ANALYSIS OF FINDINGS IN TERMS OF LOW AND HIGH DETECTION RATE AREAS

The design of the study focused attention on Low and High Detection Rate Areas with a view to highlighting differences in the characteristics and attributes of the people, the leprosy patients, the health personnel involved in leprosy control and the health care setting in which leprosy detection takes place. The previous section presented the general findings pertaining to the five components of the study, namely the adult population, the leprosy patients, the health workers, leprosy patients registration cards, and health units. The following section presents the anlysis of the findings in terms of Low and High Detection Rate Areas.

As explained in the first part of the report, detection rate areas were difined at the levels of the region and the district. Mwanza is the Low Detection Rate Region while Morogo is the High Detection Rate Region. In Mwanza region the Geita is the Low Detection Rate District while Sengerema is the High Detection Rate District. In Morogoro region Kilombero is the Low Detection Rate District while Morogoro A is the High Detection Rate District.

The analysis however is limited to the regional level. Offices of the Regional Coordinators did not have complete data on case detection for the three preceding years from all districts. Consequently the selection of districts with the highest and lowest detection reates was based on the advice of the Coordinators rather than on the actual rank order of districts by case detection rates as computed from cases detected and the total population.

The analysis has the purpose of testing the hypotheses which were formulated to guide the investigation.

The hypotheses in question are:

1. When community members lack knowledge of the early signs and symptoms of leprosy the case detection yield will be low.

2. When community members have foreboding anticipation of being socially isolated if known to have leprosy the case detection yield will be low.

3. When community members have no confidence in the available modern treatment for leprosy the case detection yield will be low.

4. When community members show preference for and utilise traditional health care resources more than modern health care the case detection yield will be low.

5. When health workers lack the awareness of the high prevalence of leprosy in their districts and hence of the high probability of finding leprosy cases among patients attending their clinics the case detection yield will be low.

6. When health workers lack the appropriate knowledge and skills to diagnose leprosy in its early stages the case detection yield will be low.

7. When health units and consultation rooms lack the appropriate conditions and facilities for screening for leprosy among patients the case detection yield will be low.

8. When the organization of medical care at peripheral health units only allows for short consultation time with patients the case detection yield will be low.

The substantive hypothesis about knowledge leads one to expect that more respondents from high detection rate areas would be knowledgeable about leprosy than those in low detection rate areas. Table I.5 shows the pattern of differences. With particular reference to items which are proxies for early signs and symptoms of leprosy namely numbness of hands/feet, hypo-pigmented lesions, red eyes and stuffy running nose the analysis indicates that more respondents from the high detection rate region - Morogoro - identified hypopigmented lesions, and numbeness of hands/feet. More of them also identified stuffy running nose though the difference was not statistically significant.

TABLE I.5   PERCENTAGE OF RESPONDENTS IN THE STUDY AREAS WHO INDICATED

THAT THE TEN CHARACTERISTICS WERE ASSOCIATED WITH LEPROSY.

		Mwanza Region	Morogoro Region
1.	Hypopigmented lesions.	56.5*	64.7*
2.	Ulcerating extremities.	88.3*	83.0*
3.	Saddle back nose	61.3*	70.8*
4.	Hanging ear lobes	78.8	82.2
5.	Madarosis	52.3*	59.3*
6.	Claw hand	95.2	93.8
7.	Numbness of hands/feet.	61.3*	71.5*
8.	Nodules on face	84.3*	83.3*
9.	Red eyes	62.0*	53.8*
10.	Stuffy running nose.	35.7	39.7

*These difference are statistically significant as per Chi Square test

on contingency table for those who indicated and those who did not,

$p < 0.05$.

Table I.6 presents an analysis which shows whether or not respondents in high detection rate areas were more knowledgeable about leprosy than those in low detection rate areas.

TABLE I.6   PERCENTAGE OF RESPONDENTS IN STUDY AREAS ATTAINING

            PARTICULAR IMAGE SCORES.

		Mwanza Region	Morogoro Region
Image Score	1	3.3	2.7
	2	2.2	3.5
	3	5.7	4.0
	4	5.5	9.2
	5	10.7	7.7
	6	12.3	7.7
	7	13.7	11.3
	8	15.7	14.8
	9	14.7	13.5
	10	16.3	26.0
MEAN SCORE		6.9	7.2

Respondents from Morogoro, a high detection rate region, appears to be more knowledgeable, with a Mean Score of 7.2, than those from Mwanza, with a Mean Score of 6.9. The difference between the two Means however are not statistically significant on the basis of a t-test.

Knowledge about leprosy was also gauged on the basis of the types of leprosy people said they knew, how they said leprosy could be differentiated from other skin diseases, and what they said causes leprosy.

Table I.7 shows the distribution of responses as to the types of leprosy known by regions.

TABLE I.7   TYPES OF LEPROSY KNOWN BY REGION

	MWANZA	MOROGORO	
PATCHES	99 (16.5)	200 (33.37)	229
NODULES	96 (16.0)	63 (10.5)	159
OTHER	405 (67.5)	337 (56.2)	742
	600	600	1200

$x^2 = 47.2$ $p < 0.05$

There are two major types of leprosy namely Tuberculoid and Lepromatous. The former is characterised by patches and the latter by nodules. From Table I.7 it appears that more respondents from Morogoro a high detection region are knowledgeable of this than thos from Mwanza. These difference are statistically significant.

Table I.8 presents the findings concerning how the people said the

patches of leprosy could be differentiated from other skin diseases.

TABLE I.8   RESPONSES AS TO HOW LEPROSY CAN BE DIFFERENTIATED FROM

OTHER SKIN DISEASES BY REGION.

	MWANZA	MOROGORO	
CORRECT RESPONSE	12 (2)	27 (4.5)	39
OTHER	588 (98)	537 (95.5)	1161
	600	600	1200

$$x^2 = 6, \quad p < 0.05$$

Table I.8 indicates that by and large people were generally ignorant about

how leprosy could be differentiated from other skin diseases. Very few

respondents fare correct answers and these were that "leprosy patches

do not itch", that "leprosy patches have no sensation", and that "leprosy

patches have central healing". Morogoro, a high detection rate region

had more of such knowledgeable people than Mwanza.

On the basis of the results of this analysis it would appear that the hypothesis that "where community members lack knowledge about the early signs and symptoms of leprosy the case detection yield will be low" is confirmed.

