Addressing Leprosy Multimorbidity –

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THE LEPROSY MISSION TRUST INDIA
150
1874-2024

Clinical scenario

- Sunil 43 year old man has come with an infected great toe of the left foot. He is on MDT for 8 months. He needs surgery .
- His sugars are above 400
- He had been told – reduce the sugars and comeback for surgery
- The “sugar doctor “said – get the surgery done first.
- His ulcer has deteriorated between multiple consultations .

Clinical scenario

7th month MDT – in reaction – referred – has come with a packet of medicines - a MDT blister pack , some amlodipine 2.5 , one strip of metformin 500 , amitryn , cetrizine , some multivitamins.

Doctor – are you taking all these ?

Patient - No no - since I started the MDT , I stopped the rest. Let me finish one treatment , then I will take the others.

Doctor – why ? Your BP and sugars will increase

Patient – What to do ? How many medicines will I take ?

Introduction to multimorbidity

- Multimorbidity: Refers to the co-existence of two or more chronic conditions (physical or mental) in a person.
- The majority of studies focused on the existence of single morbidity
- Challenge: Clinical services often focus on single conditions. Patients are passed between the specialists
- Need for evidence on multimorbidity for planning interventions.
- At TLMTI, the mental health of the patients, RBS & HB are assessed routinely

If we don't look for it
we will not find it

Objective

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To document the multimorbidity among people suffering

from leprosy **using retrospective hospital data.**

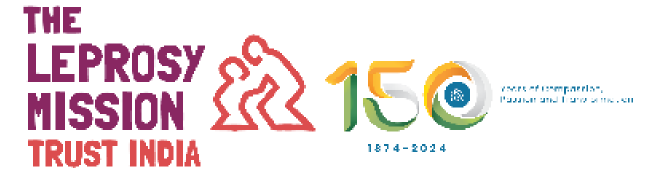
To look for prevalence and pattern

How much ?
what ?
who ?

Methods

- A mixed-methods study was conducted in six tertiary referral hospitals of The Leprosy Mission, India.
- The clinical details of the first visit were obtained from electronic medical records of the patients who had registered during 2021-2022
- Qualitative insights came from focused group discussions (FGDs) with patients and healthcare providers.

Methods



- Multimorbidity included in the analysis
  - Disability
  - Mental Health
  - Diabetes
  - Cataract
- Prevalence and pattern of various combinations of multimorbidity were reported
- Factors associated with multimorbidity were assessed using multiple logistic regression analysis
- Data were analysed using R

Results

Total number of patients registered during 2021-2022 (n=10,441)

↓

Number of patients with information at first visit (n=10,441)

→ Excluded: Illogical values in key demographic and clinical variables (n=13)

↓

Number of patients included in the analysis (n=10,428)

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Demographic and clinical profile

Characteristics	Categories	Total (n=10,428)
Age	<15 years	424 (4.1%)
	15 – 30 years	**2815 (27.0%)**
	31 – 45 years	**2975 (28.5%)**
	46 – 60 years	**2677 (25.7%)**
	> 60 years	1537 (14.7%)
Gender	Male	**7301 (70.0%)**
	Female	3127 (30.%)
Treatment status	Never treated	**3887 (37.3%)**
	Under treatment*	1679 (16.1%)
	Care after cure	**4820 (46.3%)**
	Relapse	21 (0.2%)
	Missing	21
Duration between the first symptom and diagnosis	< 1 year	1222 (21.5%)
	1 – 2 years	**1964 (34.4%)**
	3 – 4 years	**715 (12.5%)**
	> 4 years	**1806 (31.6%)**
	Missing	4721
Bacteriological Index	0	**4104 (82.5%)**
	1-2	319 (6.5%)
	3 and above	557 (11.0%)
	Missing	5448
WHO disability grade	0	**3625 (42.5%)**
	1	1503 (17.7%)
	2	**3415 (39.8%)**
	Missing	1885

