STUDY NAME	TYPE OF STUDY	SAMPLE	MAIN OUTCOMES	RESULTS	CONCLUSION
[2] Lin et al.	Cross-Sectional Study	13,083 subjects in the United States (NHANES III database)	Significant fibrosis	Mean age (years): MAFLD > NAFLD (48.39 vs 46.81) Mean age (years): MAFLD with alcohol consumption were younger > MAFLD without (44.9 vs 48.7) BMI: MAFLD > NAFLD BMI level (30.68 vs 29.49) Percentage of males: MAFLD with alcohol consumption were younger > MAFLD without (75.53% vs 47.45%). Percentage of those with FIB-4 score > 1.3: MAFLD > NAFLD (23.63% vs 21.60%)	Liver enzyme levels and non-invasive test scores for hepatic fibrosis were significantly higher in MAFLD than NAFLD. MAFLD is more practical in identification of patients with high risk of disease progression as compared to NAFLD.
[3] Park et al.	Cross-Sectional Study - Retrospective	6775 subjects in Korea	Significant fibrosis	Percentage of subjects with fatty liver compatible with criteria: MAFLD > NAFLD (94.0 vs 77.3) Percentage of those with significant fibrosis: MAFLD > NAFLD > Metabolically healthy controls (13.1% vs 6.1% vs 5.8%)	MAFLD definition is able to capture more subjects with fatty liver disease. MAFLD has a higher metabolic and fibrosis burden than NAFLD. Prevalence of significant fibrosis is considerable in the MAFLD-only group but similar within the NAFLD-only group and

					neither-NAFLD-nor MAFLD group compared to healthy controls.
[4] Kemp et al.	Cross-Sectional Study - Prospective	722 subjects from Victoria, Australia	Steatosis, Fibrosis	Prevalence rate for liver enzyme ALT > 1.5x upper limit of normal: MAFLD > NAFLD (19.7% vs 7.6) FIB4: MAFLD = NAFLD (1.3 ± 0.7) Percentage of patients meeting MAFLD also meeting NAFLD criteria: 82.5%	MAFLD patients had higher ALT than NAFLD patients, but otherwise showed no differences in non-invasive markers for steatosis or fibrosis. 82.5% of patients meeting MAFLD criteria also met the criteria for NAFLD, and all patients meeting NAFLD criteria also met the MAFLD criteria. Of the 17.5% of MAFLD patients not meeting NAFLD criteria, 96.6% of them claimed to exhibit alcohol consumption excess. Hence, MAFLD definition captures all subjects previously diagnosed with NAFLD but also captures additional subjects with

					dual liver disease etiologies, especially alcoholic fatty liver disease.
[5] Yamamura et al.	Cross-Sectional Study - Prospective	765 subjects from Japan	Significant fibrosis	Sensitivity of MAFLD criteria > NAFLD criteria: 93.9% vs 73.0% Negative predictive value of MAFLD criteria > NAFLD criteria: 95.5% vs 86.2% Liver stiffness: MAFLD > NAFLD (7.7 vs 6.8 kPa, p = 0.0010)	MAFLD criteria better identifies patients with fatty liver and significant fibrosis evaluated by non-invasive tests compared to NAFLD.
[6] Baratta et al.	Cohort Study - Prospective	987 subjects from Rome, Italy	Steatosis	Prevalence of individuals with BMI ≥ 25 kg/m2: MAFLD > NAFLD (92% vs 88.6%; p = 0.018)	The only significant difference between NAFLD and MAFLD groups was higher prevalence of subjects with BMI ≥ 25 kg/m2 in the latter. Some specific subgroups such as those currently defined as lean NAFLD, were excluded by the new MAFLD definition.

