



# PARIS MASH MEETING

**11<sup>th</sup> edition**

Organized by  
**Arun Sanyal & Lawrence Serfaty**

**September 11 & 12, 2025**  
**Institut Pasteur, Paris**





PARIS  
MASH  
MEETING

**11<sup>th</sup> edition**

September 11 & 12, 2025  
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# Assessing Liver Health (MASLD) in Resource-Limited Settings:

## Bridging the Diagnostic Gap for Metabolic Dysfunction-Associated Steatotic Liver Disease

### **Dr. S. Abbas Raza**

Immediate Past President – International Society of Endocrinology

Past President – Pakistan Endocrine Society

Past President – South Asian Federation of Endocrine Societies

Past President – Pakistan Chapter of American Association of Clinical Endocrinologist.

# High Prevalence of MASLD in the Subcontinent and Lower-Middle-Income Countries

## Global Burden:

- MASLD is an escalating global issue, with a pooled prevalence estimated at **38%** worldwide.

## Regional Hotspots:

- Lower-middle-income countries are disproportionately affected due to rapid urbanization and lifestyle changes, leading to increased rates of obesity and type 2 diabetes.

### References:

• "Global, regional and national burden of Metabolic dysfunction-associated steatotic liver disease in adolescents and adults aged 15–49 years from 1990 to 2021" - *Frontiers*: <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2025.1568211/full>

• "Prevalence of metabolic dysfunction-associated steatotic liver disease in the Middle East and North Africa" - *ResearchGate*: [https://www.researchgate.net/publication/377186295\\_Prevalence\\_of\\_metabolic\\_dysfunction-associated\\_steatotic\\_liver\\_disease\\_MASLD\\_in\\_a\\_middle-aged\\_population\\_with\\_overweight\\_and\\_normal\\_liver\\_enzymes\\_and\\_diagnostic\\_accuracy\\_of\\_noninvasive\\_proxies](https://www.researchgate.net/publication/377186295_Prevalence_of_metabolic_dysfunction-associated_steatotic_liver_disease_MASLD_in_a_middle-aged_population_with_overweight_and_normal_liver_enzymes_and_diagnostic_accuracy_of_noninvasive_proxies)

# Regional Hotspots - Prevalence of MASLD

**Latin America** has the highest reported prevalence of MASLD, reaching **44.37%**.

The **Middle East and North Africa (MENA) region** has a particularly high prevalence of **39.4%**.

In **India**, a study found the prevalence of MASLD to be **68.2%**, with the highest burden in North India (73.3%).

India shows a wide regional variation in MASLD prevalence, with studies reporting rates from **9% to 53%**. Urban areas and populations with metabolic risk factors have a significantly higher burden.

**Pakistan** : A recent study in Karachi found a very high prevalence of MASLD (**61.3%**) among individuals with obesity and/or type 2 diabetes, two of the primary risk factors.

# Clinical Implications of MUNHO (Metabolically Unhealthy Non-Obese) Phenotype

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The MUHNO phenotype is a silent but high-risk profile for developing MASLD and other metabolic diseases.

- Despite a normal or lower BMI, these individuals have significant **insulin resistance** and are at a higher risk of developing type 2 diabetes and cardiovascular disease.
- **An Indian Council of Medical Research (ICMR) study found that 43.3% of Indian adults with a normal body mass index (BMI) were still metabolically unhealthy.**
- **The broader ICMR-INDIAB study revealed an even larger metabolic health crisis, with 71.6% of Indians, including many of normal weight, classified as metabolically unhealthy.**

# Regional Hotspots : High Burden - Prevalence of MASLD

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## Pakistan - High Burden of Metabolic Risk Factors:

Pakistan is among the top 10 countries globally for obesity prevalence.

Pakistan ranks #1 in terms of diabetes prevalence, with over a quarter of adults affected.

High rates of hypertension and dyslipidemia further contribute to MASLD risk.

# Rethinking Screening Strategies for Asian Populations

# Rethinking Screening Strategies for Asian Populations

The standard BMI cutoffs used in Western populations are not suitable for screening for MASLD in Asian populations.