Prevalence of multimorbidity

PREVALENCE	n (%)
Leprosy alone	8542 (81.9%)
Leprosy + Poor mental health	579 (5.6%)
Leprosy + cataract	160 (1.5%)
Leprosy + diabetes	974 (9.3%)
Leprosy + diabetes + cataract	51 (0.5%)
Leprosy + diabetes + Poor mental health	99 (0.9%)
Leprosy + Poor mental health+ cataract	17 (0.2%)
Leprosy + diabetes + Poor mental health + cataract	6 (0.1%)

Pattern of multimorbidity

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Leprosy Multimorbidity

Percentage

100
75
50
25
0

83.2
15.7
1.2

Leprosy alone
Leprosy + 1
Leprosy+2 or more

Multimorbidity pattern

Prevalence of multimorbidity = 2908 /17362,

16.7%

(95% CIs: 16.2%-17.3%)

With disability,

Over 55% with multimorbidity

Pattern of multimorbidity

Patterns	n (%)
Leprosy alone	8542 (81.9%)
Leprosy + 1	1713 (16.4%)
Leprosy + 2	167 (1.6%)
Leprosy + 3 or more	6 (0.1%)
Total	10428

Factors associated with multi morbidity

- Higher age at diagnosis,
- those who completed treatment,
- higher bacteriological index
- presence of disability at diagnosis

Factors	Categories	Multimorbidity	Unadjusted odds ratio	Adjusted odds ratio
Age	< 15 years	11/179 (6.1%)	Ref	Ref
	15 – 30 years	180/1071 (16.8%)	3.1 (1.7 – 6.1)	**2.5 (1.4 – 5.0)**
	31 – 45 years	293/1138 (25.7%)	5.3 (3.0 – 10.5)	**4.3 (2.4 – 8.5)**
	46 – 60 years	355/1064 (33.4%)	7.6 (4.3 – 15.1)	**5.7 (3.2 – 11.4)**
	> 60 years	205/614 (33.4%)	7.7 (4.3 – 15.3)	**5.4 (3.0 – 10.8)**
Gender	Female	314/1360 (23.1%)	Ref	Ref
	Male	730/2706 (27.0%)	1.2 (1.1 – 1.4)	**1.1 (1.0 – 1.3)**
Treatment status	Never treated	322/1388 (23.2%)	Ref	Ref
	Under treatment	145/541 (26.8%)	1.2 (1.0 – 1.5)	1.1 (0.8 – 1.3)
	Care after cure	576/2134 (27.0%)	1.2 (1.0 – 1.4)	1.0 (0.8 – 1.1)
	Relapse	1/3 (33.3%)	1.7 (0.1 – 17.3)	1.1 (0.0 – 12.0)
Bacteriological index	0	867/3417 (25.4%)	Ref	Ref
	1 - 2	64/224 (28.6%)	1.2 (0.9 – 1.6)	1.3 (0.9 – 1.8)
	>2	113/425 (26.6%)	1.1 (0.8 – 1.3)	**1.2 (1.0 – 1.5)**
Disability	0	317/1809 (17.5%)	Ref	Ref
	1 & 2	727/2257 (32.2%)	2.2 (1.9 – 2.6)	**1.9 (1.6 – 2.2)**

Qualitative phase

Champa , Chhattisgarh

Themes from Qualitative phase

Patient FGD 16 participants	Health Care Providers FGD 14 participants

Patient FGD
16 participants

1. Awareness
2. Perception
3. Access to treatment
4. Barriers to access and costs
5. Social and psychological impacts

Health Care Providers FGD
14 participants

1. Recognizing and Experience
2. Health system issues
3. Uncoordinated Care and Continuity Challenges
4. Guideline Gaps and Clinical Confidence
5. Person-Centred Care and Outcome Expectations

Qualitative findings (Patients)

1. **Limited awareness about multimorbidity, some were surprised and worried**

“After knowing that leprosy can coexist with multiple diseases, this disease should not come to anyone.” (Participant 04 , 46 M)

2. **Perceived impact of multimorbidity on daily life – patients expressed that it is already impacting, hospitalization, loss of work, fulfilling family role**

