Participants who underwent physical examinations at least twice between January 1, 2011, and December 31, 2018, as well as those who had at least one additional follow-up visit before December 31, 2020, were initially included in the analysis (n = 258,388)

Exclusions (n=44,243): some individuals met more than one criterion for exclusion
- Missing information on hepatic steatosis (n=954)
- Missing information on eGFR, BMI, LDL-C, alcohol intake (n=28,616)
- Prior history of cancer (n=5,079)
- Urine albumin to creatinine ratio (ACR) ≥ 30 mg/g (n=483)
- Estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73 m^2 (n=511)
- Proteinuria on dipstick 1+ or more (n=54,996)
- Development of CKD at the second visit (n=302)
- Missing information on hepatic steatosis (n=954)
- Missing information on anti-hepatitis C antibody or hepatitis B surface antigen (n=59)

214,145 study participants were finally included for analyzing incident CKD

Figure S1 Flow diagram of study participants. eGFR, estimated glomerular filtration rate; BMI, body mass index; LDL-C, low-density lipoprotein-cholesterol; ACR, albumin-to-creatinine ratio; CKD, chronic kidney disease.

Table S1 Associations between MASLD or NAFLD status (or different SLD groups) at baseline and risk of developing incident chronic kidney disease (stage ≥3) by sex

Status of liver steatosis	PY	Event	Incident rate (10^4 PY), (95% CI)	Model 1	Model 2
Female (n=83,161)					
According to the presence or absence of NAFLD or MASLD					
No-MASLD	448,501.48	80	1.78 (1.43–2.22)	1.0 (reference)	1.0 (reference)
MASLD	41,320.34	32	7.74 (5.48–10.95)	1.22 (0.73–2.03)	1.31 (0.79–2.17)
No-SLD	441,860.67	80	1.81 (1.45–2.25)	1.0 (reference)	1.0 (reference)
NAFLD	44,009.71	27	6.14 (4.21–8.95)	0.96 (0.56–1.65)	1.11 (0.64–1.9)
SLD not categorized as NAFLD	3,951.44	5	12.65 (5.27–30.4)	3.59 (1.27–10.19)	2.24 (0.78–6.43)
According to different SLD subgroups					
No-SLD	441,860.67	80	1.81 (1.45–2.25)	1 (reference)	1.0 (reference)
NAFLD-only	6,090.67	–	N/A	N/A	N/A
MASLD-only	3,401.29	5	14.7 (6.12–35.32)	3.91 (1.38–11.07)	2.3 (0.8–6.62)
Both NAFLD and MASLD	37,919.05	27	7.12 (4.88–10.38)	1.03 (0.6–1.78)	1.18 (0.68–2.02)
SLD not categorized as NAFLD or MASLD	550.15	–	N/A	N/A	N/A
Male (n=130,984)					
According to the presence or absence of NAFLD or MASLD					
No-MASLD	496,048.64	352	7.1 (6.39–7.88)	1.0 (reference)	1.0 (reference)
MASLD	309,661.08	365	11.79 (10.64–13.06)	1.36 (1.17–1.57)	1.21 (1.04–1.39)
No-SLD	474,474.06	347	7.31 (6.58–8.12)	1.0 (reference)	1.0 (reference)
NAFLD	250,657.69	296	11.81 (10.54–13.23)	1.34 (1.14–1.58)	1.18 (1.0–1.39)
SLD not categorized as NAFLD	80,577.97	74	9.18 (7.31–11.53)	1 (0.77–1.3)	1.03 (0.8–1.34)
According to different SLD subgroups					
No-SLD	474,474.06	347	7.31 (6.58–8.12)	1.0 (reference)	1.0 (reference)
NAFLD-only	17,996.88	4	2.22 (0.83–5.92)	0.39 (0.15–1.05)	0.49 (0.18–1.3)
MASLD-only	77,000.27	73	9.48 (7.54–11.92)	1.03 (0.79–1.34)	1.05 (0.81–1.37)
Both NAFLD and MASLD	232,660.81	292	12.55 (11.19–14.08)	1.39 (1.18–1.64)	1.21 (1.02–1.42)
SLD not categorized as NAFLD or MASLD	3,577.7	1	2.8 (0.39–19.84)	0.39 (0.06–2.81)	0.52 (0.07–3.71)

Model 1: adjusted for age, sex, education level, smoking status, regular exercise (3 times/week), alcohol intake, and prior history of coronary artery disease, and use of any anti-hypertensive medications (as time-varying variable). Model 2: adjusted for age, sex, education level, smoking history, regular exercise (3 times/week), alcohol intake, prior history of coronary artery disease, use of any anti-hypertensive medications (as time-varying variable), and levels of eGFR at baseline. MASLD, metabolic dysfunction-associated steatotic liver disease; NAFLD, non-alcoholic fatty liver disease; SLD, steatotic liver disease; PY, person years; CI, confidence interval; N/A, not available; eGFR, estimated glomerular filtration rate.