- The World Health Organization (WHO) and other guidelines recommend **lower BMI cutoffs for overweight and obesity** in the Asia-Pacific region (e.g., a BMI of 23 kg/m<sup>2</sup> for overweight, instead of 25 kg/m<sup>2</sup>).
- For individuals with type 2 diabetes, a consensus from Indian diabetologists recommends mandatory screening for MASLD using non-invasive tools for those with a BMI of **≥23 kg/m<sup>2</sup>**, as well as other risk factors like increased waist circumference.

# Regional Hotspots – Double Burden with MASLD

# Regional Hotspots – Double Burden with MASLD

## **Prevalence Data and Double Burden Disease:**

MASLD is highly prevalent, especially among obese and diabetic populations.

A meta-analysis in Pakistan reports MASLD as a leading cause (12.1%) of decompensated liver disease, after HCV (63.5%) and HBV (18.7%).

# Screening Tools for MASLD in Lower-Middle-Income Countries

# Opportunities for Cost-Effective MASLD Assessment

## Leveraging Clinical Risk Factors:

- **Targeted Screening:** Prioritize individuals with metabolic risk factors (T2DM, obesity, hypertension, dyslipidemia). This identifies high-risk groups for further evaluation.
- **Clinical Suspicion:** Elevated liver transaminases (ALT/AST), especially with metabolic syndrome features, should raise suspicion.

# Screening Tools for MASLD in Lower-Middle-Income Countries

## Affordable Non-Invasive Tests (NITs):

### • Basic Blood Tests:

- **Liver Enzymes (ALT, AST, GGT):** Widely available, inexpensive, indicate liver injury.
- **Lipid Profile, Glucose, HbA1c:** Essential for assessing metabolic risk factors.
- **Fibrosis-4 (FIB-4) Score:** Readily calculated (Age, AST, ALT, Platelets). Good first-line tool to rule out advanced fibrosis (FIB-4 < 1.3 for <65 years; < 2.0 for >65 years).
- **NASH Fibrosis Score (NFS):** Another widely used, non-invasive score. The score is calculated using six variables: Age / Body Mass Index (BMI) / Presence of impaired fasting glucose or diabetes / Aspartate Aminotransferase (AST) / Alanine Aminotransferase (ALT) ratio / Platelet count / Serum albumin

# Other Screening Tools for MASLD in Lower-Middle-Income Countries

# Triglyceride-glucose (TyG) index

**Simple blood-based biomarker panels** are becoming increasingly important.

The **triglyceride-glucose (TyG) index** has been **validated in some cohorts from Southern India** and has shown good diagnostic accuracy for detecting MASLD, with a sensitivity of **95.1%** in one study

$$\text{TyG index} = \ln [\text{triglycerides (mg/dL)} \times \text{glucose (mg/dL)}] / 2$$

Interpretation:

**Low TyG index (<4.49):** Indicates good insulin sensitivity.

**High TyG index (≥4.49):** Suggests insulin resistance, which is a risk factor for type 2 diabetes, cardiovascular disease, and other metabolic disorders.

#### References:

\*Global, regional and national burden of Metabolic dysfunction-associated steatotic liver disease in adolescents and adults aged 15–49 years from 1990 to 2021" - Frontiers: <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2025.1568211/full>

\*Prevalence of metabolic dysfunction-associated steatotic liver disease in the Middle East and North Africa" - ResearchGate: [https://www.researchgate.net/publication/377186295\\_Prevalence\\_of\\_metabolic\\_dysfunction-associated\\_steatotic\\_liver\\_disease\\_MASLD\\_in\\_a\\_middle-aged\\_population\\_with\\_overweight\\_and\\_normal\\_liver\\_enzymes\\_and\\_diagnostic\\_accuracy\\_of\\_noninvasive\\_proxies](https://www.researchgate.net/publication/377186295_Prevalence_of_metabolic_dysfunction-associated_steatotic_liver_disease_MASLD_in_a_middle-aged_population_with_overweight_and_normal_liver_enzymes_and_diagnostic_accuracy_of_noninvasive_proxies)

# Lipid Accumulation Product (LAP)

The Lipid Accumulation Product (LAP) is an index calculated from waist circumference and triglyceride levels, used to assess the amount of accumulated lipids in the body

How LAP is Calculated

**Waist Circumference (WC):** Measured in centimeters.

**Triglycerides (TG):** Measured in mmol/L.

**The Formula:**

**Men:**  $LAP = (WC - 65) \times TG$

**Women:**  $LAP = (WC - 58) \times TG$

## Increased Risk:

Higher LAP levels are associated with an increased risk of developing chronic conditions such as type 2 diabetes, prediabetes, and hypertension.