It also appears to be the case from these results that very few people in each region are knowledgeable.

The second hypothesis focusses on stigma and its effect on case detection. Four items in the ten belief statements of the interview schedule for the general adult population deal with this issue. An analysis of the responses to these items is presented in table I.9.

TABLE I. 9   HOW RESPONDENTS FROM THE TWO REGIONS DIFFERED IN ENDORSING STIGMA - RELATED BELIEF STATEMENTS.

BELIEF STATEMENT	MWANZA	MOROGORO	x^2 TEST
1. LEPROSY PATIENTS SHOULD NOT BE TREATED IN GENERAL PURPOSE FACILITIES.	464 (77.3%)	515 (85.8%)	14.42, $\quad p < 0.05$
2. LEPROSY PATIENTS SHOULD NOT MIX WITH OTHER PEOPLE IN THE COMMUNITY.	514 (85.7%)	543 (90.5%)	6.68, $\quad p < 0.05$
3. LEPROSY PATIENTS ARE DESPISED.	397 (66.2%)	512 (85.3%)	59.98, $\quad \hat{p} < 0.05$
4. THE WORST THING ABOUT LEPROSY IS THAT IT MAKES ONE AN OUTCAST.	479 (79.8%)	527 (87.8%)	14.18, $\quad p < 0.05$

Many more respondents from Morogoro, a high detection rate region, endorsed the statements than those from Mwanza, a low detection rate region. This is contrary to the hypothesised situation. Rather than leading to hiding

and low case detection it would seem that the stigma attached to leprosy may actually provide impetus to seeking care and subsequent detection as people avoid the social consequences of leprosy.

Table I.10 provides an analysis of the responses to the open ended questions in the general population interview schedule about what, if any, forms of relationship between leprosy patients and others members of the community are proscribed. Many more respondents from Morogoro a high detection rate region, than those from Mwanza, a low detection rate region, gave responses indicating that relationships between leprosy patients and other members of the community were highly circumscribed.

TABLE I.10   THE EXTENT TO WHICH INTERACTION -BETWEEN LEPROSY PATIENTS
            AND OTHER MEMBERS OF THE COMMUNITY IS CIRCUMSCRIBED.

	MWANZA	MOROGORO	
HIGHLY CIRCUMSCRIBED	322 (53.7)	366 (61)	688
NOT AT ALL/NOT KNOWN	278 (46.3)	234 (39)	512
	600	600	1200

$$x^2 = 6.6, \; p < 0.05$$

The pattern of responses among respondents in the two regions to the question as to what is most feared about leprosy is depicted in Table I.11. In this case it is Mwanza, a low detection rate region which had more respondents indicating that what people fear is destitution and discrimination due to physical deformities.

TABLE I.11   WHAT PEOPLE FEAR MOST ABOUT LEPROSY AS REPORTED BY RESPONDENTS
            FROM THE TWO REGIONS.

	MWANZA	MOROGORO	
DEFORMITIES	441 (73.5)	336 (56)	777
CONTAGION	60 (10)	142 (23.7)	202
OTHER	99 (16.5)	122 (20.3)	221
	600	600	1200

$$x^2 = 49.86, \; p < 0.05$$

It would seem from the analysis of the findings presented above, concerning the second hypothesis, namely that "when community members have foreboding anticipation of being socially isolated if known to have leprosy the case detection yield will be low" cannot be upheld. In the first place social isolation was not a major issue in both regions, in other words it wa not an issue which was highlighted by the majority of respondents. And secondly where is featured it seemed to operate as an impetus to seeking medical care.

The third hypothesis focussed on people's belief in the effectiveness of modern health care in dealing with their health problems. A number of findings are relevant to this issue.

The suggestions which respondents to the adult population interview schedule made for improving leprosy control have a bearing on this issue. These can be grouped into three major categories. One category of suggestions reafirms the existing control approach and only calls for its strengthening. The second category consists of suggestions for changing the current approach and instituting new modalities for leprosy control within the modern health care system. The third category however comprises suggestions for an atternative approach for dealing with the leprosy problem, largely outside the modern health care system.

Table I.12 presents an analysis of these suggestions. The analysis excludes respondents from each region who did not make any suggestions, and it distinguishes the first category of suggestions from the second and third categories which are combined, given that both of them imply rejection of the current leprosy control approach.

TABLE I.12   SUGGESTIONS MADE FOR IMPROVING LEPROSY CONTROL BY THE ADULT

POPULATION SAMPLE FROM THE TWO REGIONS.

	MWANZA	MOROGORO	
CATEGORY I	263 (46.7)	123 (23.6)	386
CATEGORY II & III	300 (53.3)	399 (76.4)	399
	563	522	1085

$$x^2 = 63.33, \quad p < 0.05$$

The results of the analysis shows that on the whole the majority of re-spendents from both regions are sceptical about the efficacy of the current leprosy control approach, and specifically, Mwanza the low detection rate region, has twice as large a proportion of respondents with Category One suggestions indicating that they have confidence in the currently available leprosy care.

Responses by leprosy patients to the question about what they did when they first realised they might be suffering from leprosy are also relevant to the thir hypothesis. Some went to different forms of health units while others things including consulting traditional healers. Table II.1 presents an analysis of these responses by regions.

TABLE II.1   WHAT LEPROSY PATIENTS SAID THEY DID WHEN THEY REALISED

THEY MIGHT HAVE LEPROSY.

	MWANZA	MOROGORO	
WENT TO HEALTH UNIT	82 (82)	64 (71.1)	146
DID OTHER THINGS	18 (18)	26 (28.9)	44
	100	90	

$$x^2 = 3.21, \quad p < 0.05$$

The results indicate that leprosy patients in the two regions were not different in their reactions, and therefore these results do not conform to what the hypothesis would lead one to expect.

The expectations leprosy patients said they had of the treatment they were getting are also relevant to the third hypothesis. Patients were divided into three categories in this regard. The first one comprises those who said that they did not know what cure for leprosy meant or that they did not expect to get cured. The second one was of patients who expected complete recovery, and the third one was that of patients who had vague notions and were not sure of what to expect from the treatment they were getting.

The analysis presented in Table II.2 distinguishes the Optimists, i.e. those in the second category, from the Dislussioned - i.e. those in the first and third categories.

