koro as a physical disorder and lower responses to the 'nil' category ($P < .01$), in comparison to those of the Physicians. The difference ($P < .05$) of responses of Surgeons and paramedics compared to those of GPs was similar. Paramedics also differed significantly ($P < .05$) from the Surgeons as well.

Table 2 displays the Koro 'seriousness' cognition of the professional group. Of the total respondents 18% perceived Koro as a non-serious illness, while 45% took it to be of 'severe' nature ($P < .001$). When the responses of each group were compared, it was seen that significantly ($P < .01$) larger numbers of Physicians and smaller numbers of Surgeons considered the illness to be non-serious. Likewise, significantly ($P < .01$) more GPs and fewer PMS reported the illness to be of mild and moderate severity. On the other hand, significantly ($P < .01$) more number of Surgeons and PMS considered Koro to be a severe illness than the Physicians and GPs.

Table 3 depicts the Koro 'risk' cognition of the professional group. They showed a significant ($P < .001$) overall difference in the response pattern; viz. only 15% (comprising Physicians and GPs) perceived Koro as non-dangerous; 49.4% had the view that Koro imposes a potential risk to sexual power; 15% considered Koro as a life threatening illness and 11.9% felt that it may have detrimental effect on general health. An intra-group comparison also showed a significant difference viz. more GPs, Surgeons and PMS endorsed ($P < .01$) sexual hazard from Koro than Physicians

Table 1. Koro 'illness type' cognition of the professionals.

	P		GP		S		PMS		Total		χ^2	df	P value
	n	%	n	%	n	%	n	%	n	%			
Physical (P)	17	42.5	22	55	29	72.5	32	80	100	62.5	28.24	9	0.001
Mental (M)	6	15.0	4	10	6	15.0	-	-	16	10.0			
P + M	5	12.5	6	15	5	12.5	6	15	22	13.8			
Nil	12	30.0	8	20	-	-	2	5	22	13.8			
		$\chi^2_3 =$		1.93		15.13**		17.83**					
				$\chi^2_3 =$		9.45*		9.45*					
						$\chi^2_3 =$		8.24*					

* P .05; ** P .01

P = Physician
 GP = General Practitioner
 S = Surgeon
 PMS = Para-medical Staff

Table 2. Koro 'seriousness' cognition of the professionals.

	P		GP		S		PMS		Total		X ²	df	P value
	n :		40		40		40		160				
	No.	%	No.	%	No.	%	No.	%	No.	%			
Nil	13	32.5	10	25	2	5	4	10	29	18.1	55.6	9	0.001
Mild	11	27.5	12	30	4	10	3	7.5	30	18.8			
Moderate	9	22.5	12	30	5	12.5	3	7.5	29	18.1			
Severe	7	17.5	6	15	29	72.5	30	75	72	45.0			

X² = 0.94 25.92** 26.63**

X² 27.33** 29.37**

X²₃ = 1.33

**P .01

P = Physician
 GP = General Practitioner
 S = Surgeon
 PMS = Para-medical Staff

Table 3. Koro 'risk' cognition of the professionals.

	P		GP		S		PMS		Total		X ²	df	P value
	n : 40		40		40		40		160				
	No.	%	No.	%	No.	%	No.	%	No.	%			
No Danger	14	35	10	25	-	-	-	-	24	15	63.45	12	0.001
Life Threatening	-	-	6	15	7	17.5	11	27.5	24	15			
Sexual Power Loss(S)	12	30	20	50	22	55	25	62.5	79	49.4			
General Health (H)	9	22.5	4	10	2	5	4	10	19	11.9			
S + H	5	12.5	-	-	9	22.5	-	-	14	8.7			

$$X^2_4 = 15.59^{**}$$

$$29.54^{**}$$

$$36.49^{**}$$

$$X^2_4$$

$$19.84^{**}$$

$$X^2_3 = 12.03^*$$

$$X^2_3$$

$$10.75^*$$

* P 0.05; ** P 0.01

P = Physician
 GP = General Practitioner
 S = Surgeon
 PMS = Para-medical Staff

Similarly more Surgeons and PMS viewed ($P < .01$) sexual risk from Koro than GPs. PMS' responses on this item were also higher ($P < .05$) than those of the Surgeons.

Table 4 exhibits the 'infectivity' cognition of the professionals. The overall response of the professionals showed significant ($P < .001$) differences, viz. 33% of the total responses marked the 'no infective potential of Koro' category in contrast to 17.5% and 38% belonging to 'severe' and 'highly infectious' categories respectively. An intragroup comparison also showed that the response patterns of Surgeons and PMS groups were different ($P < .01$) from those of the Physicians and GPs.

DISCUSSION

It has been seen time and again that the labelling and evaluation of any distress/behavioural dysfunction is significantly influenced by others in the community, viz. family and friends. Usually these informal labelling and evaluative processes appear to proceed before medical help seeking. These inputs from others are likely to reinforce the prevalent cultural conceptions and evaluations of symptoms since family, friends or other significant persons in the community share the same culture (Kadushin, 1969; Kessler et al., 1981; Fabrega, 1974). So the disease model and/or its treatment perception remain completely culture dependent till this stage. Contact with health professionals thereafter further influences these interpretations and evaluations. In other words, medical experts transform patient's symptoms into specific diagnosis and transmit relevant scientific concepts and information regarding the illness (Frank, 1961). This informal transmission then goes into the social network and thus helps the society to rearrange its previous cognitive disease categorizations.

While this medical-nonmedical (social) information transmission is a matter of crucial importance insofar as the medical ethics and practices are concerned, it is at the same time one of the greatest weaknesses of the modern medical system at large (not

Table 4. Koro 'infectivity' cognition of the professionals.

	P		GP		S		PMS		Total		χ^2	df	P value
	n : 40		40		40		40		160				
	No.	%	No.	%	No.	%	No.	%	No.	%			
Nil	25	62.5	17	42.5	8	20	3	7.5	53	33.1	55.94	12	0.001
Mild	-	-	5	12.5	-	-	-	-	5	3.1			
Moderate	4	10	2	5	5	12.5	2	5	13	8.1			
Severe	4	10	7	17.5	8	20	9	22.5	28	17.5			
Highly Infectious	7	17.5	9	22.5	19	47.5	26	65	61	38.1			

$$\chi^2_4 = 8.26 \quad \chi^2_3 = 15.7^{**} \quad \chi^2_3 = 30.82^{**}$$

$$\chi^2_4 = 13.17^{**} \quad 23.31^{**}$$

$$\chi^2_3 = 4.71$$

* P 0.05; ** P 0.01

P = Physician
 GP = General Practitioner
 S = Surgeon
 PMS = Para-medical Staff

only for Koro but for other mental illnesses also). This is because in most situations the professionals fail to attest the importance of information transmission to the health seeker, so much so that the indigenous cultural categorization, with all its health hazard potentials, offers the only primary option for traditional help-seeking in almost every part of the world. Cultural doctrines, faith or magical healing or shamanism in varied forms still serve a considerable number of ailing people because, in addition to other socio-cultural factors, these endorse the help-seeker's problem in due cultural context where the dyadic information exchange between the client and the healer is a ritualistic mandate, meticulously observed by the traditional healers in every community of the world.

Hafez (1985) in his study of the 'mysterious gas poisoning' in the Jordan West Bank clearly showed how the Arab medical community, being influenced by socio-political conflicts, expressed opinions which accelerated the epidemic. It is evident in the present study that the medical and para-medical communities of this region predominantly favoured an 'illness' model for Koro, specially regarding its identification as a physical illness, the assessment of serious nature of Koro and its health risks and infective potential. It is interesting to note that among all the professional groups, the responses of the GPs sound more rational, probably because of their free and frank mixing with the community and their opportunity to see Koro cases intimately.

It is a matter of great concern to observe that due to unfamiliarity with 'Koro' - a strange sexual phenomenon - the medical people not only lacked the skills for the appropriate management of cases, but also failed to offer requisite medical explanations to meet the social curiosity at the point of extreme mass anxiety and fear. Rather, their views reinforced the social cognition of Koro as a serious disease, with life threatening risk and high infectivity, which, because of its identical nature to that of mass cognition, favoured the rapid Koro contagion in the community through milling behaviour (Turner & Killian, 1972) along

various social communication networks.

All the professional groups, owing obviously to their cultural inhibitions (or ignorance ?) of sexual matters, placed undue stress on the sexual power-loss/malfunctioning as one important aftermath of Koro. On this point they simply reflect the ongoing mass anxiety concerning this atypical sexual-behavioural expression of Koro in the community. It is pertinent to mention here that in the early part of the epidemic (first 2-3 weeks) Koro patients were brought to the hospital and private clinics, but later they were reluctant to visit allopathic facilities. Interestingly, a homeopath doctor, a pharmacist and a medical student were also among the Koro sufferers. The Koro patients and their family members increasingly turned towards traditional modes of ritualistic treatments available in the community. These social treatments imposed several health hazards including death, yet were accepted by a majority of Koro patients. The conclusion of this study thus supports the view of Sirois (1982) that medical people have important cognitive contributions insofar as the mass perception of a psychiatric epidemic is concerned.

III. SOCIAL RESPONSE OF THE TOTAL SAMPLE : FIRST RATING

The beliefs and attitudes of the community including those of the treatment people towards any behavioural abnormalities in question usually influence the incidence, course and prognosis or outcome of the maladaptive behaviour. This is critically true for a psychiatric epidemic where the intensity, incidence and the type of the epidemic spread occurs parallelly with the beliefs and attitudes of the community at par with the social acceptance/rejection dynamics.

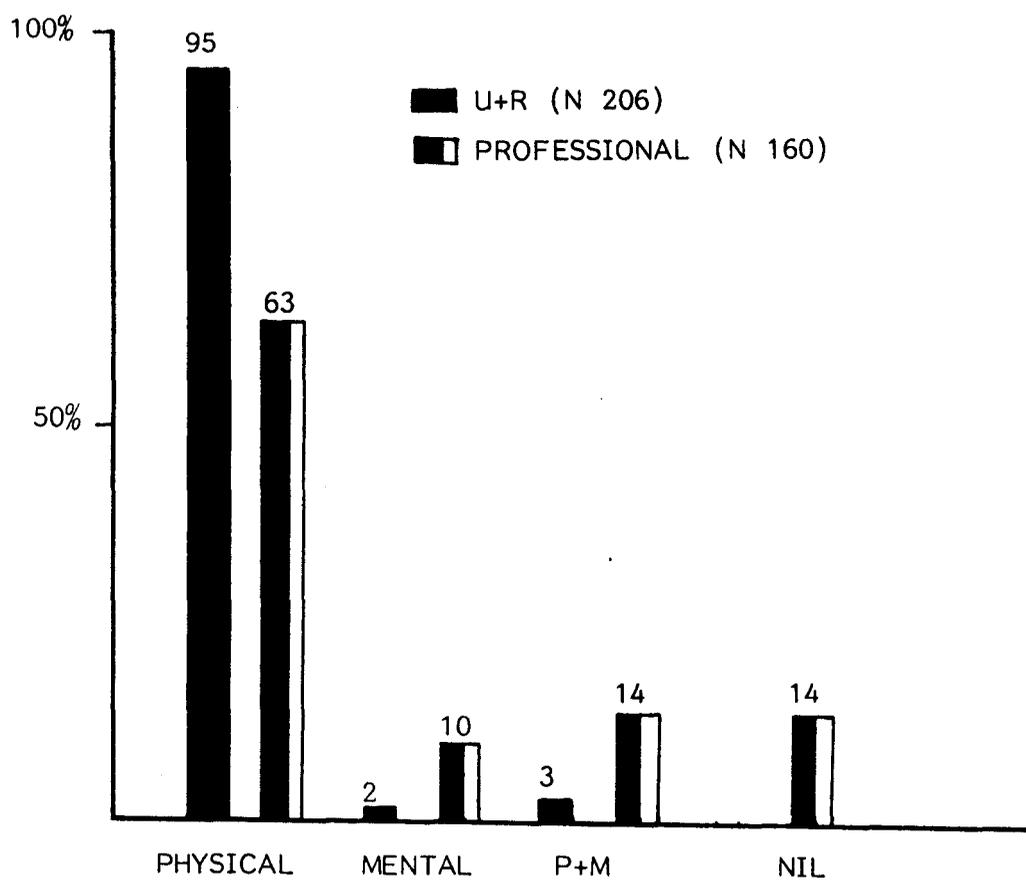
An analysis of social responses from the community (rural group, n 88 + urban group, n 118 + professional group, n 160 = total 366) shows an identical dimension of Koro as a positive illness paradigm, during the height of epidemic occurrences. It is interesting to note that the professional group also shared similar or even identical beliefs so far the disease model of Koro is concerned.

RESULTS

Table 1 and Fig 1 show that 80.6% of the total sample viewed Koro as a form of physical illness and only 6% discarded its illness potentialities.

Table 1. Koro 'illness type' cognition of the community (n 366)

n :	Rural+Urban (206)		Professional (160)		Total (366)	
	No.	%	No.	%	No.	%
Physical (P)	195	94.7	100	62.5	295	80.6
Mental (M)	5	2.4	16	10.0	21	5.7
P + M	6	2.9	22	13.7	28	7.7
Nil	-	-	22	13.8	22	6.0



ILLNESS TYPE (N 366)

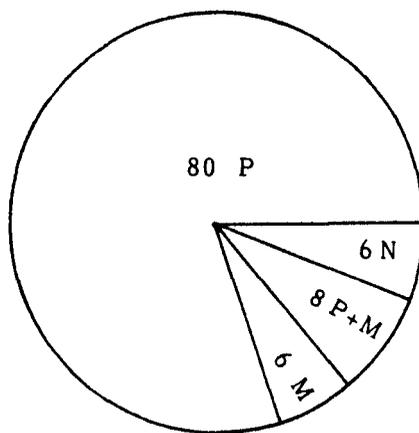


Fig.1. Koro 'Illness Type' cognition of the Community.

Table 2 and Fig.2 indicate that 58.5% of the sample perceived Koro as an illness with severe seriousness while 10% endorsed its nonserious nature.

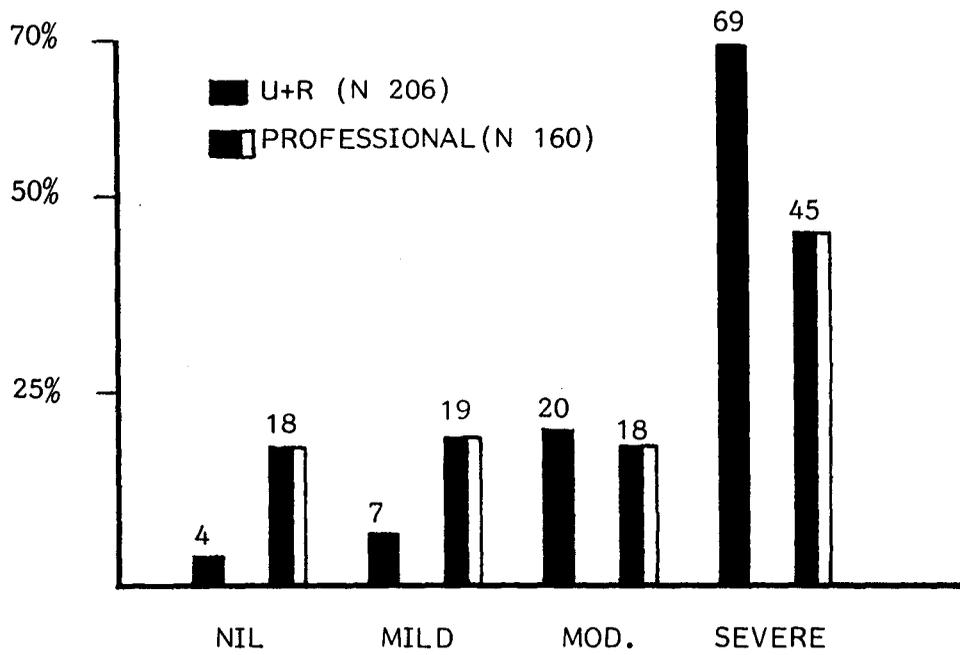
Table 2. Koro 'seriousness' cognition of the community (n 366)

n :	Rural+Urban (206)		Professional (160)		Total (366)	
	No.	%	No.	%	No.	%
Nil	8	3.9	29	18.1	37	10.1
Mild	15	7.3	30	18.8	45	12.3
Moderate	41	19.9	29	18.1	70	19.1
Severe	142	68.9	72	45	214	58.5

Table 3 and Fig.3 depicts that only 21.6% of the sample saw 'no chance of infection' from Koro. Percentage distribution of responses of the graded positive categories show a progressively increasing endorsement, viz. mild 3.8%, moderate 13.7%, severe 17.2% and highly infections 43.7%.

