

**SECTION NINE**

**SUMMARY AND CONCLUSION  
OF NORTH BENGAL STUDY**

## SUMMARY OF NORTH BENGAL KORO EPIDEMIC STUDY

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### A. EPIDEMIC AND DEMOGRAPHY OF THE CASES

1. A massive Koro epidemic took place in the entire North Bengal region of West Bengal state, India, in July, 1982.
2. The North Bengal region includes five districts, viz. Malda, West Dinajpore, Darjeeling, Jalpaiguri and Cooch-Bihar, and is divided by the river Ganges from the southern part of the state. Very recently the West Dinajpore district has been divided into two separate districts, viz. North Dinajpore and South Dinajpore.
3. The epidemic started from the early part of second week of July 1982 and prolonged with peaks and falls upto December 1982. The maximum number of Koro cases occurred in the month of July.
4. The present work is based on the study of 405 Koro cases (357 male and 48 females) collected from the four districts (West Dinajpore, Darjeeling, Jalpaiguri and Cooch-Bihar) of North Bengal.
5. Data were collected from different hospitals, private clinics and by community survey of this four districts of North Bengal. 78% of the data were gathered by direct case interview within 1-2 weeks of the onset and the remaining case reports were collected through different professional and community information network.
6. District-wise the distribution of cases were as follows: Darjeeling 163 (151 male, 12 female); Jalpaiguri 73 (66 male, 7 female); Cooch-Bihar 154 (126 male, 28 female) and West Dinajpore 5 (4 male and 1 female).

7. Demographic profile of the 405 Koro cases showed the following characteristics :

**Age :** Age mean of the male cases was  $24.1 \pm 8$  years and that of the female cases  $23.1 \pm 9$  years.

The lowest and highest ages recorded for both sexes were 8 and 54 years.

The maximum cases were from the age group of 16-20 years (male 31.9%, female 27%).

**Marital Status :** Maximum Koro cases (60.7%) were single - male 62.5% and female 47.9% .

**Education :** 'No formal school education' was maximum (50.9%) - male 51% and female 50%.

**Occupation :** No occupation was reported maximum (31%) - male 29%, female 47.5%.

**Economic Class :** Maximum Koro cases were from lower economic classes i.e. Class IV and V (61.4%) - male 61%, female 62.5%.

**Family Type :** Maximum cases (52%) were from joint families - male 51.5%, female 57.5%.

**Family Size :** Maximum cases (52%) were from families of 6-10 member strength - male 50.7%, female 62.5%.

**Religion :** Hinduism was the commonest religion (55.7%).

## B. FINDINGS ON MALE KORO CASES

1. **Habit and Addiction (n 262) :** Maximum Tobacco Chewing (30%) followed by Betal leaf chewing (23%) and Tobacco smoking (21%). Alcohol drinking (16.7%) and Ganja smoking (6.5%) was also noted.

2. **Past Morbidity (n 262) :**

a) **Physical :** Filiariasis (15.9%) followed by venereal diseases (14.9%), hydrocele (11%) and phymosis (8.7%).

b) **Psychiatric :**

Schizophrenia - 2.2%

Manic-Depressive Psychosis - 0.7%

Depression - 0.4%

Attempted Suicide - 0.4%

c) **Operations :**

Vasectomy - 10.9%

Appendesectomy - 2.9%

3. **Premorbid Psychosexual History (n 162) :**

a) Koro patients had higher incidences of such sexual behaviours like incest, heterosexual relation, extramarital sex and prostitute visit than the normal subjects.

b) Koro patients had higher incidences of morbid sexual functioning like orgasmic difficulties, sexual weakness in contrast to that of normal subjects.