TABLE II.2 LEPROSY PATIENTS AND THEIR EXPECTATIONS CONCERNING THE MEDICATION
          THEY WERE GETTING.

	MWANZA	MOROGORO	
OPTIMISTS	37(37)	34(36.6)	71
DISLUSSIONED	63(63)	59(63.4)	122
	100	93	193

The analysis shows that the majority of leprosy patients in each region are dislussioned; and these results are not consonant with what was expected on the basis of the hypothesis.

In effect therefore the findings analysed above do not support the hypothesis that "When community members have no confidence in the available modern treatment for leprosy the case detection yield will be low."

The fourth hypothesis contrasts between use of modern health care and traditional health care. Within the plurality of the health care system in Tanzania, variation in the extent of utilisation of modern health care reflects not only differences in the availability and accessibility of modern health care but also differences in the way people perceive modern health care to be appropriate in dealing with their health problems. Findings regarding use of health services are therefore analysed for indication of these differences between the two regions.

Tables I.13 and I.14 present findings of the extent of utilisation of modern health care as reported by respondents to the adult population interview schedule.

TABLE I.13   USE OF HEALTH SERVICES BY RESPONDENTS' HOUSEHOLD MEMBERS IN THE TWO REGIONS.

	MWANZA	MOROGORO	
USED	507 (84.5)	420 (70)	927
NOT USED	93 (15.5)	180 (30)	273
	600	600	1200

$x^2 = 35.88$, p $<$ 0.05

TABLE I.14   USE OF HEALTH SERVICES BY RESPONDENTS IN THE TWO REGIONS

	MWANZA	MOROGORO	
	367 (61.2)	320 (5.3)	687
	233 (38.3)	280 (46.7)	613
	600	600	1200

$x^2 = 23.13$, p $<$ 0.05

Both tables show statistically significant difference between the two regions. But the differences are in the opposite direction, with Mwanza, the low detection rate region having wider use of health care than Morogoro. These results therefore are not in conformity with the hypothesis that when community members show preference for and utilise traditional health care resources more than modern health care the case detection yield will be low.

The fifth hypothesis **states** that "when health workers lack the awareness of the high prevalence of leprosy in their districts and hence of the high probability of finding cases among patients attending their clinics the case detection yield will be low."

The sample of health workers covered by the study was asked about their perceived level of prevalence of leprosy in their areas and their perceived probability of having undetected leprosy casea among the patients they see. Tables III.3 and III.4 present analyses of their **responses.** Both tables show higher proportions of respondents from Morogoro a high detection rate region as indicating awareness of the high prevalence of leprosy in their areas and also of the high probability of having undetected leprosy cases among the cases they see, although these differences are not statistically significant.

TABLE III.3   HEALTH WORKERS' PERCEIVED PREVALENCE OF LEPROSY IN

AREAS WHERE THEY WORK.

	MWANZA	MOROGORO	
VERY PREVALENT	26 (25.5)	18 (30.5)	44
FAIRLY PREVALENT DONT KNOW	76 (74.5)	41 (69.5)	117
	102	59	161

$$x^2 = 0.48 \quad p > 0.05$$

TABLE III.4   HEALTH WORKERS' PERCEIVED PROBABILITY OF HAVING UNDETECTED

LEPROSY CASES AMONG PATIENTS SEEN.

	MWANZA	MOROGORO	
HIGH PROBABILITY	89 (87.2)	56 (94.9)	145
LOW PROBABILITY	13 (12.7)	3 (5.1)	16
	102	59	161

$$x^2 = 2.51 \quad p > 0.05$$

The hypothesis is therefore not confirmed by the results of this

analysis.

The sixth hypothesis **states** that when health workers lack the appropriate

knowledge and skills to diagnose leprosy in its early stages the case detection

yield will be low.

Findings concerning the health workers' assessment of the available diagnostic

procedures of the pin-prick, and cotton wool test are relevant to the hypothesis,

as are those about knowledge of the role of painful nerves and loss of sensation

in the differential diagnosis of leprosy, and identification of leprosy cases

among the photographs of skin conditions. Overall knowledge scores and

photo scores are also pertinent.

Tables III.5 and III.6 presents the findings on the diagnostic tests of the

pin prick and cotton wool.

TABLE III.5 HEALTH WORKERS' REACTION TO THE STATEMENT THAT THE PIN-PRICK

IS THE BEST TEST FOR INSENSITIVITY BY REGION.

	MWANZA	MOROGORO	
TRUE	69 (69)	32 (54.2)	101
FALSE	31 (31)	27 (45.8)	58
	100	59	157

$$X^2 = 3.53 \quad p > 0.05$$

TABLE III.6   HEALTH WORKERS' REACTION TO THE STATEMENT THAT THE COTTON

WOOL TEST IS LESS DISCRIMINATING THAN THE PIN-PRICK TEST.

	MWANZA	MOROGORO	
TRUE	48 (48.5)	22 (37.9)	70
FALSE	51 (51.5)	36 (62.1)	87
	99	58	157

$$x^2 = 1.66 \ p > 0.05$$

In both cases more respondents from Morogoro the high detection rate region

gave the correct assessment namely that each statement is false. This is

congruent with the hypothesis. These differences however are not statistically

significant.

The health workers diagnostic acumen is further indicated by their reaction to

the statement that "A leprosy patient may present with both painful nerves

and loss of sensation". Table III.7 shows that health workers from the two

regions were equally poor in this regard. The analysis does not support the

hypothesis.

TABLE III.7   HEALTH WORKERS REACTION TO THE STATEMENT THAT A LEPROSY

PATIENT MAY PRESENT WITH BOTH PAINFUL NERVES AND LOSS

OF SENSATION.

	MWANZA	MOROGORO	
TRUE	97 (95.1)	56 (96.6)	153
FALSE	5 (4.4)	2 (3.4)	7
	102	58	160

Table III.8 summarises the results concerning the correct identification of

leprosy cases among the photographs of skin conditions.

TABLE III.8   VARIATION IN THE NUMBER AND PROPORTION OF HEALTH WORKERS

WHO CORRECTLY IDENTIFIED LEPROSY CASES FROM PHOTOGRAPHS

BY REGION.