Table 3. Koro 'infectivity' cognition of the community (n 366)

n :	Rural+Urban (206)		Professional (160)		Total (366)	
	No.	%	No.	%	No.	%
Nil	26	12.6	53	33.1	79	21.6
Mild	9	4.4	5	3.1	14	3.8
Moderate	37	18.0	13	8.1	50	13.7
Severe	35	17.0	28	17.5	63	17.2
Highly Infectious	99	48.0	61	38.1	160	43.7



SERIOUSNESS (N 366)

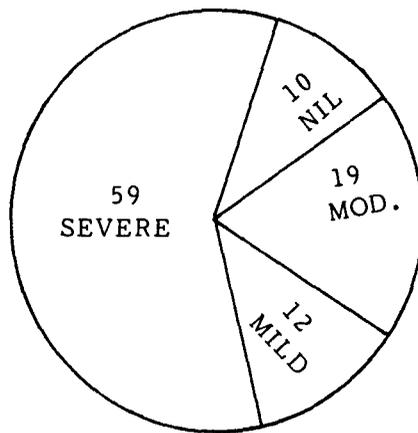


Fig.2. Koro 'Seriousness' cognition of the Community.



CHANCE OF INFECTION (N 366)

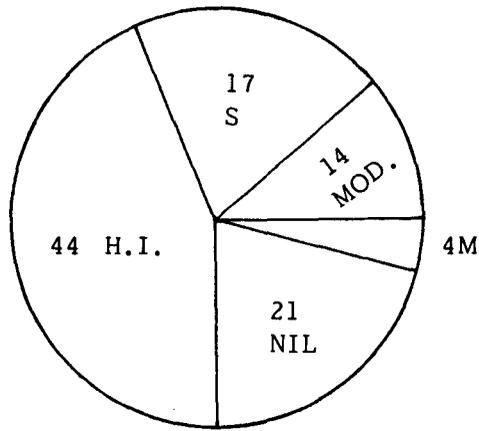


Fig.3. Koro 'Infectivity' cognition of the Community.

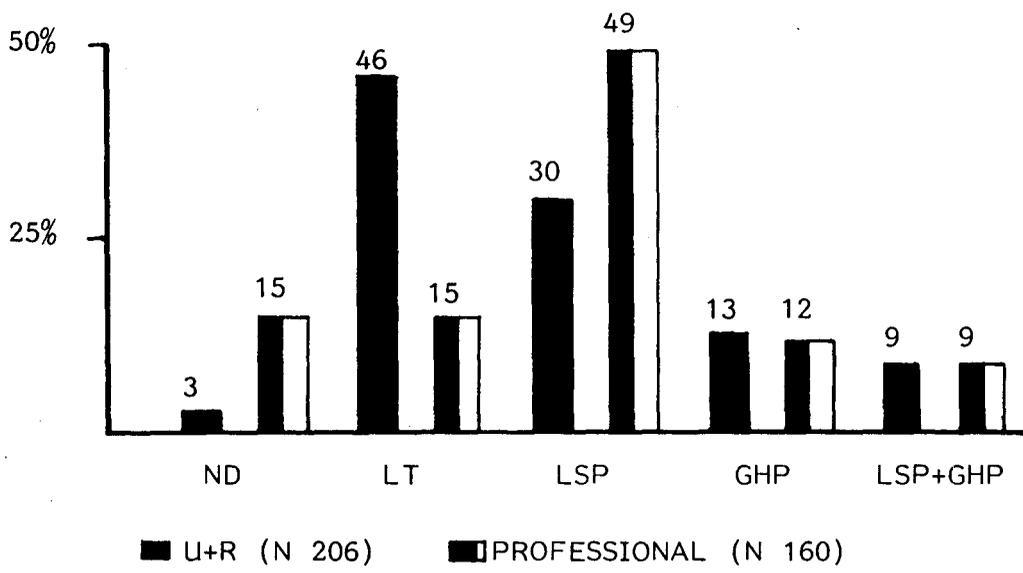
Table 4 and Fig.4 evinces that only 8.2% of the sample rejected the proposition that Koro has any dangerous risk. 32.2% perceived a 'life threatening' risk while 38.5% viewed 'loss of sexual power' as the risk of Koro illness.

Table 4. Koro 'risk' cognition of the community (n 366)

n :	Rural+Urban (206)		Professional (160)		Total (366)	
	No.	%	No.	%	No.	%
No Danger	6	2.9	24	15	30	8.2
Life Threatening	94	45.6	24	15	118	32.2
Sexual Power Loss(S)	62	30.1	79	49.4	141	38.5
Health Problem (H)	26	12.6	19	11.9	45	12.3
S + H	18	8.7	14	8.7	32	8.7

DISCUSSION

A study of the social response pattern of Koro during and after the epidemic height reveals some interesting facts in so far the recognition of Koro as an illness in the community and its consequent spread is concerned. The comparison of the first and second social response ratings of both rural and urban samples consistently show (vide previous sections) that both groups identified Koro as a definite illness with profound seriousness, great risk of life and disabilities, and a high infective potentiality. These assumptions are rated to the maximal intensity during the first few weeks of the epidemic (Fig.5). During this period both rural and urban samples represented their Koro



RISK (N 366)

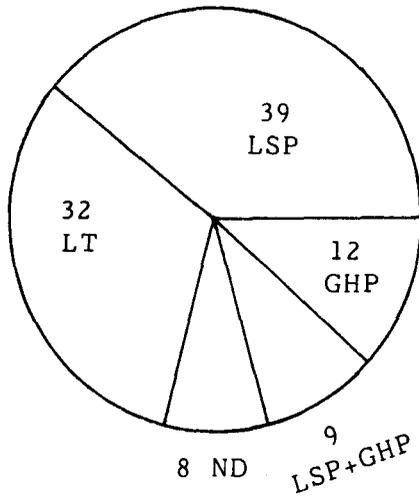
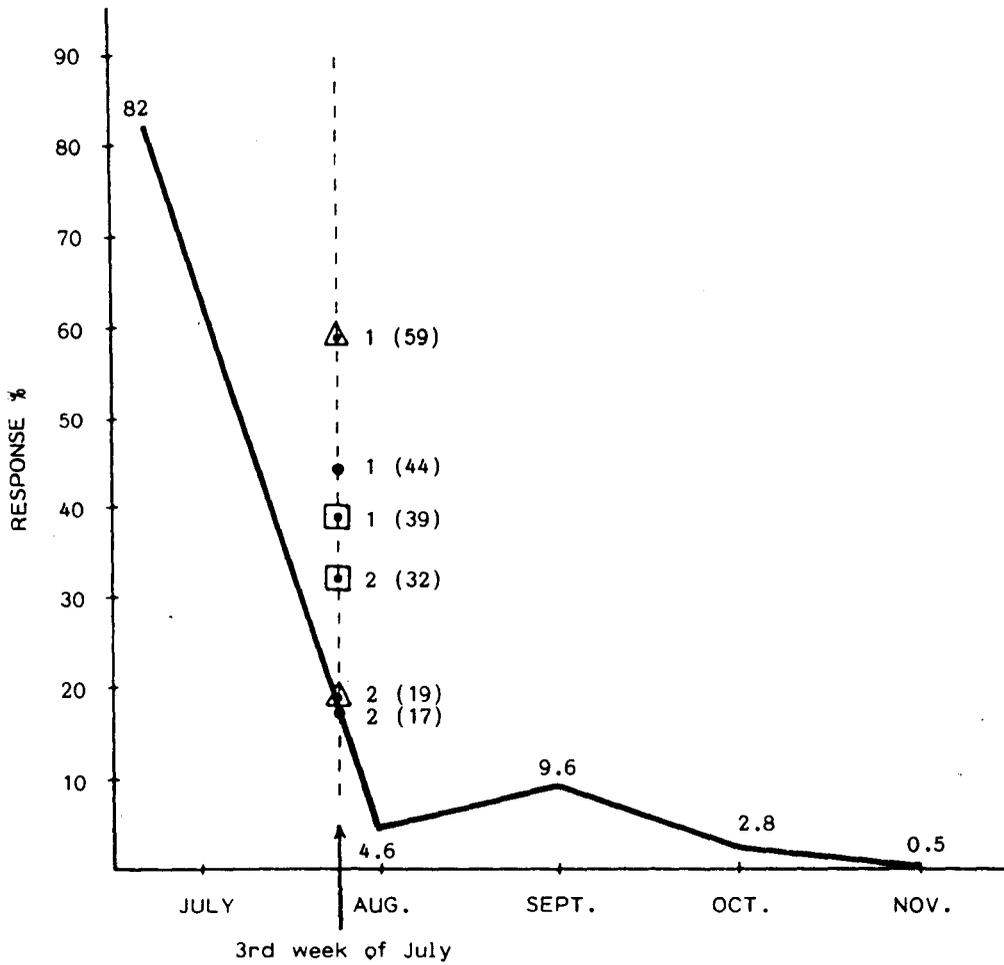


Fig.4. Koro 'Risk' cognition of the Community.

EARLY POSITIVE ILLNESS PARADIGM OF KORO IN THE BACKGROUND
OF THE N.B. KORO EPIDEMIC PATTERN



- △ 1 : Severely Serious
- △ 2 : Moderately Serious
- 1 : Risk of Sexual Power Loss
- 2 : Life Threatening Risk
- North Bengal Koro Epidemic Pattern
- 1 : Highly Infectious
- 2 : Severely Infectious

Fig.5

illness cognition as :

1. Koro is a physical illness
2. Koro is characterized by : -
 - a) severe type of seriousness,
 - b) life threatening risk, and
 - c) highly infective nature.

This positive illness cognition reinforces the acceptability of Koro in the community through an illness model and thus makes Koro affection of other vulnerable individuals 'legitimate'. It is also noteworthy that although the rural and urban populations differed in their responses to illness type or chance of infection, they showed remarkably identical responses inasmuch as the seriousness and risk of Koro is concerned.

The medical opinion at the same time, which ought to have a deep influence on the ongoing social perception of the phenomenon, is also noteworthy in this context. Different professional groups of the medical community have expressed their Koro cognition which is very similar to that of the social responses. In other words they reflect the predominant cultural expressions. In fact the treatment people have failed to offer any rational and effective scientific explanation about the illness which would meet the social curiosity at the time of extreme demand. Their identical responses virtually reinforce further the social cognition which is turn favour the rapid contagion of Koro through 'milling behaviour' (Turner & Killian, 1972) along different socio-communicative networks. It is also important to remember here that during the early part of the epidemic (2-4 weeks duration) Koro patients were brought to hospitals or private clinics, but, later, owing to the treatment people's ambiguity and rejection, they were reluctant to visit any medical facility. The patients and their family members increasingly turned towards the traditional mode of indigenous healing rituals as evolved at that time.

There is little doubt that the medical community of the region not only lacked the optimum knowledge and requisite skills necessary for the management of such patients but they also developed or framed a pseudo-scientific medical theory ("sexual mischievousness") that was entirely based on their own cultural cognition of sexuality (vide reference in the section on cause cognition). This medical theory is a reflection of their rejective attitudes and in practice is in opposition to the social attribution. For example, the prevalent social cognition as to its cause was 'body heat' and 'supernatural' (vide reference to the section on cause cognition).

In summary, it is interesting to note that in spite of the differences in the response patterns, the total sample (rural+urban+professional) identified Koro as a positive illness paradigm as follows (Fig.6) :

1. Koro is physical illness - 80.6%
2. Koro entails a severe type of seriousness - 58.5%
3. Koro is a life threatening illness (32.2%), with a strong deteriorating influence on sexual power (38.5%) and
4. Koro has a very high infective potential - 43.7%.

These response patterns are conducive to the 'emergent norm' theory as applied to psychiatric epidemics (Turner & Killian, 1972), which states that transactions within the community, referred as 'milling behaviour', are the source of new events to which its members eventually confirm, especially when a cognition of high 'psychic' infectivity is being generated out of the illness in question. This is one of the probable important reasons for the multimodel incidence curve of Koro epidemic in the region.

The confirmation of the Koro illness from social and medical communities and the unpreparedness of treatment people to offer a definite treatment programme couple together and increase

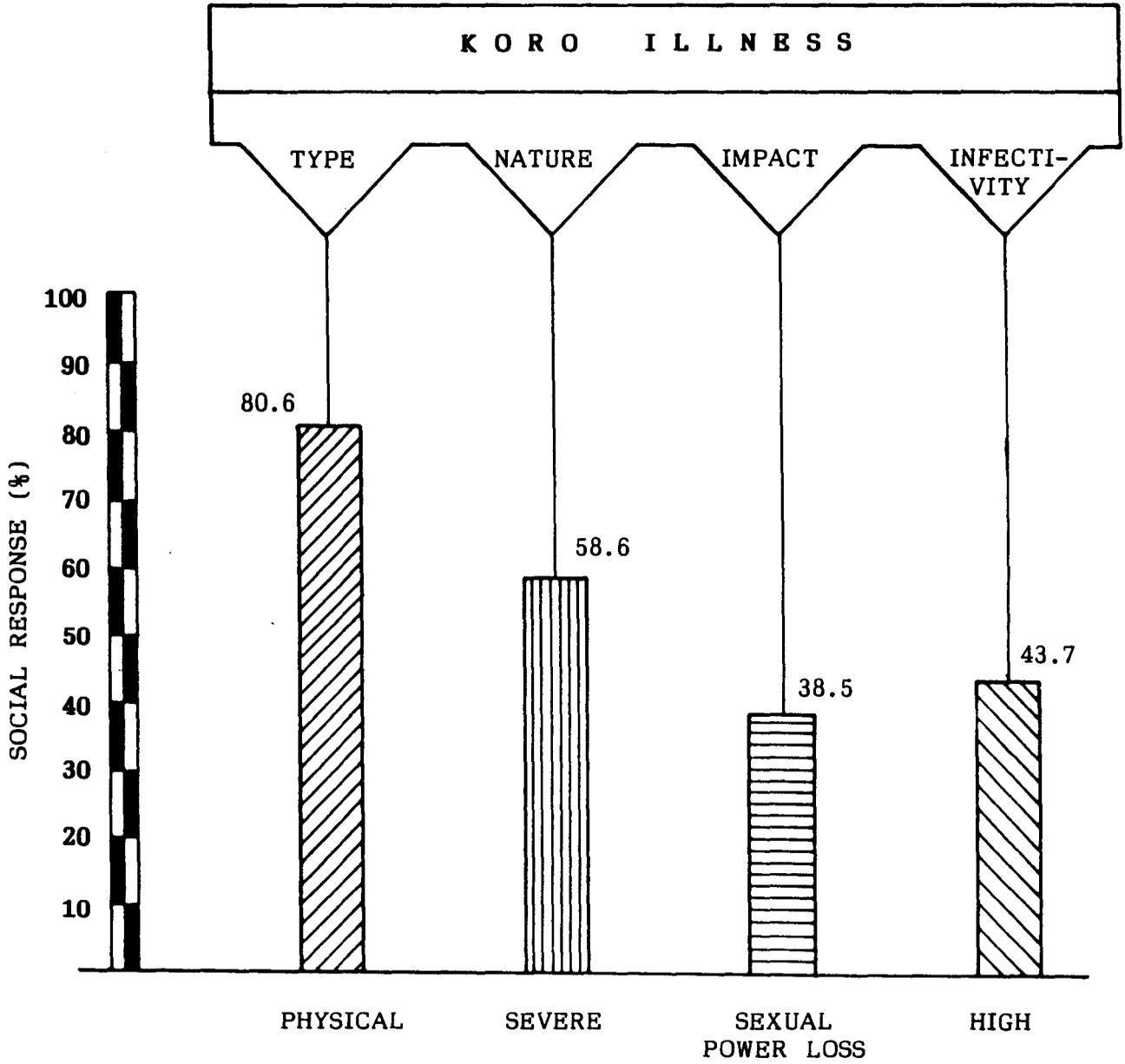


Fig.6 : KORO POSITIVE ILLNESS PARADIGM
(Total Social Sample, n 366).

the uncertainty and fear about Koro that favour the atmosphere for crowd response. This accelerate the process of contagion through the psychological mechanism of blurring rationality, high suggestivity, imitation, identification and circular emotional reactions (Spence, 1979). Hafez (1985) asserts the role of the medical community that contributes markedly towards the elaboration of the delusional system and its quasi-validation in the epidemic of 'mysterious gas poisoning' in the Jordan West Bank.