## Indicator of Metabolic Dysfunction:

LAP serves as a strong predictor of metabolic syndrome and fatty liver disease, highlighting its role in identifying individuals with metabolic dysfunction.

## Association with Mortality:

Research shows a significant association between higher LAP and increased all-cause and cardiovascular disease mortality, suggesting that maintaining a low LAP can help reduce the risk of death.

### References:

\*Global, regional and national burden of Metabolic dysfunction-associated steatotic liver disease in adolescents and adults aged 15–49 years from 1990 to 2021\* - Frontiers: <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2025.1568211/full>

\*Prevalence of metabolic dysfunction-associated steatotic liver disease in the Middle East and North Africa\* - ResearchGate: [https://www.researchgate.net/publication/377186295\\_Prevalence\\_of\\_metabolic\\_dysfunction-associated\\_steatotic\\_liver\\_disease\\_MASLD\\_in\\_a\\_middle-aged\\_population\\_with\\_overweight\\_and\\_normal\\_liver\\_enzymes\\_and\\_diagnostic\\_accuracy\\_of\\_noninvasive\\_proxies](https://www.researchgate.net/publication/377186295_Prevalence_of_metabolic_dysfunction-associated_steatotic_liver_disease_MASLD_in_a_middle-aged_population_with_overweight_and_normal_liver_enzymes_and_diagnostic_accuracy_of_noninvasive_proxies)

# Screening Tools for MASLD in Lower-Middle-Income Countries:

Abdominal **ultrasound (USG)**

## References:

•Global, regional and national burden of Metabolic dysfunction-associated steatotic liver disease in adolescents and adults aged 15–49 years from 1990 to 2021" - *Frontiers*: <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2025.1568211/full>

•Prevalence of metabolic dysfunction-associated steatotic liver disease in the Middle East and North Africa" - *ResearchGate*: [https://www.researchgate.net/publication/377186295\\_Prevalence\\_of\\_metabolic\\_dysfunction-associated\\_steatotic\\_liver\\_disease\\_MASLD\\_in\\_a\\_middle-aged\\_population\\_with\\_overweight\\_and\\_normal\\_liver\\_enzymes\\_and\\_diagnostic\\_accuracy\\_of\\_noninvasive\\_proxies](https://www.researchgate.net/publication/377186295_Prevalence_of_metabolic_dysfunction-associated_steatotic_liver_disease_MASLD_in_a_middle-aged_population_with_overweight_and_normal_liver_enzymes_and_diagnostic_accuracy_of_noninvasive_proxies)

# Screening Tools for MASLD in Lower-Middle-Income Countries

- In resource-limited settings, cost-effective and accessible screening tools are crucial for the early detection of MASLD.
- While abdominal **ultrasound (USG)** is a widely available and accepted tool for detecting hepatic steatosis, it is operator-dependent and has limited accuracy for quantifying fat percentage or fibrosis.

## References:

\*Global, regional and national burden of Metabolic dysfunction-associated steatotic liver disease in adolescents and adults aged 15–49 years from 1990 to 2021" - *Frontiers*: <https://www.frontiersin.org/journals/medicine/articles/10.3389/fmed.2025.1568211/full>

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# Screening Tool Validation for MASLD in Pakistan

## The Hepatology Network of Pakistan (HEPNET)

### Position Statement:

#### References:

- "HEPNET Position Statement-I, Case Definition, Classification, Screening & Diagnosis of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in Pakistan: A Resource for Primary and Secondary Care Physicians" - *Pakistan Journal of Medical Sciences*: <https://www.pjms.org.pk/index.php/pjms/article/view/10081>
- "Prevalence of Metabolic Dysfunction-associated Steatotic Liver Disease (MASLD) in Persons with Obesity and Type 2 Diabetes Mellitus: A Cross-sectional Study" - *Pakistan Journal of Medical Sciences*: <https://pmc.ncbi.nlm.nih.gov/articles/PMC11714111/>

# Screening Tool Validation for MASLD in Pakistan

## The Hepatology Network of Pakistan (HEPNET)

### Position Statement:

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The Hepatology Network of Pakistan (HEPNET) has created specific guidelines for MASLD diagnosis and screening, tailored to the high prevalence of **obesity and diabetes** in the country.