	MWANZA	MOROGORO
PHOTO 1	43 (43.9)	32 (54.2)
PHOTO 3	76 (77.5)	40 (67.8)
PHOTO 4	76 (77.5)	41 (69.5)
PHOTO 6	85 (86.7)	49 (83.1)
PHOTO 8	93 (94.9)	51 (86.4)
PHOTO 10	90 (91.8)	54 (91.5)

The analysis shows no statistically significant differences between the two

groups. These findings do not support the hypothesis.

As for the performance of health workers on knowledge test items and identi-

fication of photos the analysis (Table III.9 and III.10)between the two groups

shows no statistically significant differences between them, which is contrary

to the hypothesis posited.

TABLE III.9   KNOWLEDGE SCORES OF THE HEALTH WORKERS FROM THE TWO REGIONS

SCORE	MWANZA	MOROGORO
1	2	1
2	0	0
3	3	0
4	3	1
5	13	5
6	14	7
7	19	15
8	14	7
9	17	9
10	17	14
N =	102	59
MEAN =	7.3	7.7

TABLE III.10   PHOTO SCORES OF THE HEALTH WORKERS FROM THE TWO REGIONS

SCORE	MWANZA	MOROGORO
1	0	0
2	0	0
3	3	1
4	3	4
5	12	8
6	24	12
7	26	18
8	24	11
9	7	5
10	2	0
N =	101	59
MEAN =	6.8	6.6

The seventh hypothesis posits that when peripheral health units and their consultation rooms lack the appropriate conditions and facilities for screening for leprosy among patients the case detection yield will be low.

Findings concerning lack of privacy during consultation and the lack of hand-washing facilities are relevant to this hypothesis.

Table V.1 presents an analysis of the findings about the phenomenon of clinicians ushering in the consultation room more than one patient at a time.

TABLE V.1   VARIATION IN THE PRACTICE OF USHERING IN THE CONSULTATION ROOM MORE THAN ONE PATIENT BY REGION.

	MWANZA	MOROGORO	
DONE	31 (47)	11 (24.4)	42
NOT DONE	35 (53)	34 (75.6)	69
	66	45	111

x^2 = 5.73 $p < 0.05$

The results indicate that although on the whole both regions have substantial

proportions of health units where this practice is found, Mwanza, the low

case detection rate region has a higher porportion of health units where

patients are seen by clinicians **en masse compared to Morogoro. These differences**

are statistically significant and are **congruent with the postulated hypothesis.**

Table V.2 in turn presents findings concerning the practice of clinicians sharing

consultation rooms resulting in a number of patients being in the same room

together even though they are seen by different clinicians.

TABLE V. 2   VARIATION IN THE PRACTICE OF CLINICIANS SHARING COMMON CONSULTATION

                ROOMS DURING THE SAME CLINIC SESSION AND SEEING DIFFERENT

                PATIENTS BY REGION.

	MWANZA	MOROGORO	
DONE	14 (21)	15 (32)	29
NOT DONE	53 (79)	32 (68)	85
	67	47	114

$$x^2 = 1.72 \quad p > 0.05$$

The results show that this is a less common practice in both regions and the

differences between them are not statistically significant. The hypothesis

is not supported by these results.

Tables V.3 and V.4 also deal with the issue of privacy and present findings

about the availability of curtains on windows and/or curtain trolleys. Again

the large majority of consultation rooms in both **regions do not have these facilitie**

and even though Morogoro, the high case detection region has a higher

proportion of health units which have window curtain and/or trolley curtains,

the differences are not statistically significant. The hypothesis is therefore

not supported by these results.

TABLE V.3   VARIATION IN THE AVAILABILITY OF WINDOW CURTAINS IN

              CONSULTATION ROOMS BY REGION.

	MWANZA	MOROGORO	
AVAILABLE	26 (38.8)	22 (45.8)	48
NOT AVAILABLE	41 (61.2)	26 (54.2)	67
	67	48	115

$$x^2 = 0.58, \; p > 0.05$$

TABLE V.4   VARIATION IN THE AVAILABILITY OF TROLLEY CURTAINS IN

              CONSULTATION ROOMS BY REGION.

	MWANZA	MOROGORO	
	14 (20.9)	15 (31.3)	29
	53 (79.1)	33 (68.7)	86
	67	48	115

$$x^2 = 1.6, \; p > 0.05$$

The availability of a bed on which a patient can lie for physical examination,
a water basin, and water for hand washing for the clinicians are deemed to be
factors which are conduicive to carrying out thorough physical examination
during consultations, Of these only the presence of water for handwashing
was shown to be a significant factor. The results are presented in Table V.5.

TABLE V.5   VARIATION IN THE AVAILABILITY OF WATER FOR HANDWASHING

              IN THE CONSULTATION ROOMS BY REGION.

	MWANZA	MOROGORO	
AVAILABLE	24 (35.8)	27 (56.2)	51
NOT AVAILABLE	43 (64.2)	21 (43.8)	64
	67	48	115

$$x^2 = 4.71, \; p < 0.05$$

Morogoro region has a majority of   health units with water for handwashing
in consultation room unlike Mwanza where only just over a third of the health
units have consultation rooms with water. These differences are statistically
significant and they support the hypothesis.

The eighth, and last phypothesis states that when the organization of medical
care at peripheral health units allows short times for consultation with patients
the case detection yield will be low.

Besides the analysis of **differences in the duration of the time clinicians spend**
with patients during consultation, three other **factors** are examined. These
are the availability of other health units within a radius of 5 Km, the
length **of queues _ at particular times and the length of time patients spend waitin**
to see the clinician.

Table V.6 shows that Mwanza region had a higher proportion of health units
which were the only ones within a radius of 5Km compared to Morogoro region
and in theory the units should be **more congested.** But the **differences were**
not statistically significant.

TABLE V.6   THE AVAILABILITY OF OTHER HEALTH UNITS WITHIN A 5 KM RADIUS

	MWANZA	MOROGORO	
AVAILABLE	36 (53.7)	30 (62.5)	66
NOT AVAILABLE	31 (46.3)	18 (37.5)	49
	67	48	115

$$x^2 = 0.88, \ p > 0.05$$

Table V.7 presents the average length of queues at particular times and shows
no statistically significant **differences between health units in the two regions.**

TABLE **V.7**   MEAN LENGTH OF QUEUES AT CONSULTATION ROOMS AT

PARTICULAR TIMES.