Time is an important variable in any cognitive appraisal, as it offer a sufficient interval for the observation of the natural course of then event. The present study thus shows that the strength of positive illness cognition of Koro parallels the incidence curve of the epidemic, viz. from high to low levels over time. Unlike the organic epidemics of infectious origin, where the density ratio of a particular virus or bacteria to the population dictates the prolonged course of the epidemic waves (if not intervened therapeutically), the psychiatric epidemics are very well known for their acute rise and sharp fall because of this rapid cognitive shifts of the society from a positive to a negative direction. This social dynamics of cognitive shiftt regarding the disease model of Koro is well illustrated in the present study.

C O N C L U S I O N

The present study offered the following facts in support of the social response to Koro as a positive illness paradigm :

1. The Koro illness was accepted as a difinite illness by the community.
2. The vulnerable nature of the illness in terms of its seriousness, health risks and chance of contagiousness was attributed maximally during the first few weeks of the epidemic.

3. The medical community responded almost in an identical manner as the general community insofar as the reactions to Koro illness are concerned.
4. Passage of time changed the direction of the social Koro cognition from high to low vulnerability.

CAUSE COGNITION OF KORO

SUMMARY

A social response regarding the cause cognition of Koro (illness was elicited from a sample (n 366 : rural 88 + urban 118 + treatment people 160) by field study during the Koro epidemic in the North Bengal region (Darjeeling district). The community (rural + urban) responses echoed the cultural concepts in their cognitive appraisal of Koro causes, viz. 'excessive body heat' (32.5%); 'supernatural influence' (16.5%) and 'fear reaction' (9.7%). The professionals, though projecting certain similar cognitive evaluations like those of the community, specifically endorsed the attribution of 'sexual misdeeds' (35.6%); 'body heat excess' (16.9%) and 'mischievousness' (10.6%) as the primary causes of Koro. 14.5% of the total sample were ignorant about the causes of Koro. Various aspects of cultural influences on this cause cognition (of Koro) are discussed with a special emphasis on the similarity/dissimilarity aspect of this cognitive dimension between the community and the professional groups.

Angel and Thoits (1987) divided the cognitive model of illness labelling phenomena into three distinct parts, viz. positive endorsement of any physical/emotional behaviour or changes as 'abnormal', the interpretation and evaluation of the abnormality and the determination of the course of action (treatment decision). The category of interpretation and evaluation of any deviant behaviour they term "second-order categorization" which takes into account the detailed nature of the illness in question including its cause. This cognitive evaluation process is heavily influenced by cultural factors like social desirability, prevalent beliefs and knowledges and advice from the significant others.

It has been seen that first the individuals, and then the community evaluate any deviant behaviour in accordance with the learned dimensions of health and illness of this society (Marcus, 1977). These dimensions indicate the cultural and social beliefs concerning anatomy, physiology and etiology of disease (Kleinman, 1982; Nichter, 1981). These cultural cognitive categories (about the disease cause/expression) are not fixed but are malleable and change as a result of experience, education and scientific medical intervention (Anderson et al., 1981). Social cognition of psychiatric morbidity is thus very important not only because of the cultural relations with behavioural dispositions, but also from the viewpoint of treatment selection and compliance. This is more so in cases of psychiatric epidemic owing to the need for urgent intervention in stopping the process of contagiousness in the community.

The present study is designed to explore the cognitive dimensions with respect to the etiology of Koro of the community people where an epidemic occurred. This study also attempts to examine the cognitive profile of Koro etiology among the local treatment people to examine the similarity/difference between the mass cognition of the two groups.

MATERIALS AND METHODS

The sample, the instrument (cause cognition section of Social Response Pattern Schedule) and the time of testing (at the height of Koro epidemic) are discussed in detail in the opening section of the Social Response Study.

RESULTS

Table 1 & fig.1 shows the distribution of different responses of Koro cause cognition by the rural and the urban groups. In the rural group the first three responses in descending order are 'body heat' (30.7%); 'supernatural' (21.6%) and 'unknown' (18.2%). Almost a similar pattern is also observed in the urban group, viz. 33.9% 'body heat'; 15.3% 'unknown' and 12.7% 'supernatural'. Perception of 'physical' causative background in Koro in terms

Table 1. Distribution of Koro 'Cause' of rural and urban groups.

Causes	Rural (n 88)		Urban (n 118)	
	No.	%	No.	%
Not known	16	18.2	18	15.3
High fever	10	11.4	5	4.2
Physical strain	2	2.3	5	4.2
Body heat	27	30.7	40	33.9
Sexual	6	6.8	11	9.3
Supernatural	19	21.6	15	12.7
Mischievousness	1	1.1	4	3.4
Fear (F)	6	6.8	14	11.9
Mental (M)	1	1.1	3	2.5
F + M	-	-	3	2.5

- 1 = Body Heat
- 2 = Supernatural
- 3 = Not known
- 4 = Fear Reaction
- 5 = Sexual
- 6 = High Fever

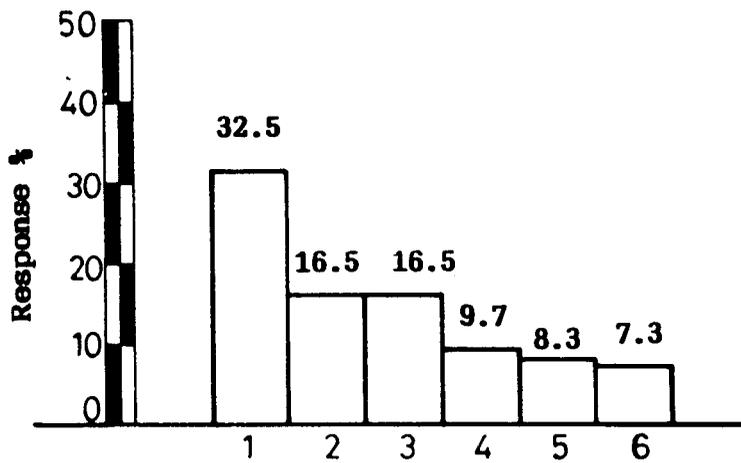


Fig.1 : First Six Causes of Koro : Community Cognition (n 206).

of 'fever' and 'physical strain' is reported from 13.7% and 8.4% of the rural and the urban group respectively. Psychological decompensation, viz. fear or mental reaction or combination of both, as a cause of Koro, is perceived more by the urban (16.9%) than the rural (7.9%) group.

Table 2 depicts the distribution and intra-group comparison of Koro cause cognition of the professional group. The highest attribution was 'sexual' cause in each of the professional groups, viz. 37.5%. Physicians; 40% GPs; 37.5% Surgeons and 27.5% PMS. 35% Physicians and 7.5% GPs opted for 'mischievousness' as the cause of Koro. A significant difference in the overall cognitive pattern is seen in GPs ($P < .01$), in surgeons and PMS ($P < .05$) from that of Physicians. Similar different is also noted in the PMS response ($P < .05$) compared to that of Surgeons. It is interesting to note that 12.5% GPs, 25% Surgeons and 30% of the PMS group endorsed 'body heat' as the cause of Koro.

Table 3 displays the distribution and comparison of cause cognition pattern between the community (rural + urban) and the professional groups. The community group shows higher endorsement to 'body heat' and 'supernatural' causes and lower endorsement to 'sexual' and 'mischievousness' than the professional group ($P < .01$). All other responses show no significant difference.

Table 4 and Fig.2 evince the distribution of cause cognition responses of the total sample, i.e. rural, urban and professional combined. The profile of cause cognition from highest to lowest categories presents the following distribution : body heat (25.7%); sexual (20.2%); unknown (14.5%); fear (10.7%); supernatural (10.4%) and mischievousness (6%).

DISCUSSION

Social cognition of an illness is heavily dependent on the cultural cognitive resources of the people. There exist some prevalent traditional beliefs and theories in every society and people are used to perceive any deviant behaviour in the first instance

Table 2. Distribution and comparison of Koro 'cause' cognition of different professional groups.

Causes	P (n 40)		GP (n 40)		S (n 40)		PMS (n 40)	
	No.	%	No.	%	No.	%	No.	%
Not known	1	2.5	2	5	6	15	10	25
High fever	-	-	4	10	2	5	-	-
Physical strain	1	2.5	3	7.5	-	-	-	-
Body heat	-	-	5	12.5	10	25	12	30
Sexual	15	37.5	16	40	15	37.5	11	27.5
Supernatural	-	-	-	-	-	-	4	10
Mischievousness	14	35	3	7.5	-	-	-	-
Fear (F)	5	12.5	4	10	7	17.5	3	7.5
Mental (M)	3	7.5	2	5	-	-	-	-
F + M	1	2.5	1	2.5	-	-	-	-

$$X^2_8 = 19.46^{**} \quad 34.9^* \quad 43.78^*$$

$$X^2_8 = 14.2 \quad X^2_9 = 26.3^*$$

$$X^2_5 = 9.4$$

*P < .05; **P < .01.

Table 3. Comparison of Koro 'cause' cognition between community (rural + urban) and professional groups.

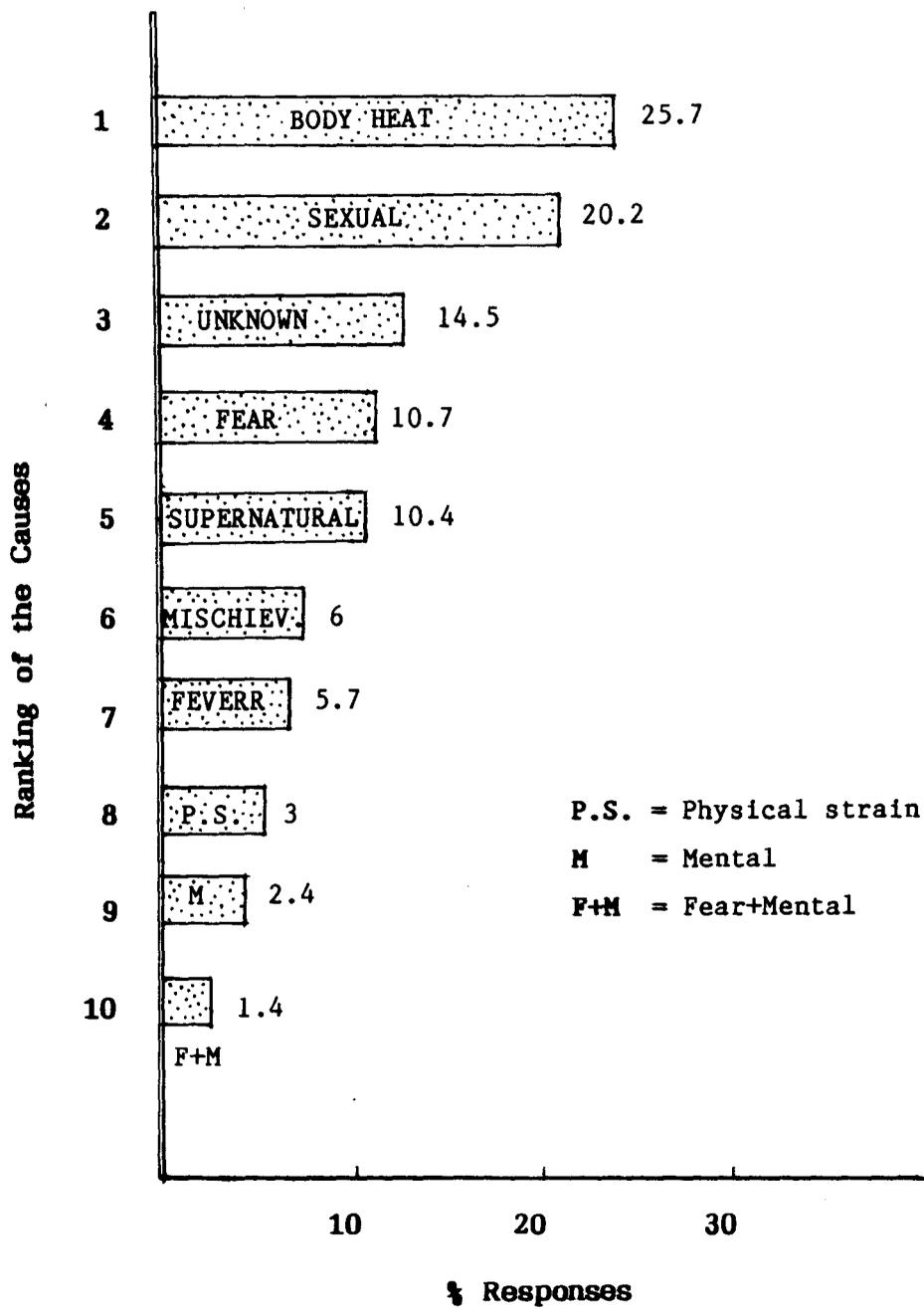
Causes	Community Group (n 206)		Professional Group (n 160)		Z score
	No.	%	No.	%	
Not known	34	16.5	19	11.9	1.25
High fever	15	7.3	6	3.8	1.44
Physical strain	7	3.4	4	2.5	0.55
Body heat	67	32.5	27	16.9	3.44**
Sexual	17	8.3	57	35.6	-6.47**
Supernatural	34	16.5	4	2.5	4.36**
Mischievousness	5	2.4	17	10.6	-3.28**
Fear (F)	20	9.7	19	11.9	-0.67
Mental (M)	4	1.9	5	3.1	-0.73
F + M	3	1.5	2	1.2	0.17

** P < .01.

Table 4. Distribution of 'cause' cognition of the total sample.

Causes	Total Sample (n 366)	
	No.	%
Not known	53	14.5
Fever	21	5.7
Physical strain	11	3.0
Body heat	94	25.7
Sexual	74	20.2
Supernatural	38	10.4
Mischievousness	22	6.0
Fear (F)	39	10.7
Mental (M)	9	2.4
F + M	5	1.4

Fig.2. Ranking of the Koro 'cause' cognition of the total sample (n 366).



by this frame of cultural/ethnomedical references. A good example is the Mexican categorization of any illness on the basis of either "hot-cold" dimension or "children's or old people's" disease -- the two most prevalent Latin cultural perceptions (D'Aandrade et al., 1972). The social cognitive evaluation of cause perception of any illness is highly important due to at least two reasons: Firstly it has a serious implication so far as the practice of indigenous folk treatment and its associated health hazards are concerned. Secondly, in cases of psychiatric epidemic, it directs and guides the symptom presentation as well as the spread of the illness in the community. The findings of the present study are important from this perspective.

It has to be remembered at this point that Koro is not like other usual diseases, nor was it previously known to the community under this study. The primary response of the community regarding the cognitive evaluation of its cause reflects the prevalent cultural concept of illness, viz. excessive body heat generation and supernatural influence. Many respondents, however frankly admitted their complete ignorance about the cause of Koro and this group specially acted as a dangerous medium so far as the spread of rumour and fear reactions in the community is concerned, thus helping the spread of Koro in the region. The third predominant perception is the attribution of 'physical' cause, viz. fever, physical strain and sexual disabilities.

The cognitive spectrum of the local treatment people reveals some interesting features. Their evaluations strikingly corroborate the community cognition almost identically, with some variations in frequency percentages only. They offer no new medical cause of Koro except a heavy emphasis on the 'sexual' and 'mischievousness' categories. In fact these two medical views play a crucial role in the social treatment seeking of Koro by the affected individuals or their family members during the epidemic time.

Although 8.3% of the community responses attributed a sexual cause for Koro (in contrast to 35.6% of the professionals), the conceptual disposition or meaning of this sexual disability

is altogether different from that of the professionals. In the community cognitive categorization this sexual etiology mainly involves inherent or constitutional sexual weakness, sexual abnormalities like too much nocturnal emission or impotency and, rarely, inappropriate sexual urge or arousal. All these are viewed as involuntary disabilities of an individual which potentiate their vulnerability to Koro affliction. So, in a very usual and modest sense they are the persons who deserve social sympathy and help. The professional categorization of sexual cause, on the other hand, stresses disocial sexual behaviours primarily, e.g. sexual promiscuity/prostitute visit, too much masturbation and excessive sexual urge or motivation ("sexy"). These labellings involve a serious moral overtone and, for obvious reasons, this cause assignment gets reacted upon with resentment by the Koro patients and their family members.