#### First-line Screening:

The guidelines recommend a pragmatic, tiered approach. It starts with identifying at-risk individuals based on clinical and metabolic risk factors.

#### Role of Non-invasive Scores:

Simple, low-cost scores like **FIB-4** and **NAFLD Fibrosis Score (NFS)** are validated and recommended as initial screening tools to risk-stratify patients and identify those who might have advanced fibrosis. These scores help decide who needs further testing or referral.

#### References:

- \*"HEPNET Position Statement-I, Case Definition, Classification, Screening & Diagnosis of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in Pakistan: A Resource for Primary and Secondary Care Physicians" - *Pakistan Journal of Medical Sciences*: <https://www.pjms.org.pk/index.php/pjms/article/view/10081>
- \*"Prevalence of Metabolic Dysfunction-associated Steatotic Liver Disease (MASLD) in Persons with Obesity and Type 2 Diabetes Mellitus: A Cross-sectional Study" - *Pakistan Journal of Medical Sciences*: <https://pmc.ncbi.nlm.nih.gov/articles/PMC11714111/>

# Screening Tool Validation for MASLD in Pakistan

## The Hepatology Network of Pakistan (HEPNET)

### Position Statement:

#### Ultrasound as a Key Tool:

**Abdominal ultrasound** is a primary diagnostic tool for confirming hepatic steatosis due to its widespread availability and low cost, despite its limitations in quantifying fat and fibrosis.

#### Validation of Non-invasive Elastography:

More advanced non-invasive methods like **Transient Elastography (TE)**, while still less common, are recommended for patients with a high risk of advanced fibrosis based on the initial screening scores.

#### References:

- \*"HEPNET Position Statement-I, Case Definition, Classification, Screening & Diagnosis of Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in Pakistan: A Resource for Primary and Secondary Care Physicians" - *Pakistan Journal of Medical Sciences*: <https://www.pjms.org.pk/index.php/pjms/article/view/10081>
- \*"Prevalence of Metabolic Dysfunction-associated Steatotic Liver Disease (MASLD) in Persons with Obesity and Type 2 Diabetes Mellitus: A Cross-sectional Study" - *Pakistan Journal of Medical Sciences*: <https://pmc.ncbi.nlm.nih.gov/articles/PMC11714111/>

# Challenges of Screening Tools in Lower-Middle-Income Countries

# Validation of NASH Fibrosis Scores (NFS) / FIB-4 and Ultrasound in Lower-Income Countries

## FIB-4 and NFS Performance:

- The FIB-4 index and NFS are valuable for screening, particularly for their **high negative predictive value**, which allows for ruling out advanced fibrosis in many patients. However, their ***diagnostic accuracy can be suboptimal due*** to poor specificity. A meta-analysis found the **AUC for FIB-4 in predicting advanced fibrosis ( $\geq F3$ ) was 76%**.

## Challenges in Validation:

- A study found that in a population with liver stiffness, **43%** had a normal FIB-4 score and **31%** had a normal NFS, indicating a significant number of false negatives. This highlights the scores' limitations as standalone tools.

### References:

\*Accuracy of Noninvasive Scoring Systems in Assessing Liver Fibrosis in Patients with Nonalcoholic Fatty Liver Disease: A Systematic Review and Meta-Analysis\* - Gut and Liver: <https://pmc.ncbi.nlm.nih.gov/articles/PMC9668505/>

\*Low Accuracy of FIB-4 and NAFLD Fibrosis Scores for Screening for Liver Fibrosis in the Population\* - ResearchGate: [https://www.researchgate.net/publication/345089094\\_Value\\_of\\_FIB-4\\_and\\_NAFLD\\_fibrosis\\_scores\\_for\\_screening\\_of\\_liver\\_fibrosis\\_in\\_the\\_general\\_population](https://www.researchgate.net/publication/345089094_Value_of_FIB-4_and_NAFLD_fibrosis_scores_for_screening_of_liver_fibrosis_in_the_general_population)