TIME	MWANZA		MOROGORO	
AT THE START OF THE CLINIC.	n =	52	n =	45
	$\bar{X}$ =	13.5	$\bar{X}$ =	13.4
	Sd =	10.12	Sd =	10.57
AT THIRD HOUR OF CLINIC SESSION.	n =	39	n =	22
	$\bar{X}$ =	10.9	$\bar{X}$ =	5.4
	Sd =	9.93	Sd =	6.4
AT FIFTH HOUR OF CLINIC SESSION.	n =	16	n =	2
	$\bar{X}$ =	6.5	$\bar{X}$ =	2.5
	Sd =	9.14	Sd =	0.7

Table **V.8** presents an anlysis of the time patients waited to see clinicians at health units in two regions. The **differences between the two regions.** are also not statistically significant.

TABLE **V.8**   MEAN LENGTH OF WAITING TIME FOR PARTICULAR INDEX CASES

	MWANZA		MOROGORO	
FIRST INDEX CASES.	n =	55	n =	42
	$\bar{X}$ =	46.6	$\bar{X}$ =	46.8
	Sd =	40.48	Sd =	29.85
FOURTH INDEX CASES.	n =	55	n =	43
	$\bar{X}$ =	40.8	$\bar{X}$ =	40.7
	Sd =	36.14	Sd =	35.75
TENTH INDEX CASES.	n =	16	n =	15
	$\bar{X}$ =	30.1	$\bar{X}$ =	29.9
	Sd =	20.57	Sd =	25.41

Table V.10 presents an analysis of the length of time patients spent in consultation with clinicians. These do not show any statistically significant difference between the two regions.

TABLE V. 9   MEAN CONSULTATION TIME FOR PARTICULAR INDEX CASES.

	MWANZA			MOROGORO		
FIRST INDEX CASES.	$\bar{X}$	=	3.2	$\bar{X}$	=	3.0
	Sd	=	2.22	Sd	=	2.42
	n	=	55	n	=	44
FOURTH INDEX CASES.	$\bar{X}$	=	2.98	$\bar{X}$	=	3.18
	Sd	=	2.08	Sd	=	2.49
	n	=	57	n	=	45
TENTH INDEX CASES.	$\bar{X}$	=	3.05	$\bar{X}$	=	3.6
	Sd	=	2.44	Sd	=	2.67
	n	=	20	n	=	15

On the basis of the results of this analysis the hypothesis cannot be accepted.

OTHER SUBSTANTIVE FINDINGS

KNOWLEDGE AND BELIEFS ABOUT LEPROSY

The number of respondents in the sample who appeared to be ignorant of the two type of leprosy - 742, or 61.8 percent (Table I.7) as well as the number of respondents who were not able to describe how leprosy could be differentiated from other skin diseases - 1161 or 96.8 percent (Table I.8) are surprisingly high. This is quite unexpected given the fact that both regions are high leprosy prevalence areas. Indeed 50.8 percent of all respondents reported that they knew of someone in their villages who had leprosy (Table I.15). Even though the differences between the two regions in these aspects are statistically significant the fact remains that even the region which is better off is shown to have performed poorly.

TABLE I.15   WHETHER OR NOT RESPONDENTS KNEW ANYONE IN THE VILLAGE WHO HAD LEPROSY.

	MWANZA	MOROGORO	
YES	258 (43)	352 (58.7)	610
NO	342 (57)	248 (41.3)	590
	600	600	1200

$$x^2 = 29.46, p < 0.05$$

It is also noteworthy that even after many years of leprosy control which in both regions **precede** the launching of the national control programme not only **is** the level of knowledge about leprosy poor, many tradition based beliefs about leprosy persist. Thus physical deformities are still believed as a necessary sequel of leprosy, and **indeed many respondents (777 or 65 percent)** intimated that the thing about leprosy which is feared most is physical deformity and its related disfigurement and destitution (Table I.11).

Even though respondents from Morogoro were less likely to be overawed by deformities than those from Mwanza, nevertheless the majority of them were. In areas such as these which are known to be high leprosy prevalence areas we expected to find visible manifestations of efforts at educating the people about leprosy. We were surprised that no single health education session which we observed included leprosy in the subjects/topics covered. The clinics which had posters on some aspects of leprosy was alos too low. This observation is of great significance given the integration of leprosy work in the general health care delivery which gives preeminence to health education, and in the context of a leprosy control approach which capitalises on the self - or lay - referral of suspected leprosy cases for which knowledge of the disease condition is a prerquisite.

Health education as it is currently practiced may not be the best method for altering the content of common knowledge about leprosy and effecting changes in attitudes and beliefs concerning the disease but in this a case it can be argued that something is better than nothing. This is particularly the case given the finding that leprosy patients themselves did not appear to be any more enlightened in matters of leprosy than the general community of which they are members.

Overall respondents in both regions resent leprosy patients being treated in general purpose health facilities, with more of Morogoro respondents expressing the resentment than those from Mwanza (Table I.16). As a corallary to this only a very small number of respondents suggested that leprosy patients could be treated at their local health units, which, invariably were dispensaries (Table I.17). In the absence of concerted educational input to allay this fear, which does not really have contagion as its basis but esthetics and possibly stigma. The fear about catching AIDS from improperly sterilised needles and syringes in health care settings may fuel and further exarcebate the resentment to sharing health care facilities with leprosy patients.

TABLE I.16   WHETHER OR NOT PROVIDING TREATMENT TO LEPROSY PATIENTS

IN GENERAL PURPOSE HEALTH FACILITIES IS RESENTED.

	MWANZA	MOROGORO	
RESENTED	464 (77.3)	515 (85.8)	979
NOT AT ALL	136 (22.7)	85 (14.2)	221
	600	600	1200

$$x^2 = 14.42, \quad p < 0.05$$

TABLE I.17   HEALTH CARE SETTING CONSIDERED APPROPRIATE FOR PROVIDING

TREATMENT TO LEPROSY PATIENTS.

	MWANZA	MOROGORO	
LOCAL HEALTH UNIT	130 (21.7)	90 (15)	220
LEPROSARIUM	190 (31.7)	358 (59.7)	548
OTHER	280 (46.7)	152 (25.3)	432
	600	600	1200

$$x^2 = 96.7, \quad p < 0.05$$

STIGMA ATTACHED TO LEPROSY

Stigma in leprosy finds expression in different forms. This study found that one way in which it was manifested was the taboo about not telling a person suspected to have leprosy about it. **One** implication of this is that no one dares to urge a suspected case to go for examination and treatment.