'Mischievousness' is another such cognitive dimension where community and the professionals stand opposite to each other. 10.6% professionals (in contrast to 2.4% community responses*) viewed the "penis symptom" of Koro as deliberate malingering, which they termed 'mischievousness' believing that the patients "are exploiting the ongoing situation by this callous and silly behaviour". The validity of this professionals' comment probably rests with the fact that a few cases really displayed very casual complaints of penis retraction/shortening, without any accompanied features of marked anxiety, lacking dramatic acute presentation of classical Koro. Those cases were either frankly hysterical in nature or some of them, at least, were cases of organ dysmorphism. The strong epidemic wave of Koro disintegrated these differences, failing to be demarcated owing to professional inefficiency. Virtually, these cases contaminated the real Koro incidences during the epidemic time. Professionals from this experience probably generalized Koro as the manifestation of a malintended mischievous behaviour, though 'mischievousness' could not be at any rate a medical etiology or diagnosis. This attribution, naturally, contradicts the positive social paradigm of Koro as a serious illness.

*This was from non-Koro affected family members.

These inconsistencies of the professionals view are probably the reason for both the facts concerning Koro treatment; viz. the professionals' reluctance to certain Koro cases with appropriate treatment measures and an increased preference of Koro patients/family members for folk, rather than medical, treatment. A detailed discussion of this dynamics is presented in the 'treatment' section of this chapter.

Cultural influence on the cognitive resources and its implication in the conceptualization of disease causes are well exemplified in this study. The cognitive profile of the total sample (community + professionals) reflects the traditional ethno/socio-medical concepts, viz. body heat, sexual, supernatural and physical ailments. Strikingly, the professional groups also reinforce these cultural conceptions. It is worth noting at this point that 16.9% of the professionals endorsed excessive body heat (of sexual origin) as the cause of Koro. These cultural etiologies thus direct and guide the mode of social treatments in the North Bengal epidemic, the details of which are discussed in the 'treatment' section of this chapter.

In order to conclude, the etiology of Koro was perceived by the community in terms of traditional cultural doctrines of illness causation. These culture-oriented cause attributions play a positive role in the whole epidemic process, viz. in helping the positive illness paradigm of Koro in the community, thus accelerating its spread and in increasing the folk treatment seeking, thereby dictating the nature and mode of such treatment rituals. The prevalence of water-pouring (to cool the body heat) and different methods of penile traction (to prevent the supernatural inward penile pull) as the principal mode of social treatment of Koro, practised in the North Bengal epidemic can thus be conceived in terms of these culture-dependent cognitive evaluations of Koro causes in the region.

ETHNOMEDICAL COGNITION OF KORO : PATIENTS' PERSPECTIVE

SUMMARY

Ethnomedical cognition of Koro etiology was elicited by a field survey involving 101 male patients during an epidemic of Koro in the North Bengal region of West Bengal state, India. The majority of patients were Rajbanshis, an indigenous inhabitant of the region. Excessive body heat and supernatural influence are found to be the predominant ethnomedical cognition of Koro etiology. A detailed analysis of the ethnophysiological mechanism of body heat as either a precipitator of Koro or a general systemic distressor, reveals an interesting illness cognition related to heat, sexuality and cultural pattern of food preferences and folk medical practices. The attribution of supernatural influence on Koro reflects the patients' deep faith in magico-religious world philosophy, so much so that a hallucinatory sound of peril "Kattash or Kattaow" was identified as a magical triggering signal for the onset of Koro in the hearer. A transcultural analysis of body heat and spiritcult in relation to Koro and other illnesses shows that a strong belief in heat-cold dualism and supernatural influence in health and diseases does constitute a major ethnomedical concept among different indigenous cultural groups of the world, even at the dawn of the twentyfirst century.

The "cognitive science had led to the popularity of cognitive models in contemporary psychiatry and anthropology. This approach tends to conflate the body with the person's image of, or thoughts about, the body" (Kirmayer, 1984b) The understanding of indigenous ethnomedical concepts and practices is the clinical means by which such a social cognitive model of any illness can be ascertained because each component of patient's distress has a particular meaning within his cultural context (Koss, 1990). It has been seen that patient's concepts of illness

are in part influenced by the indigenous ethno-cultural belief system (van Moffaert & Vereecken, 1989) and this contention is specially applicable to the cultura-bound folk illness.

Koro, a psychogenic reactive state which is intimately related with the cognitive reference of socio-cultural construct of somatization in relation to sexuality, does reflect varied types of illness beliefs in different cultural groups. In spite of a handful of medical etiological hypotheses of Koro (both sporadic and epidemic forms) e.g., premorbid sexual conflicts and guilt (Gwee 1963, Rin 1965); morbid preoccupation with sexual functioning (Yap, 1965a,b) heightened genital awareness and autonomic hyperarousal (Chowdhury, 1993b, Oyebode et al., 1986), bio-medical potentials (Edwards, 1984; Chowdhury, 1989c), hypochondriacal genital concern (Rosenthan & Rosenthal, 1982); mass-fear in relation to castration anxiety (Suwanlert & Coates, 1978) and cultural belief in malevolent fox spirit (Prince, 1992b; Chowdhury 1993c), we really have not a single self-report about the ethnomedical explanatory framework of Koro patients from any of the cultural groups from which Koro has been reported till date. This is an important gap in our knowledge, specially when folk explanations and illness cognition do have a significant role in disease causation (Kirmayer, 1984b).

The present study, first of its kind in the world koro literature, attempts to bridge this gap by exploring the ethnomedical etiological basis of Koro illness as perceived by the patients themselves in the background of Indian culture.

The Land and the People

North Bengal region is the northernmost part of the state of West Bengal, India, comprising of five districts, viz. Darjeeling, Jalapuri, Koch-Bihar, West Dinajpur and Malda (Fig.1). The northern limit of this region is bounded by Sikkim and Bhutan while the eastern border is with Assam and Bangladesh. The western border comprises of Nepal and Bihar state. At the southern end the river Ganges divides North and South Bengal.

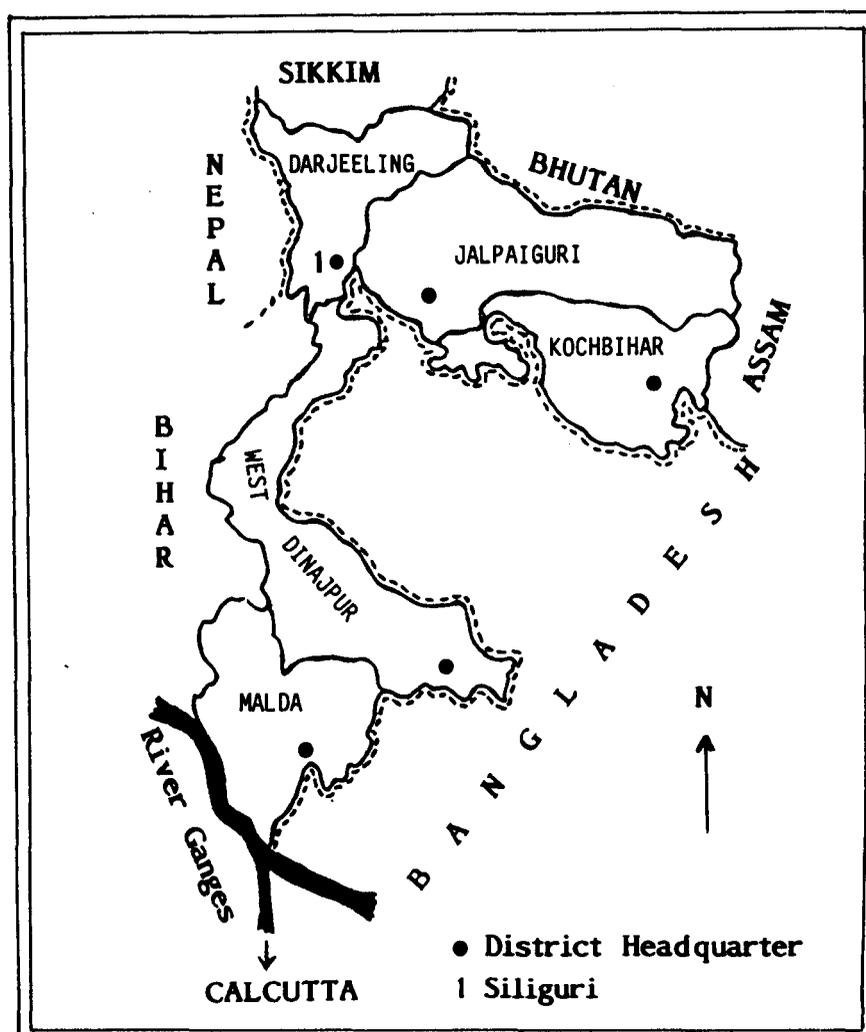


Fig.1. North Bengal Region, West Bengal.
(Not drawn to scale)

The entire North Bengal region is inhabited by diverse indigenous ethnic population groups like Nepalis, Rajbanshis, Tribal, Christians, Muslims, Bengalees and migrant settlers like Jains and Behari Hindus from other Indian states and Bengalees, both Hindu and Muslim, from Bangladesh.

The Rajbanshis, a Hinduized tribe, are indigenous inhabitants of this region. The origin of this tribe is uncertain. They probably are mixed people arising out of Dravidian stock with marked admixture of Mongoloid blood. They follow the Hindu custom in marriage and worship of gods. Wild animals like tiger, crocodile and some minor village deities are also worshipped. They have a different world view from that of the Hindus with a greater stress on magico-religious principles.

Materials and Method

1. Sample :

A massive Koro epidemic took place in all the five districts of North Bengal region, the details of which are reported elsewhere (Chowdhury et al. 1988). A total of 101 male Koro cases (55 from Darjeeling; 27 from Koch-Bihar and 19 from Jalpai-guri district) were interviewed by the author in different hospitals, private clinics and on community visits during the epidemic in the region. The details of the clinical picture of these cases are reported elsewhere (Chowdhury 1992b). This paper deals with the ethnomedical explanation of their Koro illness insofar as the etiology is concerned.

2. Instrument :

A. Cause cognition. After establishing a good rapport with each patient during clinical interview, he has asked to designate a single cause of his Koro illness which he considered to be the most important contributor. He was invited to provide a free response without any hesitation and not bothering about the correctness of his answer or worrying about whether it corresponds to the usual medical causes. His own assessment is only required. All the collected responses were grouped according to their similarities whereby seven categories emerged, viz.

unknown origin, fever, physical strain, increased body heat, sexual cause, supernatural cause and fear.

B. Ethnomedical Explanation of Causes. A detailed descriptive open ended account of each causal factor regarding its role in Koro causation from each patient was noted. As 'body heat' was a prevalent concept, a further probing was done regarding its detailed ethnophysiological explanations which were framed into distinct models and presented. Influence of body heat on other systems of the body was also elicited by the same descriptive interview method.

RESULTS

Table 1 depicts the demographic character of the sample, The maximum percentage of cases were Rajbanshis, unmarried with primary education and belonging to the agricultural occupation. The age mean of the sample was 23.6 ± 7.4 years.

Table 2 illustrates the distribution of different ethnomedical perceptions of the cause of Koro by the patients. The highest proportion of cases (54.6%) attributed excessive body heat as the principal cause of Koro, followed by attribution of supernatural (14.9%) and sexual (7.9%) causes.

Ethnomoidal Explanations

Body Heat : The detailed ethnophysiological account of body heat mechanism for causing Koro are grouped into four models according to their central theme and are presented in Table 3. It is interesting to note that all Rajbanshi patients (100%) and a majority of Behari Hindu cases (87.5%) assigned the body heat pathology to their Koro affection. Following is a brief description of each of the model as was perceived by the patients.

Body Heat : Structural Model (Fig.2).

The maximum percentage (47.2) of patients perceived that when the usual body heat becomes excessive, it causes

Table 1. Demographic Character of the Sample (n 101).

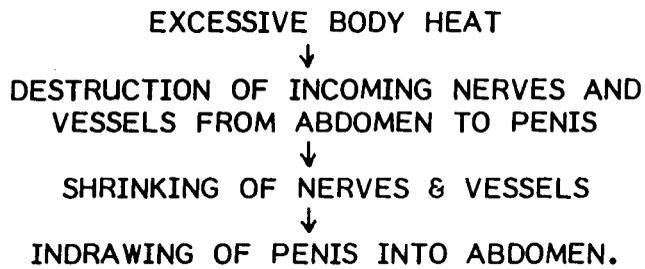
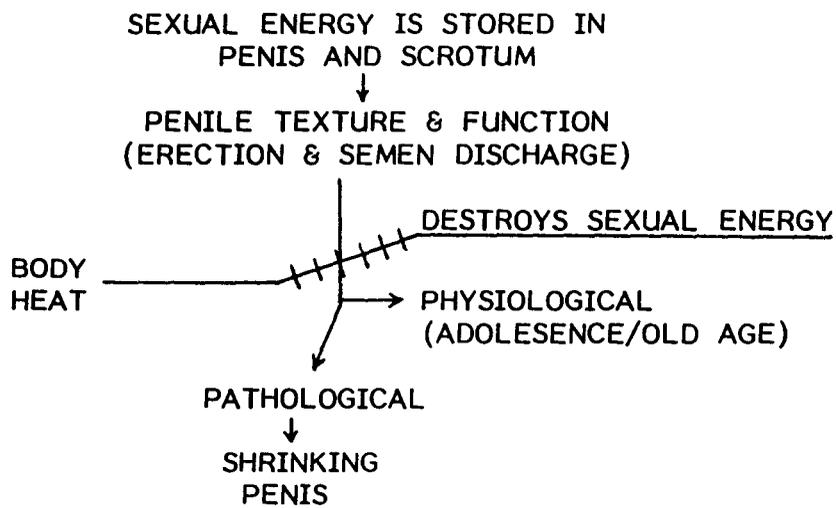
1. Age in years :		
\bar{X}	23.6	
Sd	7.35	
<hr/>		
	<u>No.</u>	<u>%</u>
2. Ethnicity :		
Rajbanshi	42	41.6
Bengali Hindu	24	23.8
Behari Hindu	8	7.9
Nepali Hindu	9	8.9
Jain	5	4.9
Muslim	8	7.9
Christian	5	4.9
<hr/>		
3. Marital Status :		
Single	65	64.4
Married	33	32.7
Seperated	3	2.9
<hr/>		
4. Education :		
Nil	18	17.8
Primary	49	48.5
Secondary	29	28.7
College	5	4.9
<hr/>		
5. Occupation :		
Nil	19	18.8
Student	18	17.8
Agriculture	33	32.7
Business	14	13.9
Tea Plantation Worker	8	7.9
Service	9	8.9
<hr/>		

Table 2. Ethnomedical explanation of Koro etiology (n 101).

Causes of Koro	No.	%
1. Increased Body Heat	55	54.6
2. Supernatural	15	14.9
3. Sexual	8	7.9
4. Physical strain	6	5.9
5. Fever	5	4.9
6. Fear	4	3.9
7. Unknown	8	7.9

Table 3. Ethnophysiological models of body heat in Koro (n 55).

Model	E t h n i c i t y									
	Rajbanshi		Behari Hindu		Nepali Hindu		Bengalee Hindu		Total (n55)	
	No.	%	No.	%	No.	%	No.	%	No.	%
1. Structural	22	40	1	1.8	1	1.8	2	3.6	26	47.2
2. Sexual Energy	9	16.4	2	3.6	1	1.8	2	3.6	14	25.5
3. Heat Loss	7	12.7	3	5.5	-	-	-	-	10	18.2
4. Heat Avoidance	4	7.3	1	1.8	-	-	-	-	5	9.1
Total :	42		7		2		4			
% of the Group Total :	100		87.5		22.2		16.7			

FIG. 2MODEL 1 : STRUCTURAL MODELFIG. 3MODEL 2 : SEXUAL-ENERGY MODEL

destruction of incoming nerves¹ and vessels from abdomen to penis, resulting in their shrinkage. This shrinkage of internal, vital supporting and nourishing structural connections (with the penis) pulls the penis into the abdomen. The precise reason of such sudden increase of body heat is not known but some attributed it to excessive consumption of red meat, garlic, spicey food, onion and egg² or "bad" (sexual) thoughts.

Body Heat : Sexual Energy Model (Fig.3).