“I am the only earning member. After leprosy and deformities in the hands, I stopped working due to weakness.” (Participant 07, 54 M)

Qualitative findings (patients)

3. Access to treatment – preferred treatment near home for all their health conditions

"have leprosy, diabetes and recently diagnosed with hypertension. It is difficult for me to take all medicines together and follow the doctor's advice". (Participant 13, 65 M)

4. Availing health care and costs – expected free treatment near home

"I don't know if I will get treatment for all the problems (multiple morbidities) near my home in the block hospital (Community Health Centres)". (Participant 05, 50 M)

Qualitative findings (patients)

5. Social and Psychosocial Impacts – source of fear and anxiety

Feeling concerned that person with leprosy can develop mental health problems". (Participant 01, 37 M)

Qualitative findings (Healthcare providers)

1. **Recognizing and experience of multimorbidity – knew but not in leprosy**

"Multimorbidity is not new, but in leprosy we are hearing (about it) for the first time." (MO_ 03_male)

"In leprosy, some problems you can tackle, but not all. If patients develop reactions multiple times, how much medicine can we give? With multiple problems, it will be even more difficult." (MO_ 06_male)

Qualitative findings (Healthcare providers)

2**. Health system issues – high OPD load, difficult to give time**

“We do not have sufficient time to talk to patients in detail, so we miss the diagnosis of many problems.” (MO_ 08_male)

Qualitative findings (Healthcare providers)

3. Uncoordinated care and continuity challenges – migration, multiple visits, inconsistent documentation.

“Documentation is a central issue. As we do not see the same patient every time, it is difficult to track progress or manage problems effectively.” (MO_ 05_female)

Qualitative findings (Healthcare providers)

4. Guideline gaps and clinical confidence – limited scope with MM

"Although we do not have guidelines, we need to use clinical discretion to decide on management. However, we need some basic guidance on how to manage multiple problems in leprosy."

Qualitative findings (Healthcare providers)

5. Person centred care and outcome expectations – should aim to improve QOL , shared decision-making, considering both clinical risks and financial burden,

“The outcome should be focused on the person, not specific to disease—for example, improvement in diabetes, hypertension, and leprosy together.” (DLO_15_Male).

Suggestions for Intervention and Improvement from FGD

- Building awareness among healthcare providers and communities regarding multimorbidity and its impact.
- Developing flexible, locally relevant guidelines for multimorbidity management in leprosy.
- Include guidelines on managing multiple conditions in leprosy in the existing guidelines
- Enhancing screening and early identification of comorbid conditions during routine leprosy care.

Suggestions for Intervention and Improvement – from FGD

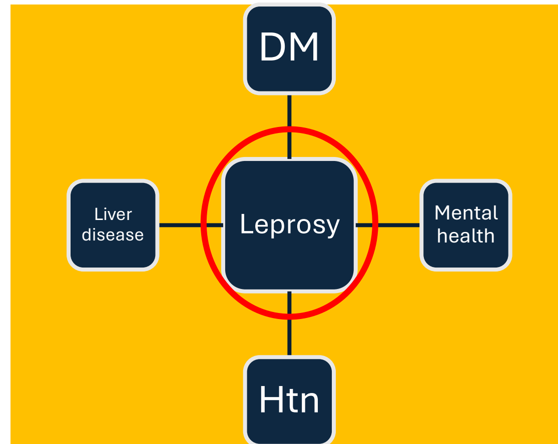
- Allocating more consultation time to enable comprehensive patient assessments.
- Strengthening documentation and continuity of care mechanisms
- The importance of provider–patient communication was repeatedly emphasized.