4. **Clinical Picture (n 101) :**

a) **Onset Type :** 86% acute onset.

b) **Onset Time :** 40.6% during night (12 mid-night to 6 a.m.)

c) **Place of Attack :** 60% at home.

d) **Duration of Attack :** 30 ± 10 minutes, range 5 minutes to 3 hours.

e) **Clinical Symptoms :**

i) **Premonitory Symptoms** - in 66% of cases. Most frequently noted symptoms were: Heaviness/Burning inside head (77.6%); Breathlessness (64%) and Abdominal pain (55%).

ii) **Physical Symptoms** : Most frequently noted symptoms were :

Palpitation - 83%  
 Choked throat sensation - 75%  
 Increased Body Heat - 67%  
 Breathlessness - 63%

iii) **Mental Symptoms** : Most frequently noted symptoms were :

Fear of impending death - 87%  
 Fear of damage of sex organ - 65%  
 Fear of nonspecific bodily danger - 23%  
 Altered perception of environment - 19%

iv) **Genital Symptoms** : Most frequently noted symptoms were :

Retraction of Penis - 93%  
 Loss of penile strength 3.9%  
 Shortening of Penis 2.9%

f) **Attack Frequency** :

Single attack - 63%  
 Two attacks - 21.9%  
 Three and more - 14.8%

g) **Relapse** : 1.9% cases during a followup period for two years.

5. **Anxiety Profile (n 162)** : Trait Anxiety score (on STAI of Spielberger et al., 1970) of Koro patients was higher ( $45.6 \pm 4.9$ ) than the normal control subjects ( $34.5 \pm 5.2$ ).

6. **Personality Profile (n 49)** : Koro patients had higher Neuroticism score (16.27) than normal subjects (8.78) and higher Extraversion score (14.86) than the anxiety neurotic patients (7.03) on EPQ (Eysenck & Eysenck, 1975).

7. **Sex-Guilt Cognition** : Koro patients had more sexual guilt feelings than their normal controls.

Based on the findings of personality disposition of high Neuroticism and Extraversion (on EPQ) and presence of multiple premorbid psychosexual pathologies and higher level of sexual guilt, a theory of sex-guilt cognition was framed as one of the important psychodynamic construct in the genesis of Koro symptoms.

8. **Biomedical Potentials of Koro Symptoms** : Analysis of factors relating to Koro attack in 162 patients showed the presence of two sets of significant precipitating factors, viz. (1) pre-Koro organic genital ailments like phymosis, venereal diseases, scrotal filaria and vasectomy and (2) physical factors like penile exposure to cold water, febrile episode, post-coital or masturbatory state or micturation just prior to Koro onset. These factors are important in the elucidation of the role of these biomedical factors as a prelude to penile contraction/shortening and thus Koro perception in the vulnerable individuals.

9. **Penile Perception of Koro patients** :

i) Draw-a-Penis Test (DAPT). This is a graphomotor projective test which was devised to elicit the penile perception of the drawer. The subject was asked to draw an outline of penis, in flaccid and extended states separately, as per his own estimate for his own penis and penis of a normal person of his age. Different dimensions of penis images, viz., penile length, breadth, nature of penis root (open or close) and presence/absence of glans, is analysed from the drawings and are expressed in centimetre measurement.

ii) Penis Length Perception. The Koro patients perceived reduced penile length in comparison to normal subjects, be it the penis of a normal person or of his own. This 'reduced length' perception was evident in both the penile states, i.e. flaccid and extended.

- a) Kinetics of Penile Morphology - The Koro patients failed to perceive/project effectively the morphological kinetics of penile state changes from flaccid to extended state in their drawings in contrast to that of the normal subjects.
  - b) Real Flaccid Penis Length - Though the Koro patients had a reduced penis length perception ("small penis") but in reality their penis sizes (flaccid state) were similar/close to that of the normal subjects.
  - c) The Koro patients perceived reduced length of penis, of both flaccid and extended states, than their own perception of similar penis conditions of a normal person.
- iii) Penis Root Perception :
- a) The Koro patients perceived the penis as a self-defined appendage attached to the body as evinced from their 'close root' drawing with penis boundary definiteness.
  - b) The Koro patients had perception of narrowed penis root width in contrast to that of the normal subjects.
- iv) Penis Shaft Perception. The Koro patients had reduced volumetric penis shaft perception in contrast to that of normal subjects.
- v) Glans Penis Perception. Many Koro patients had omitted glans in their DAPT drawings.
- vi) Associated Drawings in DAPT. Many Koro patients drew seminal sacs, nerve connection from brain or breast to penis or intra-abdominal seminal sacs etc., which showed their varied perception of sexual anatomy or physiology, some of which may have a significant cognitive influence on their Koro morbidity.