Patients (25.5%) in this group stated that sexual energy is stored inside the penile mass and scrotum. This energy is primarily responsible for the maintenance of penile girth, erotic desire and sexual functions like erection and seminal discharge. Normally this 'energy-function' factor has a correlation with the ageing process, eg. in adolescence there is an increase in body heat which causes increased frequency of penile erection on minimal erotic provocation and frequent nocturnal discharge. Contrariwise, as one grows older, there is a decline of body heat as reflected in diminishing penis size, less penile erection, lowered sex-urge and lesser quantity of discharged semen. The normal body heat also provides an optimum inner temperature for the survival of seeds (sperms) as ejaculated semen is always hot. With ageing, however, due to diminished body heat, most of the sperms die, causing sterility. This is the reason why girls do not want to marry aged persons.

In Koro, the pathological increase of body heat consumes this sexual energy and the situation resembles a "low-heat" condition of old age, namely, shrinking of penis. However, unlike in old age where the process is slow and gradual, in Koro it is sudden, untimely and thus gains an illness dimensions with accompanied anxiety and fear of losing male potency.

Body Heat : Heat-Loss Model (Fig.4).

Proponents of this model (18.2%) expressed a well-knit homeostatic physiological explanation of heat in the body. Body heat is perceived here as a very useful inner energy of the

FIG. 4

MODEL 3 : HEAT-AVOIDANCE MODEL

- BODY HEAT FLOWS THROUGH SKIN
- PENIS IS VULNERABLE TO HEAT
- IN EXCESS BODY HEAT
 - ↓
 - PENIS TEND TO SHRINKS INTO ABDOMEN TO AVOID HEAT INSULT.

FIG. 5

MODEL 4 : HEAT-LOSS MODEL

BODY LOSSES HEAT THROUGH BODY ORIFICES.

1. EAR, NOSE / MOUTH → HOT BREATHE

ⓑ Tinnitus Hiccough
Vertigo

2. ANNUS → WIND

↓ ⓑ
Distention, Indigestion

3. PENIS → URINE & SEMEN

EXCESSIVE BODY HEAT DAMAGE PENILE PATHWAY

↓ ⓑ
STOPAGE OF URINE/SEMEN
↓
PENILE SHRINKING
↓
DEATH

ⓑ : Blockage.

soul for the maintenance of all bodily functions. In death the body becomes cool as the generation of heat ceases. Body heat has an inbuilt system of continuous generation and subsequent dissipation. Body orifices are important outlets for this. Hot breath is expelled through the ear, nose and mouth. A blockage anywhere in these pathways by disease or natural objects (water-logging of the ear during bath) causes reeling (tinitus), cough or hiccough. Abdominal heat passes through the anal orifice via wind and faeces, a blockage of which causes distension, acidity and burning (heart-burn) and indigestion. Urine and semen also help to pass out this heat through the penile aperture, both of which are always hot to touch. Excessive body heat causes damage of the penile pathways and of the seminal sac (situated under the umbilicus in the abdomen), thereby causing any of the following three dangerous disorders, viz. penile shrinkage, stoppage of urine and blockage of seminal discharge, all of which have the potential to cause death, if not intervened immediately.

Body Heat : Heat Avoidance Model (Fig.5).

Patients (9.1%) in this model stated that the skin plays an important role in the conduction of normal body heat. Fever is one such example of heat loss through skin. Penis, a highly sensitive organ, is vulnerable to damage by increased body heat. So in Koro, a state of increased body heat, the penis shrinks or retracts into the abdominal cavity in an attempt to avoid heat insult.

This model, unlike the others, tries to explain a protective body mechanism for the aetiopathogenesis of Koro. The pathological fear and anxiety it arouses is because of the suddenness of the process and the uncertainty and unpredictability regarding the reappearance of the penis from inside the abdomen.

Influence of Body Heat on other systems of the body.

Table 4 depicts the ethnomedical perception regarding the involvement of the other systems of the body by excessive body heat. Forty types of ailments³ involving four system of

Table 4. Ethnomedical categorization of body heat in causing distress/ illness of the various systems of the body (n 55).
[More than one symptoms are reported by the cases].

	<u>No.</u>	<u>%</u>
A. Head and Neck Symptoms :		
1. Heat over head	36	65.5
2. Falling of hair	23	41.8
3. Burning inside head	22	40
4. Brain short	17	30.9
5. Headache	16	29.1
6. Never catches cold	14	25.5
7. Hot breath	13	23.6
8. Heaviness of head	12	21.8
9. Drying of brain	8	14.5
10. Stiff neck	7	12.7
11. Red eyes	6	10.9
12. Pricking sensation over scalp	6	10.9
B. Gastrointestinal Symptoms :		
1. Liver damage	43	78.2
2. Indigestion	38	69.1
3. Excessive wind	37	67.3
4. Acidity and burning	29	52.7
5. Vomiting	28	50.9
6. Upward pressure from stomach	23	41.8
7. Loss of appetite	21	38.2
8. Pungent taste	15	27.3
C. Genito-urinary Symptoms :		
1. Excessive liquidness of semen	45	81.8
2. Quick semen discharge	42	76.4
3. Passage of semen in urine	40	72.7
4. Increased sex urge	24	43.6
5. Burning pain in the penis	18	32.7
6. Impotency	11	20

Table 4 (Contd.)

	<u>No.</u>	<u>%</u>
7. Lax penis	10	18.2
8. Sexual weakness	6	10.9
9. Scrotal pain	2	3.6
10. Sterility	2	3.6
11. Twin pregnancy	1	1.8
In Females :		
1. Black menstruation	22	40.0
2. Vaginal secretion	11	20.0
3. Menstrual disorders	6	10.9
D. General Symptoms :		
1. Insomnia	52	94.5
2. Burning feet	39	70.9
3. Black spot on skin	35	63.6
4. Boils/Acne	21	38.2
5. Lethergy	16	29.1
6. Prominence of blood vessels over skin, mainly in hand	15	27.3

the body (head and neck, gastrointestinal, genitourinary and general symptoms) have been attributed to the body heat by Koro patients. The percentage distribution of each distress/illness (in the patients' terminology) is presented here. The four highest attributed distress/illness to body heat in order of decreasing frequencies were insomnia (94.5%); excessive seminal liquidity (81.8%); liver damage (78.2%) and heat over head (65.5%). Black menstruation was the highest attribution (40%) of body heat in female genitourinary system.

Supernatural Cause

In the category of supernatural causation a fairly good amount of feelings of social paranoia was evident, eg. envious persons having inflicted the illness by black magic or spell which helped to generate an internal malevolent force inside the body (abdomen) that pulled the penis inside the abdomen. Some patients believed that the Koro malady is a punishment given by God for their excessive masturbative habit (causing useless spoilage of valuable seeds in semen) or past sexual misdeeds. God wanted to make them sterile or sexually weak for ever via Koro.

Sexual Cause

In this category a sense of strong guilt was attached to masturbation, nocturnal seminal discharge, semen density (too low) and sexual acts like prostitute visit and illegal sexual intercourse within the bond of family kinships (incest). The resultant effect of all these "sexual wrong-doings" were sexual weakness which made the subject vulnerable to the Koro illness. Nocturnal emission was viewed as an inherent constitutional illness, which, present in excess, was believed to generate multiple somatic distresses and disabilities with ultimate impotency. Recourse to kabiraji, homeopathic or indigenous herbal folk medicines for cure of nocturnal emission was not an infrequent finding among the cases (30.7%).

Physical Cause

Physical disability, either from fever or physical strain, was believed to be the cause of Koro by 10.9% of cases. Three cases of coexisting fever showed blood smear positive for malaria parasite. The account of physical strain varied from exhausting physical labour in the paddy field or in tea plantation, carrying of heavy load or too much cycling in the sun.

Fear

Fear was described as the mental reaction to the various threatening news or rumours of spreading Koro illness in the locality. Two important facts elicited from the Koro patients of Koch-Bihar district need mention at this point. First is the episodic community fear-wave at one to two years interval prevalent in some rural areas of the district. The account runs as follows :

All of a sudden a terrible news spreads in the locality regarding an imaginary unholy mystic creature with immense supernatural magical power to cause harm, even death, to humans, if one confronts it face to face. The precise appearance of the creature is not known as nobody has seen it distinctly, but everyone is horribly fear-stricken so much so that they shut all the doors and windows of the house well before evening, sometimes even at noon. No one goes out of the house alone or in afternoons. People pass each night in great apprehension as if some catastrophe will occur at any moment. The news of someone's death or disappearance in nearby villages is attributed to this mystic event which adds further mass anxiety in the community. In each such incidence there is a local name for this creature, the last such one a year back being "Hullu" - a monster with a body of a monkey and face of a demon. This intense collective fear⁴ usually stays for a week or so and then it passes off gradually.

The second phenomenon is the experience of a fearful monosyllabic mystic sound, somewhat akin to a solitary auditory hallucination, just before the Koro attack. Seventeen patients

of this sample (16.8%) had such personal experiences and all the cases of Koch-Bihar district acknowledge this phenomenon. The sound, lexically resembling "Kottash/Kattaow", is heard suddenly by the subject, usually in an open space (paddy field, river bank), which invokes a terrible and dreadful feeling of an impending danger in the hearer who instantaneously develops the deadly symptom of penile pull. This magical sound gained a terrible fear symbol in the locality during the epidemic days so much so that people used to avoid going to the fields alone and took charmed amulets from local folk healers to protect themselves from this sound (to make it unaudible to them). The illness was also locally known as the "attack of Kottash'Kattaow"⁵. The precise source and intent of this sound of peril is not known but some patients believed that it was an evil force, somewhat similar to a malevolent spirit cult, whose intention was to made the hearer sexually invalid or even dead, if not attended to immediately.

DISCUSSION

This discussion will cover the two most important ethnomedical illness cognitions of Koro, viz. heat-cold dualism and supernatural-magical connections, along with the relevant transcultural analysis.

Heat Cold dualism in Koro

Heat and Cold - two natural physical states, occupy an important biomedical position in ethnomedical disease cognition of many cultural groups of the world. The Chinese traditional Taoist medical system, for example, acknowledges the dicotomy of heat and cold philosophy in terms of the yin-yang theory and its influence on health and diseases of the human body (Chen, 1937). It is interesting to note that the Chinese traditional medicine since the time of Ch'in dynasty (220 BC to 265 AD) identified cold (pertaining to both climate and food articles) as the precipitator of genital retraction illness (Gwee, 1970; Devon & Hong, 1987). Chang Chung Ching, the Hippocrates of China, wrote around 200 AD in his book Shang-Han Lun (Treatise

on Ailments caused by Cold) about the effect of cold/heat even on mental illness, along with a special reference to female generative system as :

"if a woman catches cold and becomes feverish; and if she happens to be menstruating, (it) may lead to the uterus being invaded by "heat",by evening she will manifest a drowsy state with talkativeness if she had met a ghost ...the heat will eventually be discharged through the menstrual flow and the prognosis is good" (Tseng, 1973).

It is amazing to note the citation of correlation between body heat and genital retraction in a Chinese medical text as early as 1834, written by Pao Sian-ow in "New Collection of Remedies of Value" (Gwee, 1968). In Chapter 6, the symptom of genital retraction is described as "yin-yan transposition" which states :

".... this arises when after a fever, this poisonous heat (the present author's emphasis) remains in the sperm and the marrow, and can not be discharged . If intercourse is performed with a healthy person the illness of the man will be passed on to the woman, and vice versa, hence it is called 'yin-yan transposition'. The patient feels heavy and short of breath, the lower abdomen is tense, the genitalia may be affected by spasm and retraction, the heat rises in the chest, the head is too heavy to be lifted up, the eyes are blurred and the knees and calves are tight. The powder made of burnt panties is valuable" (Gwee, 1968).

In the same book, in Chapter 14, cold is implicated in genital retraction as 'yin-type' of fever :

".... after an intercourse between the male and female, may be arising of exposure to wind and cold, or the ingestion of raw and cold food, the result is pain in the abdomen, the scrotum in the male or the nipples in the female are retracted" (Gwee, 1968).

Complementary to this 'cold' model of genital retraction theory, one can note the indigenous Chinese medical practice prevalent in old Batavia (now Djakarta, Indonesia) for Koro,

narrated in the early thirties (1936) by Palthe. In Indonesia, the genital retraction illness or Koro has been regarded by the Chinese as the predominance of yin principle or feminine power or heat in the patient over his yang principle or the masculine power or cold. In the treatment therefore medicine of yang principle i.e., "panas" (heat) in contrast to "dingin" or "sejok" (Cold) of yin principle, is advocated for Koro, which is a mixture of gunpowder, arak, powdered tin with sulphur and various medicinal herbs (Palthe, 1936).

Pa-leng or frigophobia, a morbid fear of cold (with obsessive-compulsive or hysterical symptoms) in Chinese (Rin, 1966) and futeishuso, a feeling of coldness with multiple bodily pain and dysphoric mood in the Japanese (Kirmayer, 1984b) are two notable examples relating to the clinical attribution of cold. Rin (1963) cited a Koro case (Chinese) whose account shows how the indigenous belief shapes the symptom perception and expression : "my nerve got (*leng*) (Cold), hern (Coolness) and feng (Wind) ... my lungs gets hot and my head too".

The dualism of natural principles as depicted in Vedic traditions in India, specially the Atharvaveda (the book of the *atharvans*, the fire priest or someone skilled in the performance of magical rites), is the basis of all ethnomedical disease concepts prevalent in the Indian culture. This classic advocates the inherent philosophical orientation of Indian traditional medicine in terms of three 'peccant' humors or *dosas* (faults) - viz. wind (*vata*), bile (*pitta*) and phlegm (*kappa*). These *dosas* or faults act as vitiators by disrupting the normal balance of the bodily elements (*dhatu*s), which in turn are modifications of five basic elements, viz. earth, air, fire, water and ether - the basic source of all beings of nature. It is interesting to note that this Indian Hindu Ayurvedic model of *tridosas* (triple faults) theory of illness and its practice in healing rituals appear to a large extent to be identical to traditional Chinese (Zysk, 1991) and Greek (Rin, 1966) systems of medicine and therapeutics.

Heat as the cause and cold as a cure of illness is a well-known disease theory in both the ancient Indian medical classics, i.e., Caraka Samhita (eleventh century) and Susruta Samhita (twelfth century). The cultural concept of body heat in India has a deep root in these vedic references. At least two heat related disease conditions, quite prevalent even today, are mentioned in these classics, viz. "Head irritated by heat" or *sisabhitapa* and "Burning in the Body" or *daha*. Ethnophysiological study of body heat in Koro patients also endorses similar views. The remedies advocated for the former is the application of cold oil (*mudhaur telaka*) on the top of the head (Kutumbiah, 1974) and for the latter, use of cooling shoots (*dala*) of the lotus plant (*padma*) for the patient's bed, sprinkling of sandal-wood water and bathing in ponds or river containing lotus. Not surprisingly the pouring of cold water or submerging the patient into ponds or rivers was a widespread social healing ritual observed in the traditional treatment of Koro patients in North Bengal region (Chowdhury, 1991a).

Sensation of body heat either localized (most commonly on top of the head) or generalized (commonest being burning sensations in eyes, limbs etc.) is a frequent symptom of depression, particularly in females (Chakraborty & Sandel, 1993) and in hypochondriasis and hysterical somatization in India (Nichter, 1981). Body heat and its connection with sexual arousal is well evident in the cultural interpretation of semen as a "hot fluid".⁶ Some ritualistic prohibition relating to food articles⁷ is thus advocated, specially for windows who are forbidden to consume 'hot' items like raw meat, egg, onion or garlic to keep their soul 'cool' or 'tame'. A number of ayurvedic 'cold oils' are available, both from folk healers and commercially, for keeping the head (brain) and body cool. Quite a few Koro patients here used this cold oil⁸ over their head after their Koro attacks.

Transcultural analysis of the body heat concept also shows that in many cultural groups of the world⁹ the ethnomedical explanation of illness does endorse this heat aspect in the expression

of distress. Relevant examples from four distinct cultural groups (Central America, Mexico, Africa and Korea) will support this contention.

The most fascinating example in the present context is the *nervios* (nervousness), a ubiquitous distress or a symptom of chronic illness reported from Puerto Ricans, Costa Ricans, Guatemalans, Ecuadorians and Salvadorians (Guarnaccia & Farias, 1988; Koss, 1987) which is characterized by a host of symptoms including "heat arising in the body"¹⁰ (Guarnaccia et al., 1989) and altered perception. An acute attack of *nervios* is indigenously interpreted "as a flash of heat shooting up within the body" (Abad & Boyce, 1979). Low (1981) states that the social meaning of "nerves" in Guatemala is an indigenous indicator of not only somatic and emotional distress but also familial or reproductive and sexual conflicts.

