

**Community Outreach and
Engagement for Liver
Disease Prevention and
Treatment in Southern
Arizona**
Annual Report

2022



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BACKGROUND

Purpose

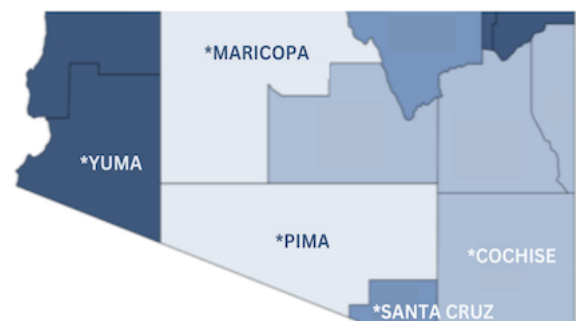
Non-alcoholic fatty liver disease (NAFLD) encapsulates a spectrum of hepatic diseases. It affects ~25% of Americans, including children, and is one of the major causes of chronic liver disease, cirrhosis, and hepatocellular carcinoma. NAFLD occurs when there is a build-up of excess fat in the liver that may cause the liver to swell. Over time, it may also lead to non-alcoholic steatohepatitis (NASH), advanced liver scarring (cirrhosis), and liver cancer or liver failure. Individuals who are overweight or obese, have diabetes, high cholesterol or high triglycerides are at greater risk for developing NAFLD, as it is the hepatic manifestation of metabolic syndrome.¹ Additionally, Mexican-origin adults, who made up the majority of the study population, are at greater risk of having a genetic predisposition linked with NAFLD severity and progression.²

Early detection and screening efforts for NAFLD are crucial to preserve our community's liver health. Fibroscan® has shown to be an effective non-invasive tool to assess for liver steatosis (fat) and liver fibrosis (scarring).² Even though it is an easy procedure in trained hands, and it is a cost-effective proven technique, it is not as accessible for the community as needed. Individuals in the target study population often have low-English proficiency or are uninsured or underinsured, thereby making it less likely to obtain liver disease screening which consequently, results in an increased risk of poor disease outcomes.³

Understanding these limitations, we used Fibroscan® in community-based settings to identify the presence of liver steatosis and fibrosis in Southern Arizona populations. We also assessed public awareness about liver disease and cancer risks and examined demographic and lifestyle characteristics. Together this data will assist in developing future strategies for liver disease and cancer prevention and treatment for Southern Arizona.

Methods

The Nosotros team conducted this study throughout Southern Arizona (Phoenix being the exception). A team of 2-4 trained staff obtained participants' informed consent, conducted a brief questionnaire, and scanned individuals who were eligible to participate. Individuals were not eligible if they were pregnant, under the age of 18, or



if they had an implantable electronic device. We completed two non-research scan days (Nosotros Liver Day and El Día Del Campesino in Yuma) without research criteria; therefore, some participants were scanned while not fasting for the required 3 hours.

Fibroscan®

The Fibroscan® measures levels of steatosis (fat) and fibrosis (scarring) in the liver using transient elastography. This allows for quick and immediate results to be given in less than 15 minutes. The levels of steatosis are given through a Controlled Attenuation Parameter (CAP) score, with a range of 100-400 dB/m. A CAP score ≥ 248 indicates fatty liver. Fibrosis levels are measured in kilopascals (kPa), ranging from 2.5 kPa to 75 kPa. The steatosis and fibrosis categories used in this study are shown below:



CAP Score	Steatosis Grade
<248 dB/m	S0 - None
248-268 dB/m	S1 – Mild
268-280 dB/m	S2 - Moderate
≥ 280 dB/m	S3-Significant

Fibrosis Result	<7.9 kPa	7.9 – < 8.8 kPa	8.8 - < 11.7 kPa	≥ 11.7 kPa
Fibrosis Category	F0 to F1	F2	F3	F4
	No liver scarring or mild liver scarring	Moderate liver scarring	Severe liver scarring	Advanced liver scarring (Cirrhosis)

Fibroscan® Interpretation

Abnormal levels of fat (CAP Score ≥ 248) increases the risk of abnormal levels of scarring due to increased inflammation impairing the normal function of the liver. This also puts the individual at higher risk of cell death and therefore cirrhosis.