vii) Longitudinal DAPT Study. Penis length perception on DAPT was studied in different time intervals over a period of two years among the Koro (both rural and urban) patients which showed that they have maintained a remarkable perceptual constancy in their dysmorphophobic self-penis perception.

10. **Diagnostic Screening of Koro** : Diagnostic screening with Multiphasic Questionnaire (Murthy, 1965; Murthy & Lakshminarayan, 1968) of 60 Koro patients showed that 75% of them were having a secondary psychiatric diagnosis as follows : 56.7% neuroses and 18.3% psychoses. Individual diagnostic category showed the following distribution : Hysteria 35%; Anxiety Neurosis 21.7%; Paranoid Schizophrenia 11.7% and Schizophrenia 6.7%.

### C. FINDINGS ON FEMALE KORO CASES

#### 1. Demographic Features :

**Age** : Age mean of the female sample (n 48) was  $23.6 \pm 10.8$  years.

The highest and lowest ages were 8 and 54 years respectively.

**Marital Status** : Maximum cases were single (66.7%).

**Education** : Maximum cases were illiterate (41.7%).

**Occupation** : No occupation was reported maximum (37.5%).

**Economic Class** : Maximum cases were from the lower economic classes, viz. Class IV and V (combined 62.5%).

**Family Type** : Maximum cases were from joint families (56%).

**Family Size** : Maximum cases were from families having 1-5 members strength (56%).

**Religion** : Hinduism was the commonest religion (inclusive of Rajbansis) - 81%.

2. **Clinical Features :**

- a) Onset Type - 64% acute onset.
- b) Onset Time - 51% during morning (6 am to 12 noon).
- c) Place of Attack - 56% at home.
- e) Clinical Symptoms :
- i) Premonitory Symptoms - in 43% cases. Most frequently noted symptoms were : chest pain (64.7%), headache (52.9%), unusual feeling in the abdomen (41%), lethargy (35%) and tremor of hands and legs (17.7%).
- ii) Physical Symptoms - Most frequently noted symptoms were :
- Leghargy - 51%
- Inability to speak - 46%
- Chest pain - 46.6%
- iii) Mental Symptoms - Most frequently noted symptoms were :-
- Fear of Breast Damage - 64%
- Fear of Death - 38.5%
- Bewitched Feeling - 25.6%
- Fear of Heart Damage - 15%
- Fear of turning into a eunuch - 2.6%
- iv) Breast and Genital Symptoms -
- Retraction of the Nipple/Breast - 64%
- Labial Retraction - 7.7%
- Vaginal/or Breast Pain - 12.8%
- v) Associated Morbidity : 17 cases fulfilled the criteria for a secondary diagnosis as follows :-
- Hysterical Fainting - 9 (23%)
- Neurotic Depression - 2 (5.1%)
- Pschotic Depression-1 (2.6%)

Hypochondriasis - 1 (2.6%)  
 Viral Fever - 2 (5.1%)  
 Migraine - 1 (2.6%)  
 Arthritis - 1 (2.6%)

3. **Breast Image Perception :**

Some Koro patients complained of a feeling of a reduced breast mass after their attack. They showed a reduced breast area perception on DABT (Draw-a-Breast Test) in contrast to their perception for a normal breast. This area need further research.

**D. KORO AND PSYCHIATRIC MORBIDITY**

1. Koro in association with 4 Schizophrenia and 7 with Paranoid Schizophrenia (all male cases) is reported.
2. Seven cases of Koro (4 male, 3 female) in association with affective disorders (depression) is reported.
3. Twentyone cases (17 male, 4 female) from 9 families with different kinship eg. brother-brother, brother-sister, father-son, father-daughter and husband-wife is reported.