This taboo seems to be much stronger in Mwanza, a low case detection rate region where 69.8 percent of the respondents were not aware of who can be expected to tell a person whom other people suspect to have leprosy about it. The equivalent figure for Morogoro was only 45.6 percent (Table I.18). It is

noteworthy that 44.3 percent of the leprosy patients interviewed said that **they** were not told by anyone about their **condition. Rather they worked it out for themselves (Table II.3).**

TABLE I.18   RESPONSE CATEGORIES BY THE ADULT POPULATION SAMPLE TO THE

QUESTION: WHO TELLS A PERSON SUSPECTED OF HAVING LEPROSY

ABOUT IT?

MWANZA	MOROGORO	
187 (31.2)	326 (54.3)	513
162 (27)	77 (218)	239
251 (418)	197 (32.8)	448
600	600	1200

$$x^2 = 74.4, \ p < 0.05$$

TABLE II.3   RESPONSE CATEGORIES BY LEPROSY PATIENTS SAMPLE TO THE QUESTION:

WHO TOLD YOU THAT YOU HAD ELPROSY?

MWANZA	MOROGORO	
41 (40.6)	45 (48.4)	86
55 (54.4)	40 (43)	95
5 (5)	8 (8.6)	13
101	93	194

$$x^2 = 2.94 \quad p > 0.05$$

As explained in the previous section, the overwhelming endorsement of stigma related statements (Table I.9), the highly circumscribed nature of the social interaction between people with leprosy and members of the general community (Table I.10), as well as the common fear about destitution and social ostracism consequent upon being physically deformed due to leprosy, (Table I.11) are all manifestations of the stigma attached to leprosy. And so to are

suggestions that people with leprosy should be rounded up and banished as a method of controlling leprosy (Table I.12) as well as the suggestion that leprosy cases should be admitted and managed in camps, special hospitals and leproraria rather than general purpose health units (Table I.17) are all expression of the desire to take people with leprosy out of circulation because of the esthetic discomfort of having such people around.

HEALTH WORKERS' MOTIVATION FOR LEPROSY WORK

The leprosy programme is uniformly implemented through out mainland Tanzania. It is integrated in the general health services, and, except for the Regional and District Coordinators, its implementation relies heavily on the health **manpower** that is available for the general health services. Even though the **differences are not statistically significant the findings that Morogoro** region had a higher proportion of health workers who reported that their training covered leprosy, and also a higher proportion of health workers who reported as having attended a seminar on leprosy since graduation are intriguing. **(Tables III.11 and III.12).**

TABLE III.11 HEALTH WORKERS' REPORTS AS TO WHETHER OR NOT THEIR TRAINING COVERED LEPROSY.

	MWANZA	MOROGORO	
YES	75 (73.5)	51 (86.4)	126
NO	27 (26.5)	8 (13.6)	35
	102	59	161

$$x^2 = 3.63, \quad p > 0.05$$

TABLE III.12   HEALTH WORKERS' REPORTS AS TO WHETHER OR NOT THEY HAVE

ATTENDED A LEPROSY SEMINAR SINCE GRADUATION.

	MWANZA	MOROGORO	
YES	45 (44.1)	33 (55.9)	78
NO	57 (55.9)	26 (44.1)	83
	102	59	161

$$X^2 = 2.08, \quad p > 0.05$$

Even much more intriguing are the findings that Morogoro region had a higher proportion of health workers who, if faced with a patient who **complained that** she/he might have leprosy explained how they would address the patients' concern by taking time to examine the patient instead of simply referring him or her (Table III.13), as well as a higher proportion of health workers who explained how they would go to great length to **find** ways of ensuring that a patient they suspect might have leprosy returns for repeat examination at a later date instead of just telling him her to come back later and hope that her or she will do so (Table III.14). These differences are also statistically significant.

TABLE III.13   WHAT HEALTH WORKERS REPORTED THEY WOULD **DO WHEN FACED WITH**

A POSSIBLE **CASE** OF LEPROSY.

	MWANZA	MOROGORO	
CONDUCT THOROUGH EXAMINATION.	18 (17.6)	16 (27.1)	34
REFER	64 (62.7)	24 (40.7)	88
VAGUE REPORT	20 (19.6)	19 (32.2)	39
	102	59	161

$$x^2 = 7.28, \quad p < 0.05$$

TABLE III.14 WHAT HEALTH WORKERS REPORTED THEY WOULD DO TO ENSURE THAT A SUSPECTED CASE OF LEPROSY RETURNS FOR REPEAT EXAMINATION AT A LATER DATE.

	MWANZA	MOROGORO	
MOTIVATE	51 (50.0)	35 (59.3)	86
ASK FOR RETURN	45 (44.1)	14 (23.7)	59
OTHER/DONT KNOW	6 (5.9)	10 (16.9)	16
	102	59	161

$$x^2 = 9.33, \quad p < 0.05$$

These are qualitative difference indicating different levels of motivation for leprosy work. Unfortunately they cannot be easily explained, particularly because there are no statistically significant difference in the amount of supervisory visits undertaken by **Regional and District Coordinators. For an** examination of the Visitors Books at health units showed **that both had visited** more or less a similar proportion of the health units covered by this study (20.9% for the Mwanza RTLC and 18.8% for the Morogoro RTLC), and that they had made more or less the same number of visits to these units - a average of 1.3 visits to each unit for the Mwanza RTLC and an average of 1.5 visits for the Morogor RTLC. Visits by their District Coordinators are shown in Table III. 15.

TABLE III. 15   PROPORTION OF HEALTH UNITS COVERED BY THE STUDY FOUND TO

HAVE BEEN VISITED BY THE DISTRICT COORDINATORS AND THE

AVERAGE NUMBER OF VISITS MADE.