Referral guidelines

Participants were referred to our clinical partner, Arizona Liver Health, based on their CAP and kPa scores: ≥ 280 CAP Score and ≥ 6 kPa; OR ≥ 8 kPa. These participants were informed that they would receive another free Fibroscan® and potential treatment if they were eligible for the clinical trials offered by Arizona Liver Health.

WHO WE ARE

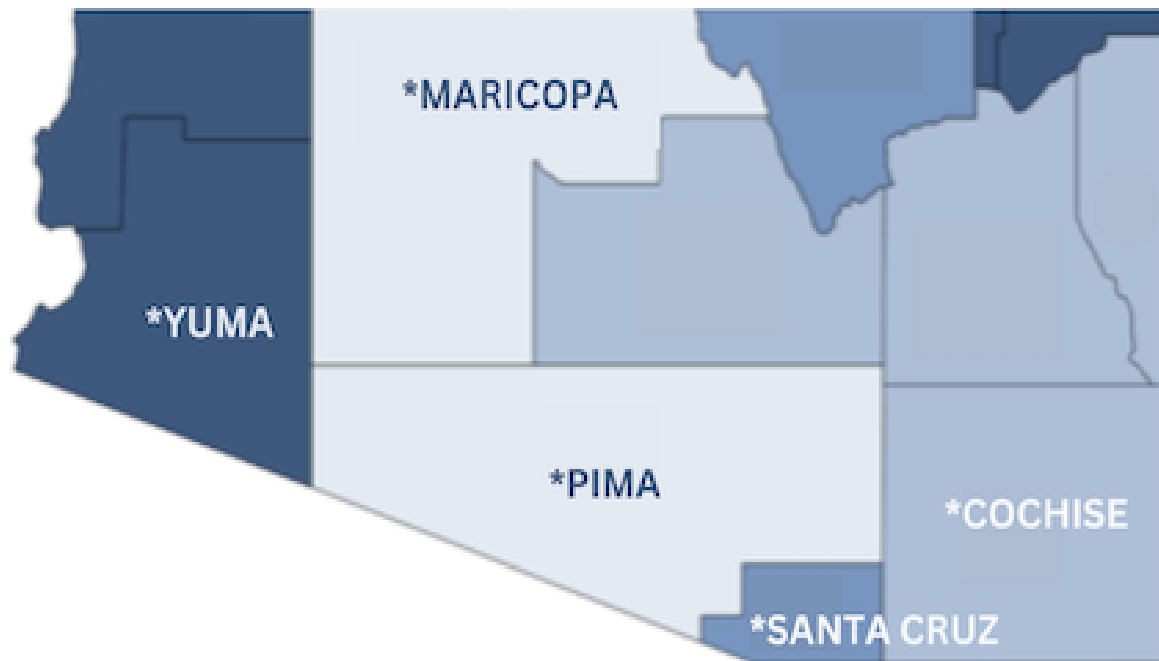


From left to right: Dr. Adriana Maldonado, Dr. David Garcia, Rosi Vogel, Ana Gonzalez, Edgar Villavicencio

Nosotros Comprometidos a Su Salud (Committed to Your Health) is a public health program based at the Mel and Enid Zuckerman College of Public Health, University of Arizona Health Sciences, that fosters community-engaged research collaborations, service, and education to advance health equity in Southern Arizona. The Nosotros program was established in 2014 by Dr. David O. Garcia and Dr. Luis Valdez, and since then it has been working to provide the community with health resources needed to improve their health. To learn more about Nosotros program visit our website: <https://publichealth.arizona.edu/outreach/nosotros-comprometidos-su-salud>

Nosotros works closely with under-resourced and underserved Mexican-origin and other Hispanic communities who experience health inequities. Our mission is to reduce health disparities faced by Mexican-origin communities and other Hispanic communities in Southern Arizona.