Table S2 Associations between MASLD or NAFLD status (or different SLD groups) at baseline and risk of developing abnormal albuminuria by sex

Status of liver steatosis	PY	Event	Incident rate (10^4 PY), (95% CI)	Model 1	Model 2
Female (n=3,204)					
According to the presence or absence of NAFLD or MASLD					
No-MASLD	9,318.72	101	1.08 (0.89–1.32)	1.0 (reference)	1.0 (reference)
MASLD	1,535.81	47	3.06 (2.3–4.07)	2.18 (1.46–3.26)	2.17 (1.45–3.24)
No-SLD	9,142.33	99	1.08 (0.89–1.32)	1.0 (reference)	1.0 (reference)
NAFLD	1,557.97	47	3.02 (2.27–4.02)	2.14 (1.44–3.19)	2.13 (1.43–3.17)
SLD not categorized as NAFLD	154.22	2	1.3 (0.32–5.19)	1.4 (0.34–5.82)	1.37 (0.33–5.7)
According to different SLD subgroups					
No-SLD	9,142.33	99	1.08 (0.89–1.32)	1 (reference)	1 (reference)
NAFLD-only	152.18	2	1.31 (0.33–5.25)	1.37 (0.34–5.58)	1.35 (0.33–5.48)
MASLD-only	130.02	2	1.54 (0.38–6.15)	1.66 (0.4–6.86)	1.63 (0.39–6.75)
Both NAFLD & MASLD	1,405.79	45	3.2 (2.39–4.29)	2.23 (1.48–3.36)	2.22 (1.47–3.34)
SLD not categorized as NAFLD or MASLD	24.21	–	N/A	N/A	N/A
Male (n=5,118)					
According to the presence or absence of NAFLD or MASLD					
No-MASLD	12,749.93	113	0.89 (0.74–1.07)	1.0 (reference)	1.0 (reference)
MASLD	9,293.09	177	1.9 (1.64–2.21)	1.96 (1.54–2.5)	1.96 (1.54–2.5)
No-SLD	12,260.29	110	0.9 (0.74–1.08)	1.0 (reference)	1.0 (reference)
NAFLD	6,610.73	116	1.75 (1.46–2.1)	1.88 (1.43–2.47)	1.88 (1.43–2.47)
SLD not categorized as NAFLD	3,172.01	64	2.02 (1.58–2.58)	1.93 (1.4–2.67)	1.93 (1.4–2.67)
According to different SLD subgroups					
No-SLD	12,260.29	110	0.9 (0.74–1.08)	1.0 (reference)	1.0 (reference)
NAFLD-only	340.96	2	0.59 (0.15–2.35)	0.79 (0.19–3.21)	0.79 (0.19–3.21)
MASLD-only	3,023.32	63	2.08 (1.63–2.67)	1.98 (1.43–2.75)	1.98 (1.43–2.75)
Both NAFLD & MASLD	6,269.77	114	1.82 (1.51–2.18)	1.93 (1.47–2.54)	1.93 (1.47–2.54)
SLD not categorized as NAFLD or MASLD	148.69	1	0.67 (0.09–4.77)	0.86 (0.12–6.2)	0.86 (0.12–6.2)

Model 1: adjusted for age, sex, education level, smoking status, regular exercise (3 times/week), alcohol intake, and prior history of coronary artery disease, and use of any anti-hypertensive medications (as time-varying variable). Model 2: adjusted for age, sex, education level, smoking history, regular exercise (3 times/week), alcohol intake, prior history of coronary artery disease, use of any anti-hypertensive medications (as time-varying variable), and levels of eGFR at baseline. MASLD, metabolic dysfunction-associated steatotic liver disease; NAFLD, non-alcoholic fatty liver disease; SLD, steatotic liver disease; PY, person years; CI, confidence interval; N/A, not available; eGFR, estimated glomerular filtration rate.