	GEITA	SENGEREMA	KILOMBERO	MOROGORO A
COVERAGE	64.1%	92.9%	63.6%	50%
AVERAGE NUMBER OF VISITS	1.9	3.2	3.6	1.7

MORBIDITY AND DISABILITY PATTERN

Lepromatous leprosy, the more debilitating from a leprosy affects more patients in Morogoro than in Mwanza, (Table IV.1) and yet a higher proportion of patients in Mwanza have disabilities of different grades affecting hands, feet and eyes. (Tables IV.II. These differences are not statistically significant but they are indicative of a different set of circumstances governing early detection and timely commencement of treatment which are the only methods of preventing nerve damage and subsequent disability.

TABLE IV.1   TYPE OF LEPROSY DIAGNOSED AND ENTERED ON PATIENT REGISTRATION

CARDS.

	MWANZA	MOROGORO	
T/BT	243 (69.2)	147 (62.3)	390
L/BL	108 (30.8)	89 (37.7)	197
	351	236	587

$$x^2 = 3.05, \quad p > 0.05$$

TABLE IV.2   NUMBER AND PERCENTAGE OF LEPROSY PATIENTS WHOSE REGISTRATION

CARDS SHOW THAT THEY HAVE DISABILITIES OF GRADES 1, 2, OR

3 AFFECTING LIMBS OR EYES.

	MWANZA	MOROGORO
RIGHT HAND	140 (39.8)	52 (21.0)
LEFT HAND	132 (37.5)	50 (20.2)
RIGHT FOOT	143 (40.6)	46 (18.5)
LEFT FOOT	134 (38.1)	50 (20.2)
RIGHT EYE	71 (20.2)	20 (8.1)
LEFT EYE	65 (18.5)	18 (7.3)

DISCUSSION

Of the eight substantive hypotheses concerning the differences in particular aspects of the leprosy control system between high and low leprosy case detection regions, only the first one was confirmed. The fact that most of the hypotheses were not confirmed is the most important finding of the study. It is taken to imply that the two regions covered do not have equally high leprosy prevalence rates. Consequently the difference in the detection rates between the two regions reflect differences in the basic epidemiology of the disease within them rather than deficiencies in the relevant elements. of the leprosy control system in the so-called low case detection rate region.

Both the 1987 second edition of the manual of the National Tuberculosis/Leprosy Programme (MOH 1987) and the 1987 Annual Report of the National Tuberculosis/Leprosy Programme (NTLP 1987) which is the latest available report - do not express much conern about leprosy case detection.

The analysis of age specific detection rates suggests that the stable case detection rates which stand at 16.1, 15.2, 15.6, 14.6 and 15.9 for the years 1983, 1984, 1985, 1986 and 1987 respectively reflect a much lower prevalence of leprosy than the estimated 6 per 1000 population put up in 1981. The prevalence is now thought to be around 3 per 1000 population (MOH 1987 : 45). In which case these detection rates cannot necesarily be judged to be too low.

The report shows that Morogoro region continues to have high detection rates while Mwanza's detection rates also remain low. The rates for Morogoro region for the years 1985, 1986 and 1987 were 46.2, 33.1 and 40.8 respectively. Those for Mwanza for the same years were 13.6, 12.8 and 8.5.

Even though it is quite plausible that the detection yield are not necessarily too low relative to the likely number of unregistered leprosy cases, and hence they need not be a cause for concern, what remains of much concern is the fact that a sizable proportion of the cases detected have disabilities. Not only did this study find quite a few cases on register in both regions with disabilities (Table IV.2) both the 1987 Annual Report of the TB/Leprosy Programme (NTLP 1987) and the manual of the National TB/Leprosy Programme (MOH 1987) voice concern about this phenomenon. In other words the Leprosy Control Programme has yet to attain the goal of detecting leprosy in its early stages.

It is the detection of leprosy in its early stages and the timely commencement of medication which will limit the transmission of leprosy and prevent the occurence of physical deformities, with their associated negative economic and social consequences that are the major cause for concern and fear among the general population about leprosy.

The findings are discussed therefore not so much for their implication about improving leprosy case detection yields as such but rather in so far as they relate to the detection of leprosy in its early stages.

Passive case finding is still the anainstay of case detection. According to the new manual (MOH 1987) the detection and early diagnosis of leprosy are the responsibility of the medical staff, aided by the leprosy patients under their care. It is expected that they will be well trained and ca- pable not only of recognising the signs and symptoms of leprosy and carrying out thorough body examination of all people who present with the relevant signs and symptoms but also of delivering good treatment services to leprosy patients so that people with undetected leprosy may have confidence in the good treatment and come forward to be examined and treated, Leprosy patients, in turn are expected to be the living testimony

of the good and effective leprosy care and those who are newly detected are expected to mobilise their household contacts to present themselves for screening for leprosy.

The findings of this study indicate that neither the medical staff nor the leprosy patients currently play these prescribed roles effectively. Leprosy patients who were covered by this study did not appear to be the sort of people who would engender confidence in leprosy care in the general community. Leprosy care is currently a classic case of lack of congruence of meaning and expectations between the care givers and the recepients of care even when both use the same concept- "cure".

This is an issue of much more than sociological significance. The point cannot be driven home for the patient and through the patient, for the general community simply by harping repeatedly that since the patient no longer discharges bacilli therefore he or she is cured.

The 1987 report (NTLP 1987) lauds the fact that the registered number of leprosy cases receiving treatment has been drastically reduced due to the high cure rate following the introduction of Multi Drug Therapy.

The same report however highlights an increased defaulter rate. It also mentions about relapses, although the proportion of relapses among new cases per year is thought to be very small. But the defaulters and relapses no matter how small their proportion relative to the total case load, they cannot be regarded as insiginificant if creating confidence among the general population in the available leprosy case is an objective of the Leprosy Control Programme. Leprosy care need to be conceived of as team effort between the patient and the care givers. The objectives of care need to be agreed upon jointly and each party should work towards the realisation of those objectives.

As for the medical staff our findings show that they only detect the "obvious" cases. They work under conditions which only allow for the detection of "obvious" cases. Even those who are highly motivated and able to get prospective leprosy patients to return for repeat examination may be frustrated by the uncertain of the visits of the District Coordinators, who, according to the Manual (MOH 1987) have the responsibility of confirming the diagnosis before a person is registered as a leprosy patient or given any specific treatment. In none of the district covered had the District Coordinators visited all the health units, and yet any health care setting presents an opportunity for detection of leprosy cases.

In both Mwanza and Morogoro people with leprosy tend to go to health units knowing they have leprosy. This is a recipe for late diagnosis given the low levels of knowledge about leprosy found in the general population.