“Giving correct information to patients is very important if we have to tackle multiple problems in leprosy.” (DLO_15_Male)

Co morbidity vs multimorbidity

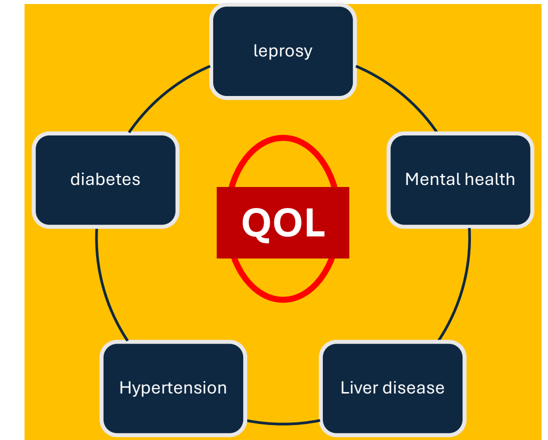
Comorbidity

- One primary condition, affecting how that condition is treated and managed.
- Treatment plans that focus on the primary disease
- May experience complications that arise from the interaction of their conditions, which can complicate treatment.



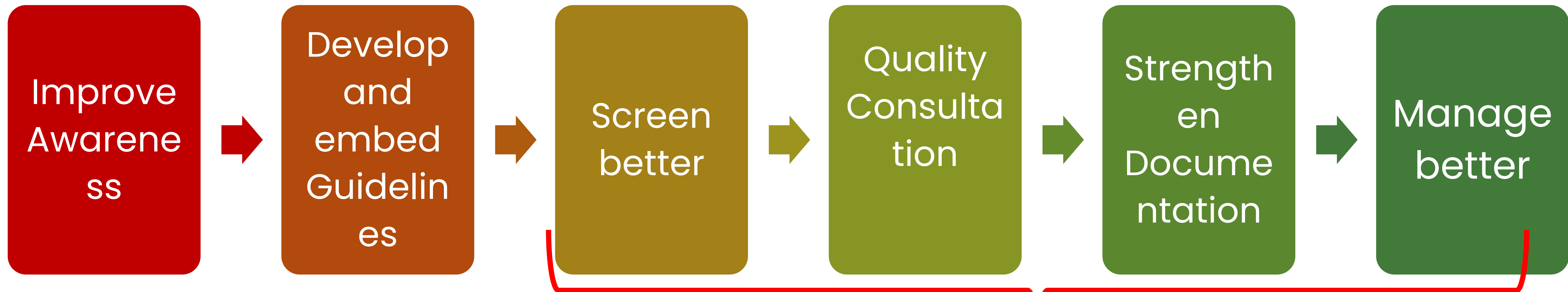
Multimorbidity

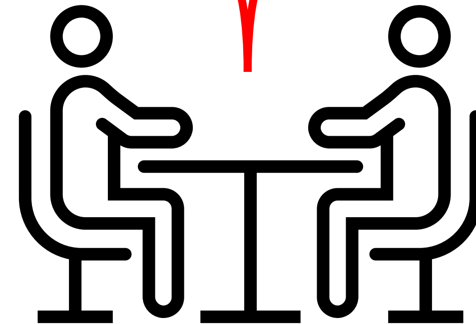
- does not prioritize any single condition, treating all present conditions as equally significant.
- MM requires more integrated and comprehensive management approach.
- Those with MM often face a range of health challenges which affects QOL and requires coordinated care.



- Managing reactions with steroids : use must be carefully balanced against the need to maintain glycaemic control.
- Ulcers and diabetes
- Chronic Infections , DM , HTN, leprosy
- Chronic skin diseases (psoriasis etc)
- Liver disease – MDT
- Drug allergy and MDT
- Mental health , leprosy and disability

Recommendations – summary





Communicate well

Points for discussion

- What do you think about the existence and extent of multimorbidity among people affected by leprosy?
- What are the challenges in the management of multimorbidity? Challenges in accessing treatment, from person perspective?
- Can we respond to the needs of those with multimorbidity with the current primary care structure? Do you have expertise to manage multimorbidity at PHCs and CHCs? Do we need specialists? When to refer and take over?
- Are the current guidelines on management of leprosy adequate for those with multimorbidity? if not why? What are the challenges in patient-centred care?

Points for discussion

- How do you envisage the interventions for those with multimorbidity?
- What do you think should be the outcome?
  - Disease focused outcome or
  - Person focused outcome - Improved function & quality of life

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Thank you

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Abstract

Introduction

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