Nosotros Service Area



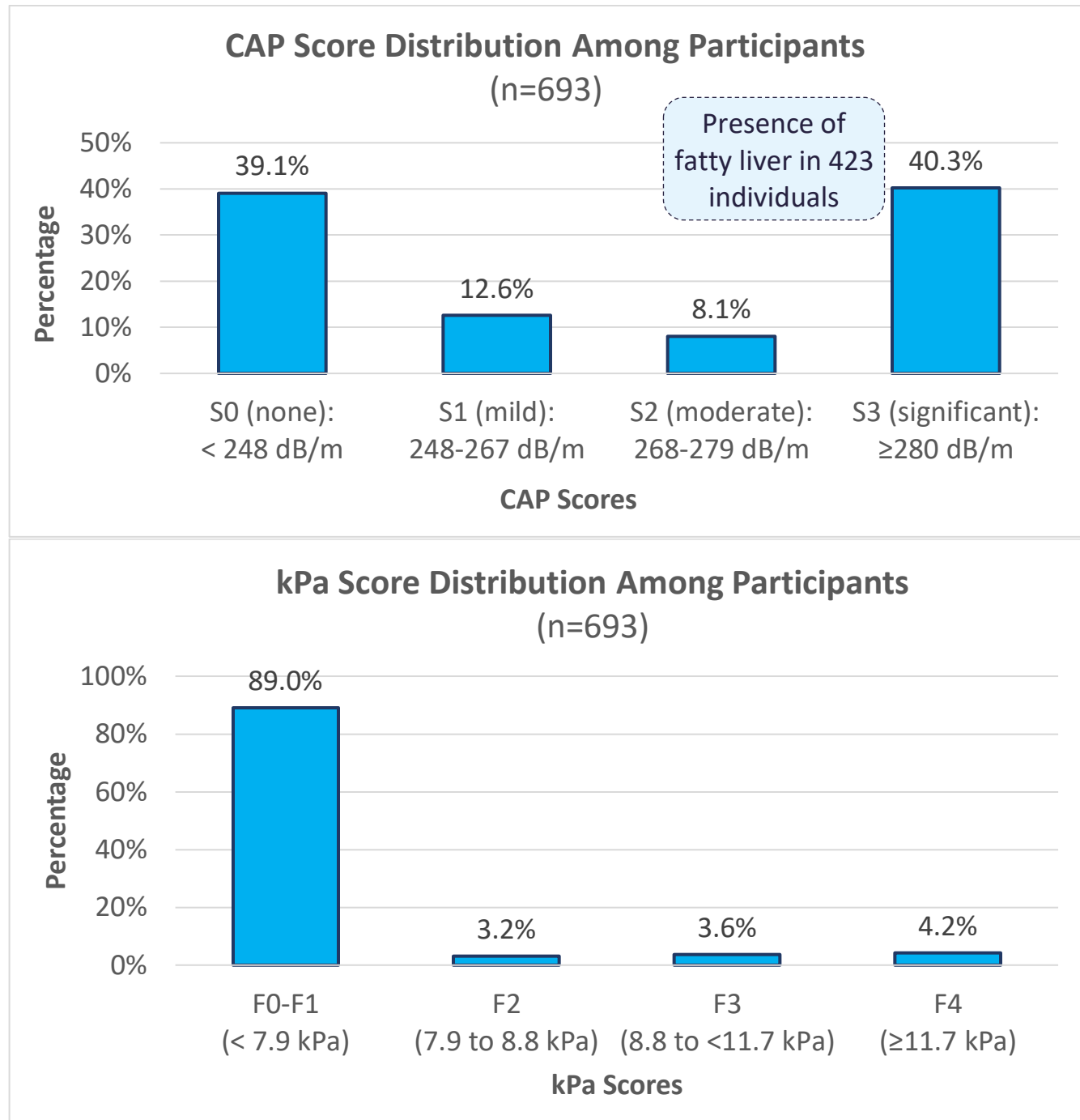
RESULTS-RESEARCH & OUTREACH EFFORTS

693 total scans were completed since October 2021