A study done within the context of a Leprosy Scheme among the people in Geita district long before the launching of the National Tuberculosis/Leprosy Programme (Anten 1972) reported that people did recognise leprosy as a disease entity quite distinct from other skin diseases. They recognised it if any person among them had the disease. The findings were confirmed by this study. What is noteworthy about the findings of this study however is that it is the characteristic features of an advanced leprosy that people recognise. It would appear that the practice is for people to "wait and see" in order to avoid telling people they have leprosy when they may not, with all the social consequences such labelling may have both for the individuals and for their families. It noteworthy also that in both regions confronting a person to tell him or her that the skin condition they have could be, or is, leprosy is a onerous task which only relatives or close friends dare undertake. It is a moot point whether or not an ordinary member of the community should be able to differentiate between leprosy and other skin conditions such as tinea versicolor, ringworm psorasis or pityriasis alba.

It is important however, that any skin condition should warrant concern and result in a visit to health units where capable health workers can pick out and treat leprosy and also provide medication for the other skin diseases as well as advice on how they can be prevented. It is possible that the health services may not be able to cope with the high demand for care if all kinds of skin conditions were taken to the health unit for care. Self care is a fact of life. In order to facilitate responsible self care simple, clear and pictorial representation of the common skin diseases should be available and posted where people can study them so that they are able to decide which conditions have to be taken to the health unit.

This study found basic confidence in health care. The impression one got from listening to the explanations evoked by the interview schedule questions we asked was that leprosy has not been given the serious attention it deserves by the medical profession. The rationale for a life long treatment as was the case with the mono-drug therapy with dapsone could not be comprehended. The following questions were often asked:

- Why not accelerate the pace of cure by providing "stronger" medicine?
- Why not give injections rather than tablets?
- Why not hospitalise instead of providing ambulatory care?
- Why not give vaccines?

One hopes that the "hopelessness" of AIDS does not creep in leprosy care among the people. The leprosy programme needs to find ways of creating conditions in all communities particularly where leprosy is still believed to be highly prevalent for people to recognise the condition and to seek care very early.

If anything the findings of this study suggest that it is the general community member who has to assume great responsibility for case finding. The medical staff can only facilitate the performance of that role.

One way to facilitate case finding is for all health workers to take leprosy
control seriously. It is ironic that in Mwanza the RTLC and the DTLCs in
the two district voiced concern about how other health professional expect
them   to cover leprosy topics in the curricula of auxilary Medical
schools in their areas even though the schools may have the full complement
of qualified tutors. It is conceivable that while only they may be the experts
for explaining how leprosy control is organised in Tanzania but that can
not be the case about the entire subject of leprosy.

By the same token, while the District Coordinator has, by vitue of
specialised training the responsibility for confirming the leprosy diagnosis
and registering new patients for medication the vagaries of transport are
such that he cannot visit all health units as scheduled. He cannot guarantee
to be available to see all suspected cases on the scheduled date. Even if
such people are referred to his base he may not necessarily be there. With
a seminar or two the chief clinicians of Rural Health Centres and District
Hospitals could be trained to handle such cases. For District Coordinators
this would mean closer liason with colleagues in leprosy work and for
patients it would ensure prompt attention and advice by competent health
workers rather than living with fear and uncertain while waiting to see
the District Coordinator.

It also means more training for every clinician so that they have the
knowledge and skill to diagnose and to detect leprosy in its early stages.

It is generally accepted that the stigma against leprosy and the attendant
discrimination of leprosy patients are harmful to successful leprosy control.
Indeed WHO experts expressed the need for investigation into the cause of
this prejudice to be carried out in different countries with a view to
developing a better methodology for overcoming it (WHO 1979: 28). This
study found that it is the physical deformities which are the main cause
of the discrimination of people with leprosy. It would appear that not

only are people without leprosy put off by the unsightly deformed leprosy patients they are also wary of close social interaction with such people lest they also catch the disease and end up with similar deformities. This is quite unlike the situation with physical deformities due to other forms of trauma - as they are not "catching" in the sense that those due to leprosy are.

Furthermore this study did not find the stigma attached to leprosy to be a hinderance to case detection. This unexpected finding however is not without precedence, for Anten's study in the Geita Leprosy Scheme (Anten 1972) also found the stigma attached to leprosy to be a motivating factor for seeking treatment. It was deemed that the fear of leprosy and the strong desire to avoid the stigma that goes with the diseases creates the motivation among those suspected of having the disease to go to the health units to have the suspicion removed or to obtain treatment.

CONCLUSION

The original design provides for a follow up study to investigate how the factors which impede case detection identified in this study can be modified. The findings of the follow up study are therefore expected to form the basis for formulating detailed recommendations concerning the interventions which can improve the case detection yield. The design also provided for the follow up study to be preceded by a sample survey for screening for leprosy in order to verify whether the low detection rates are due to low prevalence or lack of registration of cases and case finding.

The findings of this study however raises serious doubts about the high prevalence of leprosy in the so-called low case detection rate region. Furthermore informed opinion within the National Tuberculosis/Leprosy Programme is that the prevalence of leprosy in the country may be much lower than was believed to be when this study was planned.

Under these circumstances the follow up study may not be warranted, except in so far as it focusses on early case detection rather than increasing case detection yields as such.

With particular reference to the diagnosis of early leprosy and detection of early leprosy cases this study indicates that these may be facilitated by efforts directed towards:

- educating the general population so that they are able to recognise the early signs and symptoms of leprosy;

- enhancing the basic confidence people have in by providing clear explanation of the natural history of leprosy, the expceted outcome when treatment is started different stage of the disease condition; and the nature objective of care when irreversible nerve damage has occured.

- specifying the minimum level of knowledge and skills necessary for the correct diagnosis of leprosy during its early stages and ensuring that all clinicians attain that level;

- Ensuring that clinics have the necessary amenities, especially water so as to facilitate thorough body examination should the clinician be faced with a patient for whom such as examination is warranted;

- closer integration of leprosy control in general health care so that the other senior clinicians besides the District Coordinators can confirm a leprosy diagnosis and a prescribe the necessary medication, and also so that leprosy control is strengthened by the revamped Primary Health Care strategy which includes Health Education, currently in progress in Tanzania.

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