Currier (1966) describes an ethnomedical concept (and related practices) of Mexican villagers which could be termed as an eco-psychological model of illness based on the physical dualism of heat and cold. They attributed these two principles to foods, illness and therapeutics. Illness is perceived as the intrusion of outer coldness or hotness into the body. Fever, skin eruption and hoarseness of voice are regarded as "hot" illness and their treatment includes application of "cold" remedies. Psychologically hot is symbolic for projections of intimacy and cold for withdrawal and rejection.

The "Brain fog" syndrome of Nigerian students comprises a host of psychosomatic symptoms among which "feeling of heat inside the head" is a prominent one (Prince, 1960; Morakinyo, 1980). Ifabumuyi (1981) attempts to elicit the ethnomedical body perception and finds that the head plays a central role in the Nigerian conception of self. Heat and other somatizations are symbolic manifestations of psychic distress.

Lin (1983) notes that "excessive fire" (a variant form of heat) was conceived as the reason for '*Hwa byung*', a Korean

folk illness. by his patients who believed that fire is causing an obstructing mass resulting in the distress of epigastric fullness.

Supernaturalism or Magic Cult in Koro

Sexual potency, in terms of both physical and functional capacity, is a very important bio-psycho-social phenomenon in every society. Sexual malfunctions in any form thus trigger not only an individual anxiety reaction but a cultural response as well. Since ancient times, sex, for obvious reasons, is regarded as a very sensitive, private and covert affair that imbibes hundreds of cultural doctrines in the form of myth, mysticism, and magic and Koro is not an exception in this regard.

Tira, a shrinking penis syndrome, believed to be caused by overindulgence in coitus, has been reported from the island of Mangaia in the Cook group, a Melanesia-Polynesia transition area (Edwards, 1984). In the Indonesian archipelago and in Malay traditional beliefs it is said that the soul of a woman who dies during labour or postpartum becomes a malicious spirit and takes vengeance on males. This belief in malevolent female spirit is well-known in various names like *Pontianak*, *Koklir* or *Langsuyai* (Matthes, 1875; Roth, 1896; Adriani & Kruijit, 1912; Sather, 1978). The spirit is also described as a vampire or castrator who tears off the victim's penis and testicles. Sather (1978) states that *Koklir* and related demons are blamed for draining of sexual vitality of men in the Iban culture.

Macassarese people of south Sulawesi consider the sudden genital retraction symptom as the evil influence of some malevolent supernatural force and a *Sanro* or native healer is consulted who, by his healing ritual, cures the condition (Chabbot, 1950). Dentan (1968) provides an indigenous Koro folk explanation as the belief in incubi and succubi among the Sen'oi Semai, an Austro-Asiatic people of central Malay. These are regarded as a class of evil spirits, the *semelit*, which cause sexual disorders including the retraction of genitals into the body.

Jilek (1986) describes a few Koro cases from Zhanjiang town, Haikang country and Bao Man Village of Guangdong province, China where the Koro or suo-yang is attributed to malevolent ghosts or evil spirits. It is believed that the evil spirits cause the genitals or breasts to shrink. The usual indigenous treatment for driving out this devil from the suo-yang sufferer is the squeezing of the left middle finger by placing it between two chopsticks and covering of the patient with a fish net and beating with branches of ai (moxa plant, *Artemisia vulgaris*) or peach¹¹ tree. As a protective measure people are used to keeping the picture of Zhong Kui, a legendary Chinese physician-hero and God who is well known for his protector role against evil spirits.

A very similar concept of 'taking away of male organ' by a disguised witch woman was a popular mass notion in medieval Europe (Malinik et al., 1985; Kirmayer, 1992) and in present Africa (Lucier, 1984-85) De-sexualization of male by magic is an important theme of all witchcraft cults of the world.

Yap (1951) notes that the Chinese traditional method to prevent the penis from retraction is the tying of a red string round the penis, red being the colour which successfully wards off evil influence. Kenneth Pyne in a personal communication to James Edwards (1984) narrated the indigenous belief of Koro among the Tagabawa Bagobo of south-central Mindanao of the Philippines. The Bagobo believe that Koro is a product of a type of sorcery used to make one's opponent weak. The sorcery, carried out by tainting the food of the intended victim, has a dual action: penis-shrinkage in male and tongue-tie in female.

Relevant to this concept of supernatural or magical disease causation is the recent analysis of the Guangdong Koro epidemic in China by Prince (1992). Supernaturalism and ethno-cultural magical attribution there centres around the fox spirit which steals away the male organs for her own benefit.

In the present paper the ethnomedical cognition of supernatural causation (malevolent indrawing force) or fear reaction or hearing of mystic sound of peril, all have deep cognitive

root in the cultural notions about spirit cults, magico-religious phenomena and their magical infective potentialities. These beliefs entertain different paranoid projections and dictate various folk healing rituals for abating malevolent occult influences. This indigenous illness cognition also has a strong reference to the vedic medical philosophy, where the disease is believed to be produced by demonic or malevolent forces. The assaults of such forces are occasioned by the breach of certain social/familial taboos or by witchcraft or sorcery or even a demonically motivated noxious insect which can inflict illness to human (Zysk, 1985).

The extent of this supernatural belief is so deeply ingrained in the Indian culture that even for physical infection like cholera, small or chicken pox or harm from natural creatures like snake (bite), the worship of goddesses '*Ma-Olai Chandi*', '*Sitala*' and '*Ma-Manasa*' respectively is an important religious function among Rajbanshis and Hindus. Complementary to this belief pattern, the widespread Koro preventive ritual in North Bengal is a good example. Marking of ear lobules and suprasternal fossa with slacked lime and wearing of a fine sheathe of black-stem arum is regarded an effective protection against the evil influence and thus against Koro (Chowdhury, 1990c).

Infliction of heat inside the body or creation of an evil indrawing pull in the belly was thought by many patients as the cause of their Koro. Both the situations were related to unseen magical/supernatural phenomena. A similar situation is noted in New Mexico Hispanic males who relate their hosts of somatic distress including intense feeling of internal heat with bewitching (Koss-Chioino 1989).

CONCLUSION

The ethnomedical explanation of Koro elicited in this study thus reflects the age-old Indian cultural illness cognition related to physical (heat) and non-physical (magic) etiology as handed down from vedic traditions through centuries. Heat - a component of natural world - is known to man since inception

of human civilization. The ethnomedical conception of body heat, which not only precipitates Koro but also causes a number of sexual pathologies, is an important finding in this study. It is also interesting to note that how the two most ancient civilizations, viz. Indian and Chinese, interpret the illness in terms of physical philosophy i.e. heat and cold respectively. Magic or supernaturalism, an answer to man's all unresolved anxieties and queries, hence constitutes an archetypal concept of illness, disability or dysfunction cognition and beliefs amongst almost all the traditional cultural groups of the world. The modern medicine should take into consideration these ethnomedical postulations of indigenous people for the better treatment compliance and long-term care.

NOTE :

(1) The most valuable work by Slot (1935) on Koro in the early part of this century attempts to elicit an ethnomedical explanation of Koro from traditional healers of Macassaran area of Sulawesi. The stated Koro to be the affliction of nerves ("nerve contracting disease") while physical labour, genital trauma (owing to a fall from horse back) and immoderate sexual practices were also regarded as potential precipitators for Koro. Associated fever was viewed as a bad prognostic sign.

(2) The erotic link of eggs with male sexuality (performance) could be traced to the ancient Arab culture which in later days because folk wisdom in almost every part of the world (Camphausen, 1991). There are several recipes, e.g. the French eat three egg yolks in a glass of cognac everyday while the Arabic aphrodisiac prescription speaks of a mixture of fried eggs, honey, pepper, cinnamon and myrrh etc.

Onion was highly regarded as an aphrodisiac in the Indian Vedic society and among the Chinese Islamic and European traditions. In the past, owing to its sexual stimulating property, onions were banned in many of the monasteries in the East and the West. This custom is still maintained in the Hindu worship rituals in India.

(3) Some indigenous distress/illness terms need explanation here. 'Brain short' is the term for abnormal behaviour ranging from madness to mental dullness. 'Never catches cold' is a peculiar perception relating to the production of nasal discharge due to common cold affliction. It is believed that if a person does not have such nasal secretions/discharge, it indicates some unhealthy constitutional traits which need treatment. 'Drying of brain' is equivalent to decreasing intelligence and/or common senses or a state similar to dementia. Prominence of dorsal veins of the hands is believed to be an indication of all health, often excessive semen (dhat) loss. Semen density is considered to be a sensitive indicator of masculinity including sexual vigour. Liquid semen is regarded as 'week dhat' (semen) and represents a host of constitutional traits like feeble mind, diminished sexual strength, anxiousness and reduced physical tolerance to hard work.

(4) Jilek (1986) describes an atmosphere of collective fear of ghosts in Zhanjiang town of Guangdong province, China during a Koro epidemic there. The villagers believed that ghosts make the genitalis of men and breasts of women shrink and disappears into the abdomen and chest. Drum beating, bell ringing and bursting of fire crackers are used by the villagers to drive the ghosts out of the village.

(5) Kattaw is also a local syntax for small tortoise living in the river bed (Chowdhury, 1993). It is interesting to note that in Koch-Bihar district the rural people use the lexicon Kattaw or Kura (Mazumdar, 1977) for tortoise. This term, along with its symbolic use to designate genital retraction, reminds one of a similar situation found in Malay and Maacassaran dialect. 'Koro' has a lexicographic link with a Malay term 'Kuru' (Gwee, 1968).

(6) Kapur (1979) provides an important ethnomedical concept of rural India in relation to body heat and semen. It is believed that semen or vital essence is the refined form of life energy and exists in both sexes. The concentration of semen generates

"heat" which is necessary for body functions normally. The male centre of 'heat' is the head while for females it is the vagina.

(7) The Ayurvedic concept of semen generation from basic foods, from where stepwisely chyle, blood, flesh, fat, bone, marrow and ultimately semen is produced, is pertinent to this custom of food performances and sexual arousal (Zimmer, 1948). This is the very reason why many Sri Lankans select foods which have an imagined semen fostering quality (Obeyesekere, 1976).

(8) The cultural preference for different cooling agents is a quite prevalent home-remedy found among the study population. The articles with colling effect are likewise in wide use in the Indian culture at large. The usual disease conditions that are believed to be related with increased body heat or dryness include epistaxis, mental or physical exhaustion, emotional shock, too much mental work or concentration (as during preparation for examination), exposure to physical heat or sun, sexual arousal and burning sensation of eyes or the head etc. The prescribed cooling agents range from cold water to green coconut water, ice chips, melon, ripe banana, rice with water, herbal oils, paste made from thick aloe leaves, sesame oil, oil made from emblic myrobalan and application of sandal-wood paste.

(9) Aho & Minott (1977) in their study of medical folk beliefs among the rural and the industrial people of Trinidad and Tobago, West Indies, noted a deep faith in the hot-cold theory of diseases. The authors studied the creole (folk) medical perception of hot-cold belief among the people of a rural village Blanchisseuse and an industrial city Laventille.

In Trinidadian culture hot or cold levels are attached to symptoms, causes and remedies of illnesses. Illnesses classified as cold includes influenza, asthma and common colds, while the hot diseases are illnesses with skin changes like small pox, measles and infant's rashes and teething problem. Numerous labels of this dimension e.g. 'getting a chill' or 'throat hot', 'heat

in belly', 'too much heat in body' 'too heated food' are attributed as causes of illnesses. Treatment involves the use of (either external application or internal consumption) of 'cool' medicines for 'hot' diseases or vice-versa. The 'cool' medicines include: for external application - cool lotion like rum or coconut oil or magnesia diluted with water, and for internal consumption - tea made from bushes or plants such as the zabafam, malomem or virvine. There are various types of plants or bushes that are identified as 'cool' bush e.g., rchette, shambuen, shing bush, kayakeet, wild senna, cressles, corill and burnbread. Sometimes the cooling bushes are also used externally, e.g. a bush bath. The 'hot' medicines include various types of food, ointment (soft candle with grated nutmeg) or 'hot-bush' tea.

The background ethnophysiological basis of this Trinidadian view of heat holds that the body is basically hot and at times dirty, hence needing periodic purging or cooling for balance. So cooling is a frequent form of indigenous preventive household measure: 'blood cooling', 'bladder cooling' or 'cooling of the system' with various herbal products is a regular phenomenon in Trinidadian society.

(10) The hot-cold theory of disease etiology in many of the Latin American cultures is the influence of Spanish and Portuguese medical theories of 16th and 17th centuries. The Spanish conquest of Latin America introduced European medical system based on the Hippocratic humoral theories of 'wet-dry' dichotomy. In course of time, however, the Latin-American folk medicine system generated different variant forms of this humoral theory, e.g. the Puerto Rican cultural variant is the classification of diseases into hot (*Caliente*) and cold (*Frio*) groups. Foods and herbal medicines are also accordingly classified.

Although the terminology 'hot-cold' system apparently suggests a connection with temperature, in practice the thermal state in which food and herbal remedies are taken is not a point of consideration in this classification (Harwood, 1971). The ethnomedical belief and ideas are the deforming factors, e.g. boiling

linden-flower tea is considered as cool which cold beer, because of its alcoholic content, is considered hot. Adherence to this hot-cold folk system influences not only the behaviour of the patient and his treatment compliance, but also the cultural pattern of health care like infant feeding and ante/post-partum care (Foster, 1953).

The examples of 'cold' illnesses are arthritis, common colds, menstrual period, joint pains and *pasmo*. *Pasmo* refers to two different conditions. Firstly, it denotes tonic spasm of any voluntary muscles of the body on exposure to cold. This condition reminds one of a similar dictum of classical Chinese medicine regarding the spasm of the penis (retraction) from exposure to chill or cold wind. The second use of *pasmo* is for chronic cough or stomach pain. The cold foods include avocado, bananas (in Chinese belief it is also a cold food and is believed to precipitate an attack of Koro (Devon & Ong, 1987) on consumption), coconut, sugar cane and lima or white beans. The hot diseases and foods respectively are : constipation, diarrhoea, rashes, tenesmus and ulcers; and alcoholic drinks, coffee, garlic, onions and tobacco (Martinez & Martin, 1966).

(11) The Peach tree (specially the fruit) has a fascinating folk link with vigour, youthfulness and immortality in Chinese culture. The 'peach juice of immortality' is connected with the myth of female goddess Kuan-yin (goddess of mercy) in Chinese traditional rituals.

TREATMENT COGNITION FOR KORO

SUMMARY

The analysis of the treatment cognition for Koro of both rural and urban people (from both Koro affected and nonaffected families) showed that they have endorsed their first choice (64.1%) to 'natural treatment'. 40.6% of the professional people also favoured the 'natural treatment'. Regarding the choice of medicine type, the community people expressed their maximum choice to allopathic medicine. Among the 'natural treatments', which was consisted of 'water pouring', 'penile pull' and 'salt-water ingestion', water pouring was the prevalent concept of the community (100%). It is also interesting to note that 72.3%, 33.8% and 21.5% of the professional people also endorsed the 'water pouring', 'penile pull' and 'salt water ingestion' respectively. 13.6% of the urban group thought that 'mental treatment' may be beneficial to Koro patients.

The health care system of any society invariably bears the impact of its cultural care models at the basic level (Fabrega, 1974; Demers et al., 1980). Popular medical care by individuals, family members, friends and important community members reflect the traditional beliefs and practices that are based primarily on the ethnophysiological cognitive evaluations of illness etiology of this particular culture (Hulka et al., 1972; Kleinman, 1980). Chrisman and Kleinman (1983) thus aptly state that the curative practices of any society constitutes a cultural system involving three important variables, viz. popular beliefs and practices of lay persons; folk medicine as practised by indigenous healers and the modern scientific medicine. The initial identification of illness and decisions regarding treatment are primarily dependent on this traditional framework, because it involves a strong

dimension of group support, social acceptance and the established social network system (Mechanic, 1977). This is one of the important reasons as to why home diagnosis and home remedies still continue to play, a significant role even in today's society.

Cultural modes of treatment are of special interest in the area of culture-bound syndromes, because various ethnic health related rituals and practices provide primary curative care and management. There are enough examples in the psychiatric anthropological literature about these 'social treatments' which are significantly influenced by the ethnomedical cognition concerning human anatomy, physiology and etiology of illness (Kleinman, 1977; Young, 1976, Suchman, 1965).