\*Comparing the performance of fibrosis-4 (Fib-4) and non-alcoholic fatty liver disease fibrosis score (NFS) with fibroscan scores in non-alcoholic fatty liver disease\* - ResearchGate: [https://www.researchgate.net/publication/339520271\\_A188\\_COMPARING\\_THE\\_PERFORMANCE\\_OF\\_FIBROSIS-4\\_FIB-4\\_AND\\_NON-ALCOHOLIC\\_FATTY\\_LIVER\\_DISEASE\\_FIBROSIS\\_SCORE\\_NFS\\_WITH\\_FIBROSCAN\\_SCORES\\_IN\\_NON-ALCOHOLIC\\_FATTY\\_LIVER\\_DISEASE](https://www.researchgate.net/publication/339520271_A188_COMPARING_THE_PERFORMANCE_OF_FIBROSIS-4_FIB-4_AND_NON-ALCOHOLIC_FATTY_LIVER_DISEASE_FIBROSIS_SCORE_NFS_WITH_FIBROSCAN_SCORES_IN_NON-ALCOHOLIC_FATTY_LIVER_DISEASE)

# Validation of NASH Fibrosis Scores (NFS) / FIB-4 and Ultrasound in Lower-Income Countries

## Real-world Data:

A study comparing NFS and FIB-4 to FibroScan in India found that while the simple scores had a high negative predictive value (over **90%**), their sensitivity was lower (**53-72%**), meaning they can miss a substantial number of patients with actual fibrosis.

### References:

\*Accuracy of Noninvasive Scoring Systems in Assessing Liver Fibrosis in Patients with Nonalcoholic Fatty Liver Disease: A Systematic Review and Meta-Analysis\* - *Gut and Liver*: <https://pmc.ncbi.nlm.nih.gov/articles/PMC3668505/>

\*Low Accuracy of FIB-4 and NAFLD Fibrosis Scores for Screening for Liver Fibrosis in the Population\* - *ResearchGate*: [https://www.researchgate.net/publication/345089094\\_Value\\_of\\_FIB-4\\_and\\_NAFLD\\_fibrosis\\_scores\\_for\\_screening\\_of\\_liver\\_fibrosis\\_in\\_the\\_general\\_population](https://www.researchgate.net/publication/345089094_Value_of_FIB-4_and_NAFLD_fibrosis_scores_for_screening_of_liver_fibrosis_in_the_general_population)

\*Comparing the performance of fibrosis-4 (Fib-4) and non-alcoholic fatty liver disease fibrosis score (NFS) with fibroscan scores in non-alcoholic fatty liver disease\* - *ResearchGate*: [https://www.researchgate.net/publication/339520271\\_A188\\_COMPARING\\_THE\\_PERFORMANCE\\_OF\\_FIBROSIS-4\\_FIB-4\\_AND\\_NON-ALCOHOLIC\\_FATTY\\_LIVER\\_DISEASE\\_FIBROSIS\\_SCORE\\_NFS\\_WITH\\_FIBROSCAN\\_SCORES\\_IN\\_NON-ALCOHOLIC\\_FATTY\\_LIVER\\_DISEASE](https://www.researchgate.net/publication/339520271_A188_COMPARING_THE_PERFORMANCE_OF_FIBROSIS-4_FIB-4_AND_NON-ALCOHOLIC_FATTY_LIVER_DISEASE_FIBROSIS_SCORE_NFS_WITH_FIBROSCAN_SCORES_IN_NON-ALCOHOLIC_FATTY_LIVER_DISEASE)

# Correlation between FIB-4 and Ultrasound Findings in Lower Socioeconomic Regions – In Patient with Hepatitis C / Hepatitis B

1. FIB-4 score is correlated with liver fibrosis but not with liver steatosis: A Cross-Sectional Study in T2DM patients.
2. Comparison of Fibrosis-4 with FibroScan for Liver Fibrosis Assessment in Non-Alcoholic Fatty Liver Disease Patients: A Cross-sectional Study.

# Correlation between FIB-4 and Ultrasound Findings in Lower Socioeconomic Regions

A key challenge in lower socioeconomic regions is the lack of correlation between simple tools and advanced imaging.

