systems, and treated with caffeine (CAF), trigonelline (TRI), chlorogenic acid (CGA), caffeic acid (CA), kahweol (KWL), SOR, ATZ, and BVZ for 24 and 48 h for half maximum effective concentration (EC50) determination (MTT/LDH assays). Next, the coffee compounds were combined with SOR or ATZ+BVZ at sub-effective and physiologically plausible EC50 fractions (1/5, 1/6, or 1/10) and evaluated by MTT (3D), scratch (migration), and colony formation assays (2D), with combination index calculation.

Results: CGA, CA, and TRI showed antagonistic effects to the therapies. In contrast, CAF or KWL synergistically enhanced the antitumor effects of SOR and ATZ plus BVZ in reducing spheroid viability. The combination of CAF plus KWL further intensified the anti-tumor effects of both treatments, also inhibiting colony formation and cell motility.

Conclusions: These findings suggest that coffee-derived compounds may strengthen the therapeutic efficacy against HCC. Further experiments include in vitro metabolomics and transcriptomics, and in vivo xenograft mouse model.

Conflict of interest: None

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#10

INFLUENCE OF CARDIOMETABOLIC RISK FACTORS AND ALCOHOL CONSUMPTION ON LIVER STIFFNESS IN PATIENTS WITH MASLD: A MULTICENTER STUDY IN COLOMBIA

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Introduction and Objectives: Metabolic dysfunction-associated steatotic liver disease (MASLD) includes patients with hepatic steatosis and at least one cardiometabolic risk factor (CMRF). However, the influence of individual CMRFs and their interactions on disease progression remains unclear.

To assess the association between CMRFs, their interactions (including with alcohol consumption), and liver stiffness in MASLD

Patients and Methods: This multicenter study included patients with MASLD from four Colombian cities. Transient elastography was used to assess liver stiffness. Other causes of chronic liver disease were excluded. Patients with significant alcohol intake (≥30 g/day for men, ≥20 g/day for women) were excluded. CMRFs were defined using ATP III criteria. Alcohol consumption was estimated as grams per week based on standard drink units. A multivariate linear regression model evaluated associations with liver stiffness, including interaction terms between CMRFs and with alcohol. Statistical significance was set at $p \leq 0.05$

Results: A total of 354 patients were included (mean age: 54 years; 39.3% male). CMRF distribution: 1 (30.2%), 2 (31.9%), 3 (29.4%), and 4 (8.5%). The most prevalent CMRFs were dyslipidemia (68.6%) and hypertension (54.2%). In multivariate analysis, BMI ($\beta = 0.14$; 95% CI: 0.03–0.27; $p = 0.012$) and impaired glucose metabolism ($\beta = 0.11$; 95% CI: 0.08–2.6; $p = 0.03$) were independently associated with liver stiffness. Among interaction terms, only the diabetes–waist circumference interaction remained significant ($\beta = 0.19$; 95% CI: 1.15–4.4; $p < 0.01$). Alcohol consumption showed no association.

Conclusions: Diabetes and its interaction with waist circumference are key drivers of liver stiffness in MASLD, independent of alcohol intake.

Conflict of interest: None

Variable	b	IC 95%	p
Male sex	-0,031	(-1,6) - 0,93	0,57
Age (years)	0,118	0,004 - 0,98	0,03
BMI (Kgs/m2)	0,13	0,026 - 0,26	0,018
Weekly alcohol consumption (gr)	-0,033	(-0,023) - 0,012	0,55
CAP (dB/m)	-0,07	(-0,019) - 0,004	0,22
Obesity or overweigth	0,037	(-1,42) - 2,8	0,51
Number of cardiometabolic risk factors	0,128	0,12 - 1,4	0,021
Abdominal circumference	0,08	(-0,25) - 2,2	0,11
Dyslipidemia	-0,09	(-2,5) - 0,14	0,07
Hypertension arterial	0,08	(-0,24) - 2,2	0,11
Disorder of glucose metabolism	0,16	0,62 - 3,11	0,003

Table 1. Factors associated with elastographic values. Univariate linear regression.