**E. KORO SOCIAL RESPONSE STUDY**

1. **Positive Illness Paradigm :**

Study of the perception of Koro as an illness of the community people (members from Koro affected and nonaffected families of rural and urban settings) and professional people (who offered treatment) in terms of 'Illness type', 'Seriousness', 'Health risk' and 'Infective potentials' showed a differential response pattern over time.

During the Epidemic :

- a) The Koro illness was accepted as a definite illness

by the community and professional people.

b) The vulnerable nature of Koro in terms of its seriousness, health risks and contagiousness was attributed maximally during the first few weeks of the epidemic.

c) The medical community responded in an identical manner as the general community insofar as the Koro's positive illness dimension was concerned.

#### Repeat Surveys at Time Intervals :

A repeat rating of rural and urban sample at an interval of 4-5 weeks showed a definite cognitive shift. Passage of time changed the direction of the social Koro cognition from high to low vulnerability so far as its positive illness characters were concerned.

## 2. Cause Cognition :

Following is the percentage distribution of different cause attribution to Koro by the community and the professional groups.

### a) Community Sample (Rural + Urban = 88 + 118 = 206) :

Excessive Body Heat - 32.5%  
 Supernatural Influence - 16.5%  
 Not known - 16.5%  
 Fear Reaction - 9.7%  
 Sexual Cause - 8.3%  
 High Fever - 7.3%

### b) Professional Sample (n 160):

Sexual Cause - 35.6%  
 Body Heat - 16.9%  
 Not Known - 11.9%  
 Fear Reaction - 11.9%  
 Mischievousness - 10.6%  
 High Fever - 3.8%  
 Mental - 3.1%

c) Total Sample (n 366 ):

- Body Heat - 25.7%
- Sexual Cause - 20.2%
- Not Known - 14.5%
- Fear - 10.4%
- Supernatural - 10.4%

3. **Ethnomedical Explanation of Koro Cause by Patients (male, n 101) -**

- Increased Body Heat - 54.6%
- Supernatural - 14.9%
- Sexual Cause - 7.9%
- Unknown - 7.9%
- Fear - 4.9%
- Fever - 3.9%

Koro patients provided four ethnophysiological models of 'body-heat' pathology, viz. structural (47%), sexual energy (25.5%), heat loss (18%) and heat avoidance (9%), in the genesis of penile retraction/shrinkage symptoms of Koro.

4. **Koro Acquaintance Source :**

Following is the percentage distribution of Koro acquaintance source of the study population, e.g. community and professional.

	Direct Source	Indirect Source	Direct/ Indirect Ratio
Rural (n 88)	71.6	28.4	7 : 3
Urban (n 118)	58.5	41.5	3 : 2
Professional (n 160)	53.1	46.9	11 : 9
<b>Total :</b>	<b>59.3</b>	<b>40.7</b>	<b>3 : 2</b>

## F. MEDICAL AND SOCIAL TREATMENT OF KORO

Majority of Koro patients availed social treatment. The major findings of both type of treatments were as follows :

### a) Medical Treatment :

The placebo effects of injection of any therapeutic drugs, ranging from B-Complex to diazepam, promethazine, chlorpromazine, phenobarbitone, anabolic steroids, niketamide or even intravenous 5% dextrose infusion or tetanus toxoid injection yielded remarkable response.

Proper counselling of the cases and their accompanying members with judicious administration of anxiolytic and sedative medicines along with insight oriented psychotherapy yielded rapid recovery of the patients.

### b) Social Treatment :

The social treatment, i.e. the ritualistic healing method as advocated by priest-healers, village medicine man was the most popular treatment at the community level. Curative methods included pouring of cold water on the patient, manual or mechanical penile pulling or forced ingestion of salt or lemon water, which obviously had a risk of diverse medical and surgical complications including even death. Preventive social treatment was limited to marking of face, ear lobules and chest with white lime spots and wearing of strips of dark skin of arum (*Typhonium trilobatum*) around the great toe of both legs.