- **A Karachi, Pakistan study** found a moderately significant correlation between the FIB-4 index and Transient Elastography (FibroScan), but noted that the **diagnostic accuracy of FIB-4 for advanced fibrosis was higher** Patients with chronic liver disease (CLD) due to chronic viral hepatitis B (HBV), hepatitis C (HCV), and non-alcoholic fatty liver disease (NAFLD) were included in the study. This suggests that while FIB-4 is valuable, its performance can vary, and it should be used in conjunction with clinical judgment.

1. FIB-4 score is correlated with liver fibrosis but not with liver steatosis: A Cross-Sectional Study in T2DM patients.

2. Comparison of Fibrosis-4 with FibroScan for Liver Fibrosis Assessment in Non-Alcoholic Fatty Liver Disease Patients: A Cross-sectional Study.

# FIB-4 and Diabetes : Limitation

1. FIB-4 score is correlated with liver fibrosis but not with liver steatosis: A Cross-Sectional Study in T2DM patients.
2. Comparison of Fibrosis-4 with FibroScan for Liver Fibrosis Assessment in Non-Alcoholic Fatty Liver Disease Patients: A Cross-sectional Study.

# FIB-4 and Diabetes : Limitation

**A meta-analysis** found that while FIB-4 has moderate diagnostic accuracy, its **sensitivity is lower in patients with type 2 diabetes** compared to those without. This is a critical finding, as many patients with MASLD in the subcontinent have coexisting diabetes. It suggests that a low FIB-4 score might not reliably rule out advanced fibrosis in this specific patient population.

1. FIB-4 score is correlated with liver fibrosis but not with liver steatosis: A Cross-Sectional Study in T2DM patients.

2. Comparison of Fibrosis-4 with FibroScan for Liver Fibrosis Assessment in Non-Alcoholic Fatty Liver Disease Patients: A Cross-sectional Study.

# Challenges in Lower-Income Countries: Advanced Technologies / Procedures:

# Challenges in Lower-Income Countries

## Limited Access to Advanced Diagnostics:

- **Liver Biopsy (Gold Standard for MASH/Fibrosis):** Invasive, costly, requires specialized expertise, and carries risks. Not routinely feasible.
- **Advanced Imaging (MRI-PDFF, MR Elastography):** Expensive, limited availability, requires specialized equipment and trained personnel (mostly confined to tertiary care centers).
- **Proprietary Biomarker Panels (e.g., ELF, NIS4):** High cost, not readily available or routinely covered.

# Management and Barriers for MASLD in Lower-Middle-Income Countries

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## **Financial Constraints:**

High out-of-pocket expenditure for patients.

Limited public health budget allocation for widespread screening programs.

# Challenges in MASLD Assessment in Resource-Limited Settings

## **Lack of Awareness:**

- Low awareness among the general public and even some clinicians regarding MASLD and its long-term health implications.
- Patients are often asymptomatic in early stages, leading to delayed diagnosis.

# Treatment Outcomes in Lower-Income Countries and the Asia-Pacific Region

## Lifestyle Interventions as a Cornerstone:

The primary treatment strategy in resource-limited settings is **aggressive lifestyle modification**, focusing on diet and exercise. Achieving a **7-10% weight loss** can significantly improve liver histology. However, sustaining this weight loss is a major challenge.

## Metabolic Comorbidity Management:

The management of co-existing conditions like diabetes and hypertension is critical. The use of certain diabetes medications, such as **SGLT2 inhibitors** and **GLP-1 receptor agonists**, can offer benefits for both MASLD and metabolic health.