[7] Kleef et al.	Cross-Sectional Study - Prospective	5445 subjects from Rotterdam	Fibrosis	Percentage of fibrosis in MAFLD-only group compared to NAFLD-only group (14.9% vs. 0.0%; p = 0.015) Liver stiffness: MAFLD-only > NAFLD-only (5.1kPa > 4.9 kPa)	MAFLD-only group was associated with fibrosis and higher liver stiffness while NAFLD-only group did not.
[8] Wong et al.	Cohort Study - Prospective	1013 subjects from Hong Kong	Steatosis	Population prevalence: MAFLD > NAFLD (25.9% vs 25.7%) Liver stiffness (kPa) at follow up: MAFLD > Non-MAFLD (4.4 kPa vs 4.2 kPa)	MAFLD criteria does not significantly change the prevalence of hepatic steatosis compared to NAFLD. People with hepatic steatosis but not fulfilling MAFLD criteria are unlikely to have significant liver disease.
[9] Ciardullo et al.	Cross-Sectional Study	1710 subjects from United States (NHANES cycle 2017 - 2018)	Advanced fibrosis	Percentage risk of advanced liver fibrosis: NAFLD > MAFLD (7.5% vs 7.4%)	Patients with NAFLD and MAFLD showed similar risk of advanced liver fibrosis.
[10] Park et al.	Cross-Sectional Study - Retrospective	6740 subjects from Korea	Fibrosis, Cardiovascular risk	Prevalence of significant hepatic fibrosis: Metabolic unhealthy MAFLD group > Metabolic healthy MAFLD (11.8% vs 5.8%; p < 0.001) Percentage of patients with cardiovascular risk: Metabolic	Fibrosis burden and cardiovascular risk were significantly higher in the metabolic unhealthy group than in the healthy control group.

				unhealthy MAFLD > healthy controls (7.22% vs 2.83%, p = <0.001) Prevalence of significant hepatic fibrosis: Metabolically healthy MAFLD > Healthy control groups (5.8% vs 4.3%; p = 0.099) Prevalence of advanced hepatic fibrosis: Metabolically healthy MAFLD > Healthy control groups (0.8% vs 0.%7; p = 0.934) Prevalence of carotid artery plaque: Metabolically healthy MAFLD > Healthy control groups (32.7% vs 30.7%; p = 0.453)	Prevalence of significant and advanced fibrosis did not differ in the metabolic healthy MAFLD and healthy control groups. Prevalence of carotid artery plaque in the metabolic healthy MAFLD group was not different from that of in the healthy control group.
[11] Ciardullo et al.	Cross-Sectional Study - Prospective	1446 subjects aged 12 - 18 years old (NHANES database from 2017 - 2020)	Steatosis, Fibrosis	Percentage of patients with steatosis (CAP ≥248dB/m): 25.9% (95% confidence interval [CI] 23.3–28.9) of population, of which 87.7% met the MAFLD criteria. The criterion most frequently met was overweight/obesity (84.6%, 95% CI 80.0–88.3). Prevalence of significant liver	MAFLD criteria is met by most US adolescents with evidence of steatosis, with overweight or obesity being the most important contributor. Prevalence of significant fibrosis did not differ significantly between patients with steatosis

				fibrosis (LSM ≥7.4 kPa): MAFLD > no MAFLD (9.7 vs. 15.2, p=0.276)	according to whether MAFLD criteria is met.

Supplementary Table 1: Studies included for study of hepatic steatosis and fibrosis identification differences between MAFLD and NAFLD

STUDY NAME	TYPE OF STUDY	SAMPLE	MAIN OUTCOMES	RESULTS	CONCLUSION
[12] Zhang et al.	Cohort Study - Prospective	11,000 subjects from United states (NHANES III database)	Mortality risk	All-cause mortality (23.2 years): MAFLD+ > MAFLD- (1.26 vs 1.00), T2DM > Lean metabolic dysfunction > Overweight/Obesity (HR 2.00 vs 1.30, vs 1.11), All 3 criteria fulfilled > Metabolic dysfunction and T2DM fulfilled > Metabolic dysfunction fulfilled (HR 2.05 vs 1.30 1.11)	MAFLD is more effective than NAFLD in identifying high-risk fatty liver disease individuals, which is mainly determined by the T2DM subtype.
[13] Huang et al.	Cohort Study - Prospective	12,480 subjects from United States (NHANES III database)	Estimation of multivariable-adjusted HRs and CI for all-cause mortality and cause-specific mortality	Weight Cohen's Kappa Coefficient (MAFLD, NAFLD): 0.76 All-cause mortality: MAFLD > NAFLD (HR 2.07 vs 1.47)	MAFLD has an increased risk for mortality but NAFLD does not. MAFLD mortality is largely contributed by the presence of metabolic disorders.
[14] Wang et al.	Cohort Study - Prospective	152,139 subjects from Tangshan city, North of China	Hazard ratio (HR) and Confidence interval (CI) of death	All-cause mortality (males younger than 40 years): MAFLD > NAFLD (HR 1.51 vs 1.00)	MAFLD is associated with higher risk of death in a Chinese population, and