Interaction term	b	IC 95%	p
Disorder of glucose metabolism * Dyslipidemia	0,014	(-1,13) - 1,4	0,8
Disorder of glucose metabolism*Abdominal circumference	0,22	1,6 - 4,7	< 0,001
Disorder of glucose metabolism * Hypertension	0,16	0,61 - 3,2	0,004
Dyslipidemia * Abdominal circumference	0,018	(-1,2) - 1,7	0,74
Dyslipidemia * Hypertension	-0,038	(-1,7) - 0,84	0,49
Abdominal circumference * Hypertension	0,14	0,44 - 3,5	0,012
Disorder of glucose metabolism * Abdominal circumference * Hypertension	0,22	2,1 - 5,8	< 0,001
Disorder of glucose metabolism * Abdominal circumference * Dyslipidemia	0,06	(-0,8) - 2,8	0,26
Disorder of glucose metabolism * Hypertension* Dyslipidemia	0,017	(-1,2) - 1,6	0,76
Dyslipidemia * Abdominal circumference* Hypertension	0,02	(-1,4) - 2,2	0,66

Table 2. Relationship between the interaction terms of cardiovascular risk factors and liver stiffness. Univariate linear regression.

Variable	b	p
Disorder of glucose metabolism*Abdominal circunference	0,19	< 0,01
BMI (Kgs/m2)	0,14	0,012
Disorder of glucose metabolism	0,11	0,03

Table 3. Factors associated with liver stiffness. Multivariate linear regression analysis

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#11

HEALTH LITERACY AS A DETERMINANT OF FRAILTY IN PATIENTS WITH LIVER CIRRHOSIS

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Introduction and Objectives: Health literacy (HL) is a key social determinant of health, especially in chronic conditions like cirrhosis, where disease management depends heavily on patient comprehension and engagement. HL refers to the ability to access, understand, and use health information to make informed decisions. Frailty, a state of decreased physiological reserve and increased vulnerability, is a strong predictor of adverse outcomes in cirrhosis. Although the Liver Frailty Index (LFI) is commonly used to assess physical frailty, the role of HL in this context remains poorly explored. This study aimed to determine the association between HL and frailty in patients with cirrhosis.

Patients and Methods: We conducted a cross-sectional study among adults with confirmed cirrhosis attending outpatient hepatology clinics in Cartagena, Colombia, between September and December 2024. HL was measured using the Short Assessment of Health Literacy for Spanish Adults (SAHL-S), and frailty was assessed with the LFI, which includes grip strength, chair stands, and balance tests. Trained clinicians performed all tests using calibrated equipment. Demographic and clinical variables were obtained from records and structured interviews. Patients with encephalopathy or severe mobility limitations were excluded. Frailty was defined as LFI ≥ 4.5.

Results: Among 89 participants (57.3% women, mean age 64.8), 85.4% were Child-Pugh A. History of decompensation and variceal

bleeding were present in 24.7% and 13.5%, respectively. LFI categorized 15.7% as robust, 65.2% as prefrail, and 19.1% as frail. In multivariable analysis, low HL (OR 2.8; 95% CI 1.3–6.0) and variceal bleeding (OR 3.2; 95% CI 1.4–7.1) independently predicted frailty.

Conclusions: Low HL independently predicts frailty and should be addressed to improve outcomes in cirrhosis care.

Conflict of interest: None

Variable	Value (n)
Female sex	57.3% (51)
Arterial hypertension	49.4% (44)
Child Classification	
Child B	14.6% (13)
History of ascites	12.4% (11)
BMI	27.1 (5.6)
Albumin	3.9 (0.56)
Frailty	19.1% (17)
Prefrail	65.2% (58)

Table 1. Baseline Characteristics

Variable	OR	95% CI	p-value
Age	1,07	1.01 – 1.14	0,017
History of decompensation	3,6	1.2 – 11.2	0,02
History of variceal bleeding	3,87	1.05 – 14.2	0,04
SAHL-S	0,84	0.73 – 0.95	0,009

Table 2. Univariate logistic regression analysis.

Variable	OR	95% CI	p-value
History of variceal bleeding	5,2	1.18 – 23.0	0,02
SAHL-S	0,86	0.76 – 0.98	0,03

Tabla 3. Multivariate logistic regression analysis

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#12

PREVALENCE OF LIVER FIBROSIS IN RELATIVES OF PATIENTS WITH MASLD-RELATED CIRRHOSIS: A STUDY ON DEGREE OF KINSHIP

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Introduction and Objectives: First-degree relatives of patients with MASLD-related cirrhosis are considered at high risk for liver fibrosis, based on evidence from Europe and the U.S. supporting a strong hereditary component, including genetic polymorphisms linked to fibrosis progression. However, it is unclear whether this risk extends beyond first-degree relatives, especially in Latin American populations.