### References:

- "The Burden of Nonalcoholic Fatty Liver Disease in Asia, Middle East and North Africa: Data from Global Burden of Disease 2009-2019" - *ResearchGate*: <https://pure.johnshopkins.edu/en/publications/burden-of-non-alcoholic-fatty-liver-disease-in-asia-the-middle-east-and-north-africa-data-from-global-burden-of-disease-2009-2019>
- "Therapeutic management of metabolic dysfunction associated steatotic liver disease" - *ResearchGate*: [https://www.researchgate.net/publication/377269176\\_Therapeutic\\_management\\_of\\_metabolic\\_dysfunction\\_associated\\_steatotic\\_liver\\_disease](https://www.researchgate.net/publication/377269176_Therapeutic_management_of_metabolic_dysfunction_associated_steatotic_liver_disease)
- "Exploring Varied Treatment Strategies for Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)" - *MDPI*: <https://www.mdpi.com/2075-1729/14/7/844>

# Management and Barriers for MASLD in Lower-Middle-Income Countries

## Pharmacological Barriers:

The high cost and limited availability of newer drugs like resmetirom make them largely inaccessible. A pragmatic approach involves maximizing the benefits of existing, more affordable medications.

## Disease Burden:

The Asia and MENA regions account for approximately **half of the global burden of NAFLD-related cirrhosis**. This underscores the urgent need for cost-effective public health strategies to prevent disease progression and its severe complications, including liver cancer.

# Management and Barriers for MASLD in Lower-Middle-Income Countries

## **Infrastructure Gaps:**

Insufficient number of specialized hepatologists and trained technicians, particularly in rural and remote areas.

Lack of robust primary healthcare infrastructure to support screening and early intervention.

## **Data Scarcity:**

Comprehensive epidemiological data on MASLD prevalence and progression in diverse Lower Socio-Economic populations remains scarce, hindering targeted interventions.

# Management Barriers and Solutions for MASLD in Lower-Middle-Income Countries

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## Integrated Care Models:

**Primary Care Physician (PCP) Engagement:** Empowering PCPs with knowledge and tools for early MASLD identification and risk stratification using simple NITs.

**Telemedicine/Tele-consultation:** Bridging the gap for specialist consultation in remote areas.

**Referral Pathways:** Clear guidelines for referring patients with suspected advanced fibrosis to tertiary care.

# Management Barriers and Solutions for MASLD in Lower-Middle-Income Countries

## **Public Health Campaigns:**

Raising awareness about MASLD, its risk factors (obesity, diabetes), and the importance of lifestyle modifications.

Promoting healthy diets and physical activity to prevent and manage MASLD.

# Management Barriers and Solutions for MASLD in Lower-Middle-Income Countries

## **Research & Development:**

Emerging local studies on MASLD prevalence and association with T2DM. Need for more large-scale data.

Exploration of novel, affordable biomarkers and point-of-care testing solutions.

## **Collaboration:**

Strengthening collaboration between government, healthcare providers, academia, and NGOs for sustainable solutions.

Partnerships with international organizations for technical assistance and capacity building.

# Management Barriers and Solutions for MASLD in Lower-Middle-Income Countries

## **Enhance Awareness:**

Launch nationwide public health campaigns on MASLD and lifestyle diseases.

Educate healthcare providers at all levels on MASLD diagnosis and management.

## **Strengthen Primary Healthcare:**

Integrate MASLD screening using affordable tools (e.g., FIB-4, ultrasound) into routine check-ups for high-risk individuals.

Develop clear referral pathways for suspected advanced cases.

Conclusion:

# Conclusion

- MASLD is a rapidly growing public health challenge in Lower Socio-Economic Countries as well, driven by high prevalence of metabolic risk factors.
- Limited access to advanced and expensive testing necessitates a focus on cost-effective and accessible diagnostic strategies.
- By leveraging clinical risk factors, promoting affordable non-invasive tests, strengthening primary care, and fostering collaborative initiatives, Lower Socio-Economic Countries can make significant strides in early MASLD detection and management.
- Proactive measures are critical to avert a looming healthcare crisis and improve liver health outcomes for millions.

- Journal of Clinical Hepatology, 2024 ("Guideline for the Prevention and Treatment..."):
  - Direct Link (PubMed Central): <https://pmc.ncbi.nlm.nih.gov/articles/PMC11557364/>
- Hepatology International, 2023 (MASLD in developing countries):
  - Direct Link (example article from search results that discusses MASLD in India): <https://link.springer.com/article/10.1007/s12072-023-10525-2>
    - This specific article focuses on pharmacotherapy but provides a relevant context for MASLD burden in a developing country. You can browse the journal for other relevant reviews

**Thank You for Your Attention!**



# **PARIS MASH MEETING**

**11<sup>th</sup> edition**