				All-cause mortality (females younger than 50 years): MAFLD > NAFLD (HR 1.84 vs 1.00) All-cause mortality: T2DM > Metabolic dysfunction > Overweight (HR 2.16 vs 1.79 vs 0.73)	mortality risk is further influenced by status of BMI, T2DM and other metabolic indicators
[15] Kim et al.	Cohort Study - Prospective	7,761 subjects from United States (NHANES III database)	All-cause mortality and cause-specific mortality	All-cause mortality: MAFLD > MAFLD/NAFLD > Simple hepatic steatosis > NAFLD (HR 1.66 vs 1.13 vs 1.13 vs 0.94).	MAFLD is associated with increased all-cause mortality independent of metabolic and demographic risk factors. In comparison, NAFLD increases the risk of all-cause mortality but becomes insignificant after adjustment of metabolic risk factors.
[16] Younossi et al.	Cohort Study - Retrospective	12,878 subjects from United States (NHANES III database)	Mortality risk	All-cause mortality: MAFLD ≈ NAFLD (HR 1.22 vs 1.44) All-cause mortality MAFLD before/after adjustment for ALD: HR 1.09 vs 1.03	MAFLD and NAFLD share similar all-cause mortality risk. MAFLD mortality is hence likely caused by ALD, while NAFLD mortality seems to be caused by metabolic abnormalities. MAFLD definition fails to capture impact of metabolic dysfunction on long-term outcome.

Supplementary Table 2: Studies included for study of long-term outcome differences between MAFLD and NAFLD

STUDY NAME	TYPE OF STUDY	SAMPLE	MAIN OUTCOMES	RESULTS	CONCLUSION
[17] Yoneda et al.	Cohort Study - Retrospective	2,452,949 subjects from Japan JMDC (Japan Medical Data Center) Database	Cardiovascular disease (CVD)	Incidence rates of CVD per 1000 person-years: NAFLD > Non-NAFLD (2.82 vs 0.97) Incidence rates of CVD per 1000 person-years: MAFLD > Non-MAFLD (2.69 vs 1.01)	The risk of CVD is higher in MAFLD compared to NAFLD.
[18] Tsutsumi et al.	Cohort Study - Prospective	2306 subjects from Japan	ASCVD risk as measured by Suita score	HR of worsening Suita score compared with volume of alcohol consumed: 1-19 g/day > 40-59g/day > 20-39 g/day > 0 g/day (1.59 vs 1.49 vs 1.42 vs 1) HR of worsening Suita score: MAFLD > NAFLD (1.08 > 1) Percentage incidence of high-risk Suita score (i.e. ≥ 56): MAFLD/NAFLD > MAFLD with alcohol consumption ≥ 60 g/day > Non-metabolic NAFLD (6.3% vs 5.3% vs 3.1%) Incidence of ASCVD was lower in the NAFLD group than in the NAFLD/MAFLD group (HR 0.70).	MAFLD and alcohol consumption are independent predictors of worsening Suita score measuring the ASCVD risk in the Japanese population. MAFLD is superior over NAFLD in predicting atherosclerotic cardiovascular disease (ASCVD) risk, contributed by the presence of metabolic risk factors and rather than the inclusion of alcohol consumption.

				No significant difference was observed in the incidence between the NAFLD/MAFLD group and MAFLD with moderate alcohol consumption group (HR 1.19).	
[19] Niriella et al.	Cohort Study - Prospective	2985	New onset metabolic traits (MT), Cardiovascular events (CVE)	RR of developing general obesity: MAFLD > NAFLD (4.3 vs 1.1) RR of developing central obesity: MAFLD > NAFLD (8.8 vs 1.3) RR of developing DM: MAFLD > NAFLD (3.8 vs 2.2) RR of developing CVE: MAFLD > NAFLD (7.2 > 1.9)	MAFLD is superior over NAFLD in predicting the risk of development of new onset MT and CVE.