608 were completed through research

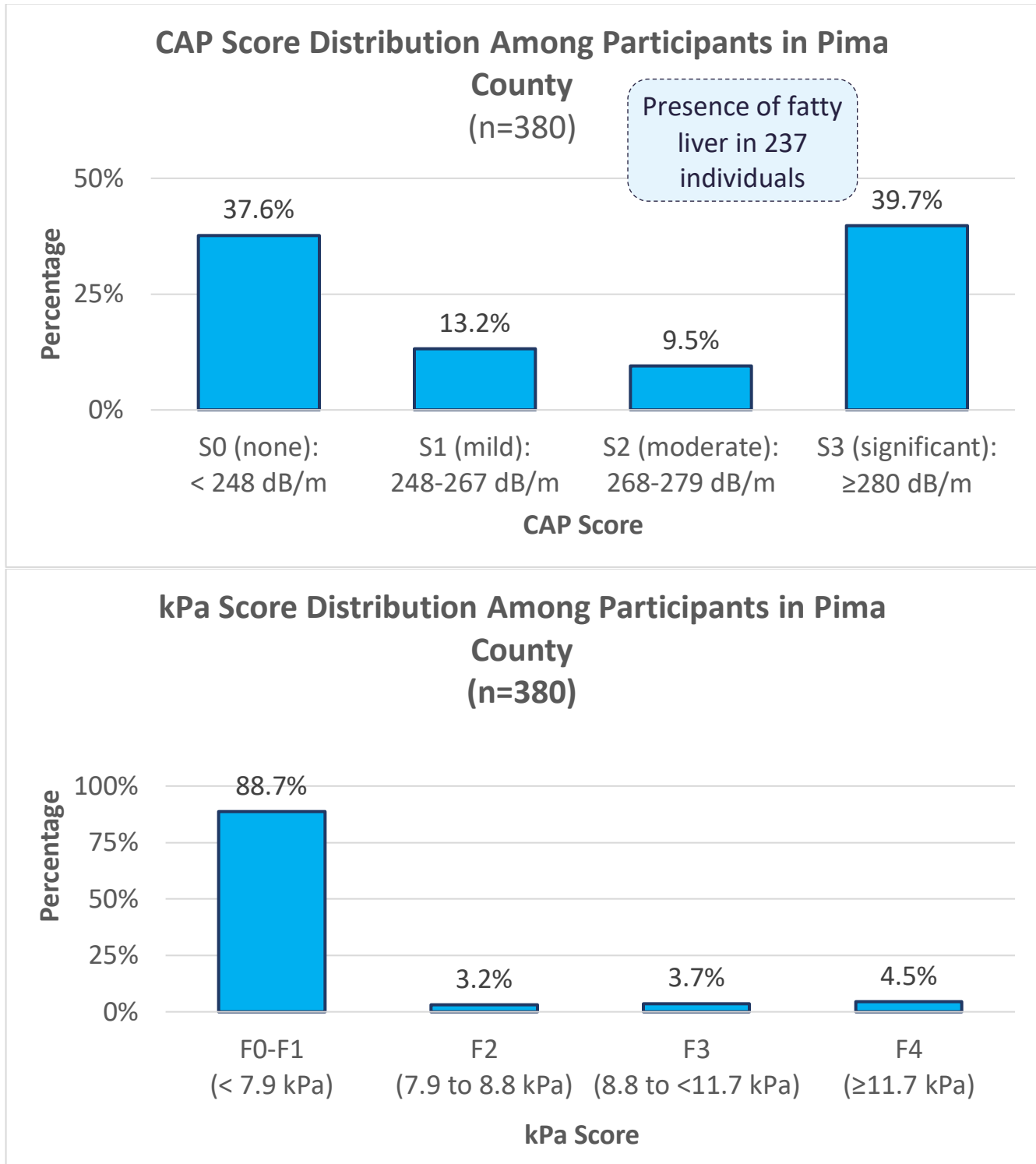
85 were completed through community outreach efforts