The present study is thus devoted to explore the treatment cognition of Koro in the community including treatment people and the real nature and mode of social treatments offered to Koro sufferers at the time of the North Bengal Koro epidemic. This paper involves a comparison of treatment cognitions between the community (rural and urban) and treatment people which highlights not only the cultural influence on the help-giving procedure but also reflects the dimension of similarities/dissimilarities between the two mutually bonded (care seeker/care giver) groups. It is a matter of interest to observe that the professional people in many respect expressed an identical response to that of the community people.

TREATMENT COGNITION FOR KORO : STUDY OF NORTH BENGAL KORO EPIDEMIC.

Methodology :

- a) Community Sample : 206 (88 rural + 118 urban) persons as illustrated in the previous chapter.
- b) Professional Group : 160 professionals, as illustrated in the previous chapter.
- c) Instrument : Social Response Pattern Schedule, described in the previous chapter. The 'Treatment Cognition' section includes four items :
 - 1) Treatment Option
 - 2) Medicine Option
 - 3) Natural Treatment Option
 - 4) Mental Treatment Option
- d) Study Design :

The responses were rated at the height of the Koro epidemic in the region. The mean time interval from the onset of the epidemic (9th July) was 2.4 ± 1 weeks for the urban group; 3.5 ± 2 weeks for the rural group and 3.2 ± 1 weeks for the professional group.

Each of the four components of treatment cognition is presented in separate sections below. Statistical analysis of the data was done by the Z score and Chi square tests of significance.

RESULTS

1. Study of Treatment Option Cognition

RURAL GROUP : Table 1 shows the distribution and comparison of 'treatment option' as advocated by members of non-Koro (NKF) and Koro family (KF) groups. 'Non-medical'

or 'Natural treatment' was the highest frequency of responses in both the groups. The 'No treatment' opinion was not endorsed by any of the groups. Both the groups showed no significant difference in their treatment opinions about Koro.

Table 1. Treatment option response between NKF and KF rural groups.

	NKF Group(n 45)		KF Group(n 43)		χ^2 (df=2)
	No.	(%)	No.	(%)	
Medical (M)	3	(6.7)	3	(6.9)	2.01(NS)
Natural (N)	33	(73.3)	36	(83.7)	
M + N	9	(20)	4	(9.3)	
No treatment	-		-		

NS = Non-significant.

URBAN GROUP : Table 2 depicts the distribution and comparison of responses of NKF and KF urban groups, regarding their opinion about treatment options of Koro. Both the groups showed the highest endorsement to non-medical i.e. natural treatment. 11.7% of non-Koro family members stated that no treatment at all was necessary for Koro. These differences in opinions between the groups were significant ($P < .05$).

Table 2. Treatment option response between NKF and KF urban groups.

	NKF Group(n 60)		KF Group(n 58)		χ^2 (df=3)
	No.	(%)	No.	(%)	
Medical (M)	5	(8.3)	1	(1.7)	12.03*
Natural (N)	32	(53.3)	31	(53.5)	
M + N	16	(26.7)	26	(44.8)	
No treatment	7	(11.7)	-		

* $P < .05$.

PROFESSIONAL GROUP : Table 3 presents some interesting findings regarding the opinion of professional groups. Only physicians (32.5%) and general practitioners (5%) opined 'no treatment' for Koro. GPs, surgeons and paramedical staff - all endorsed significantly more the category 'natural treatment' for Koro than physicians. There were no significant differences observed in the opinions of surgeons and paramedics in comparison to those of GPs. Surgeons endorsed more 'medical treatment' than paramedics ($P < .01$).

Table 3. Treatment option responses of the different professional groups.

	P(n 40)		GP(n 40)		S(n 40)		PMS(s 40)	
	No.	%	No.	%	No.	%	No.	%
Medical (M)	12	(30)	10	(25)	12	(30)	7	(17.5)
Natural(N)	6	(15)	15	(37.5)	20	(50)	24	(60)
M + N	9	(22.5)	13	(32.5)	8	(20)	9	(22.5)
No treatment	13	(32.5)	2	(5)	-		-	
	$\chi^2_3 =$		12.83*		20.59**		25.12**	
			$\chi^2_3 =$		4.09		3.33	
					$\chi^2_2 =$		14.79**	

* $P < .05$; ** $P < .01$.

URBAN Vs. RURAL GROUPS : Table 4 reveals some interesting opinion differences between urban and rural groups. The rural group endorsed more 'natural treatment' (78.4%) for Koro than the urban group (53.4%), while the urban group was more in favour of combined medical and natural treatments (35.6%) than the rural group (14.8%). 5.9% of urban respondents also were in favour of 'no treatment' for Koro. All these opinion differences between the urban and rural groups were highly significant ($P < .01$).

Table 4. Comparison of 'Treatment Option' between Urban and Rural Groups.

	Urban (n 118)		Rural (n 88)		χ^2 (df=3)
	No.	(%)	No.	(%)	
Medical (M)	6	(5.1)	6	(6.8)	18.59**
Natural (N)	63	(53.4)	69	(78.4)	
M + N	42	(36.6)	13	(14.8)	
No treatment	7	(5.9)	-		

**P < .01.

COMMUNITY Vs. PROFESSIONAL GROUPS : Table 5 and Fig.1 display the pattern and comparison of treatment option responses between the community (urban + rural) and professional groups. The professional group endorsed more 'medical and no treatment' and less 'natural treatment' ($P < .01$) than the community group. Insofar as the opinion regarding combined treatment is concerned, there was no differences between the groups. Interestingly 40.6% of the professionals advocated the scope of natural treatment in Koro.

Table 5. Distribution and comparison of 'Treatment Option' responses between Community (urban + rural) and Professional groups.

	Community(n 206)		Professional(n 160)		Z Score
	No.	(%)	No.	(%)	
Medical (M)	12	(5.8)	41	(25.6)	-5.34**
Natural (N)	132	(64.1)	65	(40.6)	4.47**
M + N	55	(26.7)	39	(24.4)	0.51
No treatment	7	(3.4)	15	(9.4)	-2.39**

**P < .01.

TREATMENT OPTION COGNITION OF
THE COMMUNITY AND PROFESSIONAL GROUPS

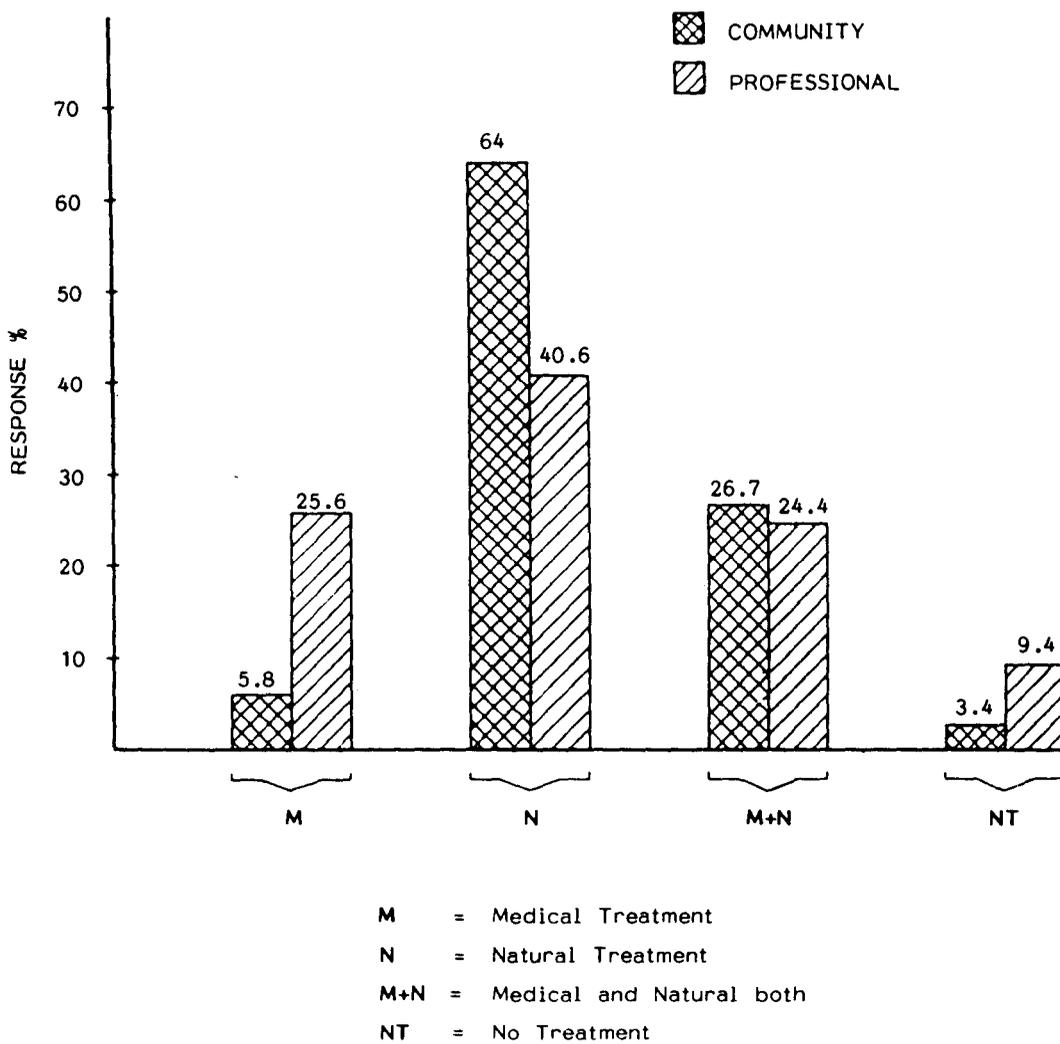


Fig.1

2. STUDY OF CHOICE OF MEDICINE TYPE

RURAL GROUP : Table 6 evinces the responses of NKF and KF rural groups as regards their choice of the medicine type for Koro treatment. NKF members favoured all medicines in different percentage while KF members preferred only allopathic and Kabiraji medicines. There were no significant differences between their medicine choices.

Table 6. Responses for medicine type choice of NKF and KF rural groups.

	NKF (n 45)		KF (n 43)		χ^2
	No.	(%)	No.	(%)	(df=4)
Nil	33	(73.3)	36	(83.7)	6.79(NS)
Allopathic	3	(6.7)	2	(4.7)	
Homeopathic	4	(8.9)	-		
Kabiraji	3	(6.7)	5	(11.6)	
Ayurvedic	2	(4.4)	-		

NS = Non-significant.

URBAN GROUP : Table 7 indicates the responses of NKF and KF urban groups as regards their choice of the medicine type for Koro treatment. NKF members advocated all medicine types in different percentages, like KF members except the ayurvedic medicines. The responses of both the groups showed no difference.

Table 7 : Responses for medicine type choice of NKF and KF urban groups.

	NKF (n 60)*		KF (n 58)		χ^2 (df=4)
	No.	(%)	No.	(%)	
Nil	34	(56.7)	31	(53.4)	8.87(NS)
Allopathic	18	(30)	11	(18.9)	
Homeopathic	3	(5)	5	(8.6)	
Kabiraji	3	(5)	11	(18.9)	
Ayurvedic	2	(3.3)	-		

* Persons of the 'no treatment' category also gave an opinion regarding possible medicine choice.

NS = Non-significant.

URBAN Vs. RURAL GROUP : Table 8 demonstrates the distribution and comparison of responses regarding the medicine choice in the treatment of Koro between urban and rural respondents. Urban respondents favoured maximally allopathic medicines (25.6%) followed by Kabiraji medicines (11.9%). The rural group on the other hand stressed more the Kabiraji treatment (9.1%) followed by allopathic medicines (5.7%). Overall more urban respondents (44.9%) preferred drug treatment than rural group (21.6%).

Table 8. Distribution and comparison of responses regarding medicine type choice between urban and rural groups.

	Urban (n 118)		Rural (n 88)		χ^2 (df=4)
	No.	(%)	No.	(%)	
Nil	65	(55.1)	69	(78.4)	16.0**
Allopathic	29	(25.6)	5	(5.7)	
Homeopathic	8	(6.8)	4	(4.5)	
Kabiraji	14	(11.9)	8	(9.1)	
Ayurvedic	2	(1.6)	2	(2.3)	

**P < .01.

3. STUDY OF THE NATURAL TREATMENT OPTIONS

RURAL RESPONSE: Table 9 shows that water pouring (WP) (100%) is the predominant option in both Koro affected and non-affected family members. The majority in both groups also opined for penile pull (PP) while the option for salt water (SW) feeding came low in the list.

Table 9. Natural Treatment option of the rural group.

Treatment Options	NKF (n 33)		KF (n 36)	
	No.	(%)	No.	(%)
WP	33	100	36	100
PP	21	63.6	28	77.8
SW	3	9.1	6	16.7

URBAN RESPONSE: Table 10 shows the natural treatment option of the urban group. Here also the predominant option (100%) was for water pouring but Koro family members were more in favour of penile pull (87%) and salt water feeding (51.6%) than non-Koro family members.

Table 10. Natural Treatment options of the urban group.

Treatment Options	NKF (n 32)		KF (n 31)	
	No.	(%)	No.	(%)
WP	32	100	31	100
PP	10	31.3	27	87.1
SW	4	(12.5)	16	51.6

URBAN Vs. RURAL GROUP: Table 11 displays the comparison between the responses for natural treatment options between urban and rural groups. Obviously, the predominant opinion was water pouring (100%) in both the groups. The higher responses for penile pull and for salt water feeding however were noted in the case of the rural and the urban group respectively.

Table 11. Comparison of natural treatment options between urban and rural groups.

Treatment Options	Urban (n 63)		Rural (n 69)	
	No.	(%)	No.	(%)
WP	63	100	69	100
PP	37	58.7	49	71
SW	20	31.7	9	13

COMMUNITY Vs. PROFESSIONAL GROUP: Table 12 displays the comparison of responses between community (urban + rural) and professional groups. 72.3% of the professional responses were in favour of water pouring and they also endorsed less response regarding penile pull and equal response to salt water feeding in comparison to community options.

Table 12. Comparison of natural treatment option between the community and professional groups.

Treatment Options	Community (n 132)		Professional (n 65)	
	No.	(%)	No.	(%)
WP	132	100	47	72.3
PP	86	65.2	22	33.8
SW	29	21.9	14	21.5

4. OPINION REGARDING MENTAL TREATMENT IN KORO

RURAL GROUP : Table 13 evinces the responses of NKF and KF members regarding their opinion on any scope of mental treatment in Koro. Both the groups discarded such a treatment scope for Koro.

Table 13. Response regarding mental treatment in Koro of rural group.

Mental Treatment	NKF (n 45)		KF (n 43)	
	No.	(%)	No.	(%)
No	45	100	43	100
Yes	-		-	

URBAN GROUP : Table 14 presents the responses of NKF and KF members regarding their opinion for any scope of mental treatment in Koro. 16.7% of NFK and 10.3% of KF members gave positive responses.

Table 14. Response regarding mental treatment in Koro of urban group.

Mental Treatment	NKF (n 60)		KF (n 58)		χ^2 (df=1)
	No.	(%)	No.	(%)	
No.	50	83.3	52	89.7	1.01(NS)
Yes	10	16.7	6	10.3	

NS = Non-significant.

URBAN Vs. RURAL GROUP : Table 15 exhibits the distribution and comparison of responses regarding the scope for mental treatment in Koro between urban and rural respondents. 13.6% of urban respondents advocated mental treatment in contrast to none of the rural group ($P < .01$).

Table 15. Comparison of 'mental treatment' response between urban and rural groups.

Mental Treatment	Urban (n 118)		Rural (n 88)		χ^2_1
	No.	(%)	No.	(%)	
No	102	86.4	88	100	12.94**
Yes	16	13.6	-	-	

**P < .01.

DISCUSSION

In the previous section I have pointed out why and how the people turn towards social ritualistic healing methods for Koro. In this study of treatment cognition this trend has been substantiated by the urban and rural people's higher options for natural treatment seeking, viz. water pouring on the patient, manual or mechanical penile pull or forced salt-water (often mixed with lemon juice) feeding. Urban groups, due possibly to their increased exposure to medical facilities and acquaintance with allopathic drugs show higher response for a combined treatment of Koro, i.e., natural treatment with medicines, than rural groups. This may also be a factor for their bold (in the background of strong epidemic fear and rumour) decision of 'no treatment' in Koro.

Professionals' responses for treatment option reveal an interesting situation. GP, Surgeon and PMS groups were more in favour of natural treatment than the physicians. All the groups also advocated the need of a combined treatment. In reality, this response is almost identical to that of the community.