Supplementary Table 3: Studies included for study of differences between MAFLD and NAFLD and correlation to non-liver diseases

STUDY NAME	TYPE OF STUDY	SAMPLE	MAIN OUTCOMES	RESULTS	CONCLUSION
[20] Zeng et al.	Cross-Sectional Study	9927 subjects from Shanghai, China	Steatosis, Advanced fibrosis	Mean age (years): MAFLD > Healthy controls (56.58 vs 55.70; $p < 0.05$) BMI: MAFLD > Healthy controls (24.98 vs 24.43; $p < 0.05$) MAFLD prevalence: T2DM > IFG > IGT (53.8% vs 40.9% vs 35.7; $p < 0.05$) MAFLD prevalence: Obese > Overweight > Lean (43.7% vs 41.7% vs 35.1%; $p < 0.05$) Percentage of advanced fibrosis	T2DM and Obesity are significant drivers of MAFLD pathogenesis. Demographic factors such as gender and age also play a role in disease prevalence.

				(FIB-4): Lean T2DM > Overweight T2DM > Obese T2DM (14.7% vs 13.2% vs 9.4%)	
[21] Nguyen et al.	Cohort Study - Retrospective	2997 subjects from the United States (NHANES III database)	Advanced fibrosis, All-cause mortality	Percentage of those with advanced fibrosis: MAFLD > NAFLD > NAFLD/MAFLD (8.0% vs 1.9% vs 1.3%; $p < 0.001$) All-cause mortality: MAFLD > MAFLD/NAFLD > NAFLD (26.2 vs 21.1 vs 10.6; $p < 0.001$) Mean age (years): MAFLD/NAFLD > MAFLD > NAFLD (49.1 > 46.8 > 36.7) Mean liver enzymes (ALT, AST): MAFLD > MAFLD/NAFLD > NAFLD (31.2, 32.7 vs 25.4, 24.9 vs 17.4, 21.2)	MAFLD identifies more patients with more comorbidities and worse prognosis than NAFLD. MAFLD patients were older, had higher mean liver enzymes and had more metabolic traits.
[22] Huang et al.	Cohort Study - Retrospective	1217 subjects from Fujian, China	Biopsy-proven steatosis, liver fibrosis severity	BMI: MAFLD > NAFLD > No-metabolic risks steatosis (25.51% > 24.17% > 20.78%; $p < 0.001$) Percentage of those with T2DM: MAFLD > NAFLD > No-metabolic risks steatosis (19.48% > 13.85% > 0; $p < 0.05$) LDL-C: MAFLD > NAFLD > No-metabolic risks steatosis (2.90% > 2.84% > 2.69%; $p < 0.005$) Percentage of Moderate-Severe steatosis: MAFLD >	MAFLD patients had higher BMI, LDL-C and prevalence of T2DM as compared to NAFLD patients or steatotic patients with no metabolic risk factors. MAFLD patients had more severe hepatic steatosis compared to steatotic patients with no metabolic risk factors, but

				No-metabolic risks steatosis (50.70% > 30.95%; p < 0.05) Percentage of significant histopathological difference: p = 0.908 Percentage of advanced fibrosis: p = 0.982	could not find significant differences in fibrosis between the 2 groups. MAFLD may miss out on populations with hepatic steatosis and fibrosis but no metabolic risk factors.
[23] Huang et al.	Cohort Study - Retrospective	4087 subjects from the United States (NHANES III database)	Significant, Advanced fibrosis	Mean age (years): MAFLD with 3 metabolic conditions > 2 metabolic conditions > 1 metabolic condition (56.83 vs 48.62 vs 41.70; p<0.001) Male: MAFLD with 1 metabolic conditions > 2 metabolic conditions > 3 metabolic condition (52.96% vs 51.05% vs 42.69%; p < 0.001) GFR: MAFLD with 3 metabolic conditions > 2 metabolic conditions > 1 metabolic condition (83.65 vs 76.35 vs 71.51; p < 0.001) Percentage of those with advanced fibrosis (FIB-4): MAFLD with 3 metabolic conditions > 2 metabolic conditions > 1	With increasing number of concomitant metabolic conditions, MAFLD participants tended to be older, females, renally impaired and had more advanced liver fibrosis. Of the metabolic conditions, diabetes is the most significant contributor of advanced fibrosis as measured by FIB4 score, followed by metabolic dysfunction and obesity.