This study aimed to assess the prevalence of liver fibrosis and associated factors among first-, second-, and third-degree relatives of patients with MASLD-related cirrhosis in Cartagena, Colombia.

Patients and Methods: Patients with MASLD-related cirrhosis were identified from a hepatology clinic, and their relatives were invited for transient elastography (FibroScan) and body composition analysis (InBody 270) after fasting. Only elastography results with an IQR ≤30% and success rate ≥60% were analyzed. All participants underwent physical exams and interviews covering medical history and alcohol use. Those with abnormal elastography (≥7.2 kPa) were referred for hepatology evaluation.

Results: Of 99 relatives included (56 first-degree, 13 second-degree, 30 third-degree), the mean age was 44 years; 32.3% were male. The prevalence of fibrosis was 15.2% overall, with 21.4% in first-degree, 7.7% in second-degree, and 6.7% in third-degree relatives ($p > 0.05$). Advanced fibrosis (≥10 kPa) was found in five individuals. BMI, visceral fat, total body fat, and waist circumference were associated with fibrosis.

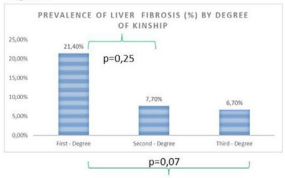
Conclusions: These findings support targeted screening in first-degree relatives and suggest that body composition metrics may help identify at-risk individuals. Further research is needed to clarify familial risk beyond first-degree relatives in Latin American settings.

Conflict of interest: None

Variable	OR	95% CI	p-value
Male sex	1,05	0.32 – 3.3	0,92
Age	1,02	0.98 – 1.06	0,32
BMI	1,14	1.02 – 1.28	0,019
Second-degree kinship	0,48	0.22 – 1.06	0,07
Third-degree kinship	0,26	0.05 – 1.25	0,09
Arterial hypertension	3	0.87 – 10.3	0,08
Diabetes mellitus	1,9	0.18 – 19.8	0,58
Dyslipidemia	1,65	0.40 – 6.8	0,48
Weekly alcohol intake (g)	0,99	0.98 – 1.00	0,64
Abdominal circumference (cm)	1,08	1.02 – 1.14	0,003
CAP (dB/m)	1	0.99 – 1.01	0,54
Visceral fat (%)	1,13	1.02 – 1.26	0,018
Muscle mass (kg)	1,02	0.94 – 1.10	0,59
Body fat percentage (%)	1,07	1.009 – 1.10	0,023

Table 1. Factors Associated with Liver Fibrosis in Relatives of Patients with MASLD-Related Cirrhosis. Univariate Logistic Regression Analysis

Figure 1.



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#13

RELATIONSHIP BETWEEN QUALITY OF LIFE AND AN EDUCATIONAL STRATEGY BASED ON THE INFORMATION NEEDS OF PATIENTS WITH COMPENSATED LIVER CIRRHOSIS

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Introduction and Objectives: Educational strategies may improve quality of life (QoL) in patients with cirrhosis, yet available evidence remains limited and often not generalizable to Latin American settings. Sociocultural and demographic differences can influence both information needs and determinants of health-related quality of life (HRQoL).

This study aimed to evaluate the effect of a locally tailored educational intervention on QoL in patients with compensated cirrhosis and caregiver burden.

Patients and Methods: In this prospective, longitudinal study, adult outpatients with cirrhosis were enrolled. Patients completed the Chronic Liver Disease Questionnaire (CLDQ), and both patients and caregivers completed PROMs (Patient-Reported Outcome Measures). Caregiver burden was assessed using the Zarit Burden Interview, both before and after the intervention. Descriptive statistics were used for demographic and clinical variables. Paired t-tests assessed changes in CLDQ scores, and univariate linear regression identified predictors of QoL improvement. A p-value <0.05 was considered significant.

Results: Thirty-nine patients were included (64% female; 86% Child-Pugh A). The most frequent etiologies were MASLD (33%) and autoimmune hepatitis (23%). Most belonged to socioeconomic level 2 (41%). Thirty-three caregivers were also included (78.1% female; mean age 50.1±13.7 years). Educational session attendance was 64% for patients and 72% for caregivers.

CLDQ scores increased by 29 points (95% CI: 24–34; $p<0.001$), a 21.8% relative improvement, especially in emotional and worry domains. Zarit scores decreased from 21.2 to 11.5 points, indicating a 46% reduction in caregiver burden.