In choosing the medicine type no differences were noted between the members of Koro affected or non-affected families in both rural and urban settings. But in totality the urban groups were more in favour of medicines, particularly allopathic medicines, than the rural groups, Kabiraji was seen to be a popular treatment option in both the groups.

In the choice of natural treatment water pouring is the most popular treatment advocated by both Koro affected and non-affected family members of rural and urban groups. Members of the Koro affected families were more in favour of penile pull than their non-Koro counterparts. This practice was also more frequent in the rural responses. It is interesting to note that 72% of the professionals also endorsed water pouring as a method of natural treatment in Koro. More surprising is however the finding that 33.8% of them opined for penile pull as a treatment method. The option for salt-water, astonishingly, revealed an identical response. 13.6% of urban respondents were in favour of a scope for some mental treatment, viz. persuasion to make the patient fear free and some psychotropic medicines to relieve anxiety and insomnia. Four respondents mentioned the effectiveness of diazepam injection in such cases.

The popularity of indigenous treatment methods was related both with the failure of any provision for medical management by the treatment people as also with their identical views about treatment as those of the public. Medical undecisiveness, or rather the echoing of social cognition is an important social dynamics in the genesis, spread and indigenous treatment-seeking of the people in distress. A very similar situation was observed in Singapore during a massive Koro epidemic there. The Chinese Physicians' Association of Singapore held a seminar during the epidemic and declared that the Shook Yang epidemic was due to "fear, rumour-mongering, climatic conditions and imbalance between heart and Kidneys" (Gwee, 1968). Thus, the Chinese Physicians' Association was of the opinion that penile retraction is a reality with a genuinely high risk to life, although no authentic, verified cases had ever been reported (Gwee, 1968).

A Survey of the world Koro literature also provides various modes of indigenous healing rituals of Koro. Some notable examples are : the manual retraction of penis with iron pincer followed by medicinal drink, made up from "masculine" substances like a mixture of alcoholic beverage, powdered deer horn, bomboo chip,

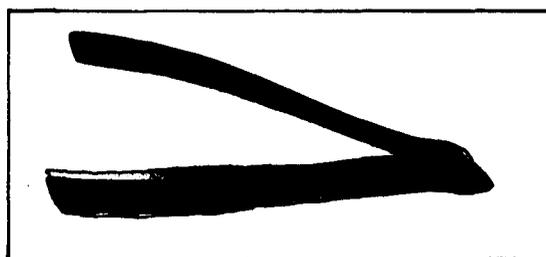
laso mammelong, flowering shoot of the male palmyra (*Borassus flabelliformis*) and stalk of the arenga palm (*Arenga sacchariera*) among the Macassaran people of Sulawesi (Slot, 1935) (Fig.2). Permanent anchoring down the penis with hooks on board (Fig.3) or encasing of the penis in the longitudinal groove ('A' in Fig.4) of 'lie teng hok', a jeweller's scale, followed by a drink of "panas" (Warm) - a mixture of hot or yang principle, composed of arak, gunpowder, powdered tin with sulphur and different herbs was noted by Palthe (1936) as the indigenous treatment found among the Malay-speaking Chinese of Old Batavia. Palthe (1936) also describes the use of 'penis rods' or sharp perforation of glans with cuilt as a preventive method against the shooting of penis into the body.

All the indigenous treatment methods are in reality the expression of ethnomedical concept of Koro among the respective population groups. Since, body heat is the prevalent social concept of Koro in the North Bengal epidemic (vide the Cause Cognition section), water pouring constitutes a major treatment modality there. Penile pull, of diverse nature, is a universal finding and delictates an area where medical intervention is necessary because of the risk of infection and injury. So medical help for both information transmission and management is a serious issue insofar as the treatment of Koro is concerned.



oewijze van mannelijken lontarpalm in gedroogden toestand; („Laso mamellong”),
verschen toestand.

ad van den lontarpalm.



veelvuldig voor het verwijderen van baardharen gebruikt pincet. Het wordt
:koens benut bij de behandeling van koró.
Stor. Koró.

Fig.2.

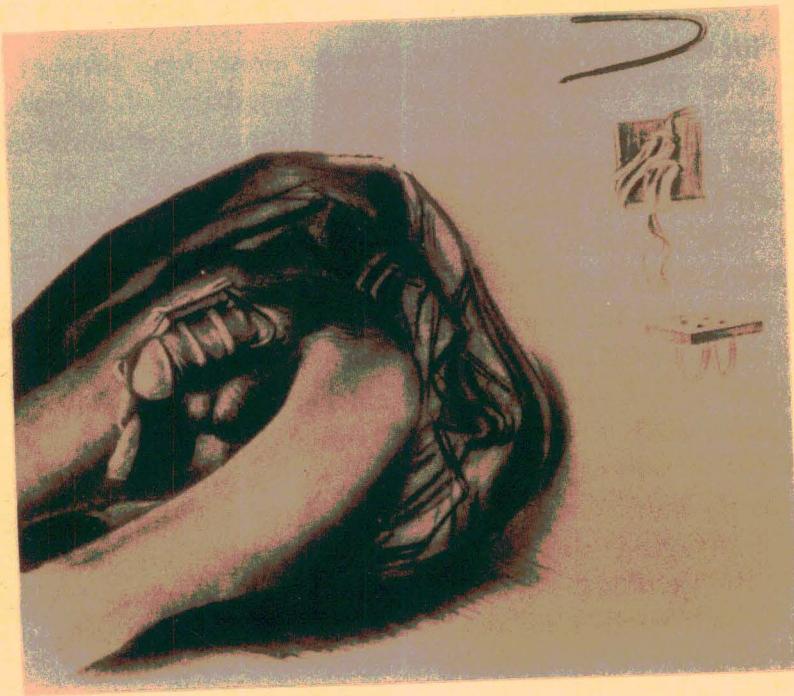


Fig.3

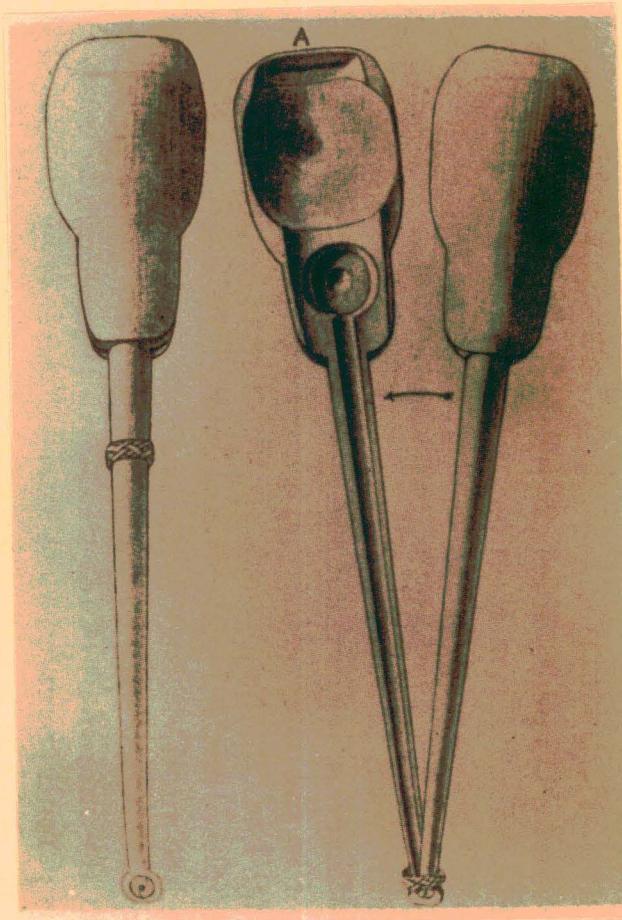


Fig.4

**STUDY OF KORO AQUAINTANCE SOURCE OF THE
SOCIAL RESPONSE STUDY SAMPLE**

SUMMARY

The present study deals with the elicitation of Koro acquaintance source of 366 individuals of the Social Response Study sample (88 rural + 118 urban + 160 professionals) during the Koro epidemic of North Bengal. 59.3% of the sample directly witnessed Koro while 40.7% gathered Koro information through indirect sources. The role of witnessing (direct) and hearing (indirect) of illness, as a mode of information receiving and thence transmission, of in the epidemic spread of psychiatric outbreak is discussed.

In 1895 LeBon suggested that in mass response to psychiatric outbreak the people tend to feel and behave in the same way because the emotions and action of one person spread through a group reaction - a process he termed "contagion" (LeBon, 1895). Conformity is one very important variable in this process of contagion where the individual does what other members of the group or community do because of the social pressure (Freedman, 1982). In confirmatory it is the majority that affects the rest. In the process of confirmatory again the role of crowd response is operative because it is obvious that not all persons in a community, either affected or non-affected, get the chance or scope to see or examine the cases in question personally or directly. Then how the illness information spreads in the socio-metric Channels in the community? It is done by crowd response where some sort of emotional identification with others in the same setting (Kerckhoff, 1982b) or identical cultural beliefs for the 'new disease' is sufficient to make one person's experience meaningful to another irrespective of the direct witnessing of the illness in question for proof.

There is no research data in the literature to assume the specific ratio distribution between direct witnessing and indirect information gathering (hearing) component of a crowd response in the process of the spread of a psychiatric outbreak. Nor we know that which division of people play significant role in crowd response over the other. Probably the initial cognitive assessment of threat and atypicality of the illness in question positively influences this direct-indirect (information gathering) ratio and in the event of high-threat illness assessment, both the information sources probably act synonymously and help the process of contagion of a psychiatric outbreak in a community. Obviously, the higher percentage ratio of persons who are indirectly informed in any social response of mental outbreak is clearly indicative of a conducive social cognition background. This is an interesting research area, further study of which may highlight valuable social variables that are operative in psychiatric outbreaks.

The present study was thus designed to explore that how many persons in a community did have the chance to witness Koro cases personally because, it is evident in the Social Response study (discussed in previous chapters) that non-affected members of Koro-affected (KF) and non-Koro affected (NKF) families did not show any significant differences in their opinions about the illness type, seriousness, risk and infectivity of Koro during the epidemic time. So this investigation will help us to understand the ratio of persons with direct and indirect Koro acquaintance and thus may throw some light on the perspective of information gathering in the community so far the dissipation of mass response to Koro illness is concerned.

Materials and Methods

Sample structure, instrument and methodology is discussed in detail in the first chapter of this section.

Koro acquaintance source was divided into two types : Direct, who personally saw or handled Koro case(s) and Indirect, who never witnessed any such case but gathered the information

from their family or friends or from community discussions.

Results

Table 1 displays the profile of Koro acquaintance source of the study population. Out of 366 individuals studied in the Social Response study 59.3% acquired the Koro information directly, i.e. either from witnessing a Koro attack or handling a Koro affected person personally. 40.7% persons, however, had no direct exposure to the Koro cases, they gathered the information through indirect sources, i.e. hearing from others, either affected or non-affected. Among the three groups, in the professional sample persons with indirect Koro information was more (46.9%) in contrast to rural (28.4%) and urban (41.5%) samples. It is interesting to note that in the professional group GPs had the highest percentage (80%) of direct Koro information while the Paramedical Staffs (PMS) had the least (35%).

Ratio percentage analysis between Direct : Indirect acquaintance source of this three groups shows the following distribution : Rural sample = 7:3; Urban sample = 6:4 and Professional sample = 5:4.

Discussion

Psychiatric epidemic is a social phenomena affecting a proportion of overtly "normal" population with some covert vulnerability which develops or unfolds under certain specific psychosocial situations (Colligan & Murphy, 1982). All the steps of a psychiatric epidemic process, viz. the initial models of attribution, social comparison, conformity, contagion, social learning, coping, rumourous transmission and communication, and interpersonal perception of the contagious psychogenic illness, are intimately related with social cognitive perspective of a community.

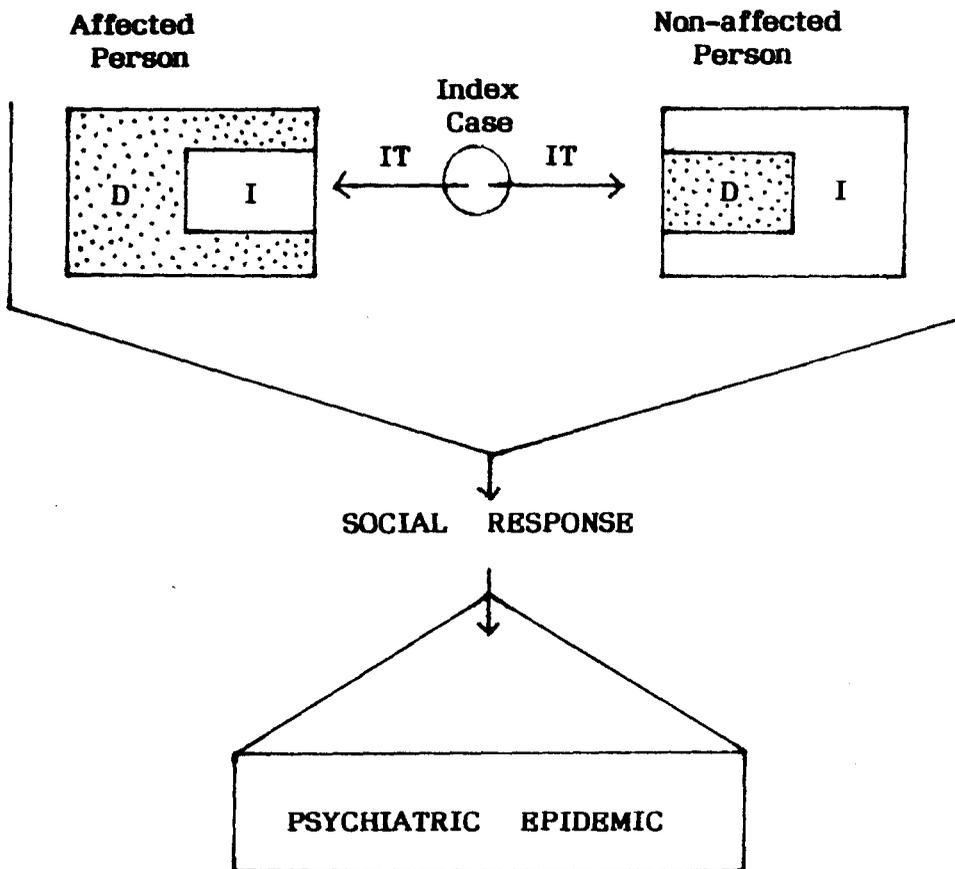
Dissipation of illness information is an important variable is an important variable in the social cognitive process. The social network of communication helps to develop a circumscribed environment where illness message spreads via direct-indirect

Table 1. Koro Acquaintance Source of the Social Response Study Sample (n 366).

	Koro Acquaintance Source				
	<u>Direct</u>		<u>Indirect</u>		Direct-Indirect Ratio
	No.	%	No.	%	
RURAL SAMPLE (n 88) :	63	71.6	25	28.4	7 : 3
NKF (n 45)	26	57.8	19	42.2	
KF (n 43)	37	86.1	6	13.9	
URBAN SAMPLE (n 118) :	69	58.5	49	41.5	3 : 2
NKF (n 60)	28	46.7	32	53.3	
KF (n 58)	41	70.7	17	29.3	
PROFESSIONAL SAMPLE (n 160):	85	53.1	75	46.9	11 : 9
Physician (n 40)	22	55	18	45	
GP (n 40)	32	80	8	20	
Surgeon (n 40)	17	42.5	23	57.5	
PMS (n 40)	14	35	26	65	
TOTAL :	217	59.3	149	40.7	3 : 2

pathways. At this point visual proof or hearing from others serve the same purpose so far as the transmission of illness information in the community is concerned. Persons with indirect information may serve a good medium for rumour transmission while those with direct exposure may exaggerate the phenomenon with personal bias and thus helps the rumour transmission favourably.

Affected persons are also vulnerable to these direct-indirect information network. Colligan et al. (1978) found that non-affected worker in an industrial mass psychogenic illness reported hearing of more people becoming ill than affected, while affected reported witnessing more people becoming ill. So it is seen that in psychiatric epidemic both direct and indirect information transmission takes place in the social network system and both types of transmissions are equally important inasmuch as the social response to the illness and spread of the epidemic are concerned (Fig.1).



IT = Information Transmission
D = Direct
I = Indirect

Fig.1. Dynamics of Information Transmission in Psychiatric Epidemic.