				metabolic condition (33.72% vs 22.70% vs 17.77%; p < 0.001) FIB4 score: Diabetes > Metabolic dysfunction > Obesity (1.52% vs 1.02% vs 0.86%; p<0.05)	
[24] Yuan et al.	Cross-sectional study	73,566 subjects from Beijing, China	Risk factors	Male gender OR = 1.47 (p value <0.001) Age 50–59 OR = 1.69 (p value <0.001) Middle school education OR = 2.03 (p value <0.001) High school education OR = 1.89 (p value <0.001) Undergraduate education OR = 1.69 (p value <0.001) ALT: Lean/normal weight MAFLD> non-MAFLD (23.78 vs 18.87, p value <0.001) AST: Lean/normal weight MAFLD> non-MAFLD (23.96 vs 20.94, p value <0.001)	Male gender, old age and low education were risk factors for MAFLD. Despite the fact that lean/normal weight MAFLD constitute a small proportion of MAFLD, they had higher degree of hepatic steatosis and liver dysfunction compared to the non-MAFLD subjects.
[25] Chen et al.	Cross-sectional study	139,170 subjects from China	Risk factors	Percentage of MAFLD participants: Postmenopausal > Perimenopausal > Premenopausal (30.2 vs 16.8 vs 6.1) Percentage prevalence among MAFLD participants: obese > overweight > normal > underweight (59.8 vs 27.4 vs 4.0 vs 0.1)	Menopausal status affects the prevalence of MAFLD in women. The higher the BMI, the higher the prevalence of MAFLD. There was a stronger association with metabolic syndrome in MAFLD vs non-

				Percentage prevalence of metabolic syndrome: MAFLD > Non-MAFLD (53.2 vs 10.1) Percentage prevalence of dyslipidaemia: MAFLD > Non-MAFLD (80.0 vs 41.7)	MAFLD individuals.
[26] Fan et al.	Cross-sectional study	5377 subjects from South China	Risk factors	Overweight OR = 4.67 (p value <0.001) Hypertriglyceridemia OR = 2.42 (p value <0.001)	Obesity has the greatest impact on the risk of developing MAFLD.
[27] Huang et al.	Cohort Study - Retrospective	175 subjects in Taipei, Taiwan	Biopsy-proven steatosis, Advanced fibrosis	Percentage of advanced fibrosis: MAFLD > NAFLD (48.1% > 0.0%; p = 0.005) Advanced fibrosis (OR): DM > HBV > Hypertension > Dyslipidaemia (2.489; p=0.020 vs 2.447; p=0.024 vs 2.051; p=0.047 vs 0.291; p=0.003)	MAFLD includes more patients with hepatic steatosis than NAFLD and is better at identification of patients with a high degree of disease severity HBV infection, hypertension, DM were found to be independently associated with advanced fibrosis in our patients with MAFLD, compatible with the previous studies revealing that the presence of metabolic syndrome or diseases carried a high risk of hepatic

					Fibrosis.
[28] Huh et al.	Cross-Sectional Study	1163 subjects from Korea	Steatosis, Fibrosis severity	Severe hepatic steatosis (OR): Obese with metabolic risks > Obese without metabolic risks > Non-obese with metabolic risks (4.07 vs 2.43 vs 1.07) Liver fibrosis (OR): Obese with metabolic risks > Obese without metabolic risks (6.43 > 4.70)	Obesity might be a more significant driver of adverse long-term outcomes in MAFLD as compared to metabolic risk factors.

Supplementary Table 4: Studies included for study of clinical and histopathological features of differences between MAFLD and NAFLD