Fibroscan® Results:



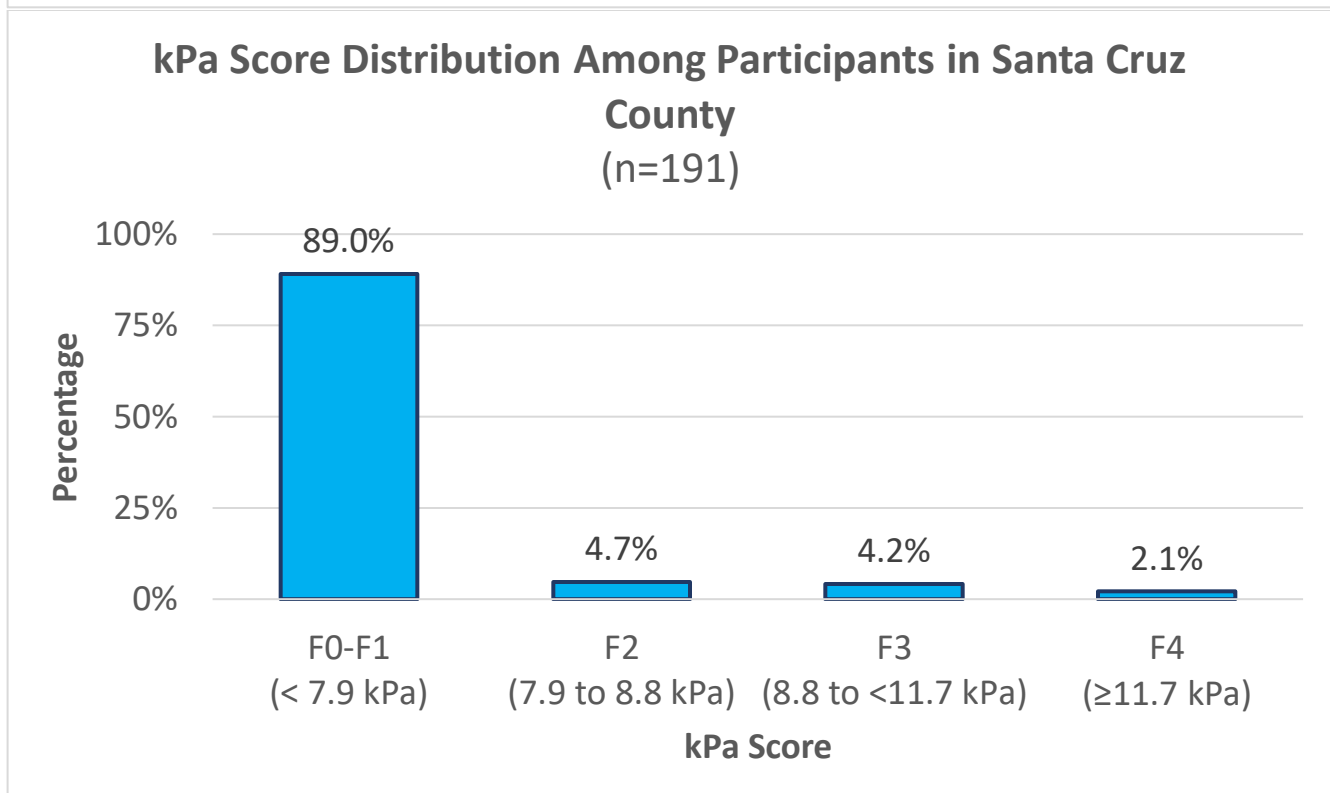
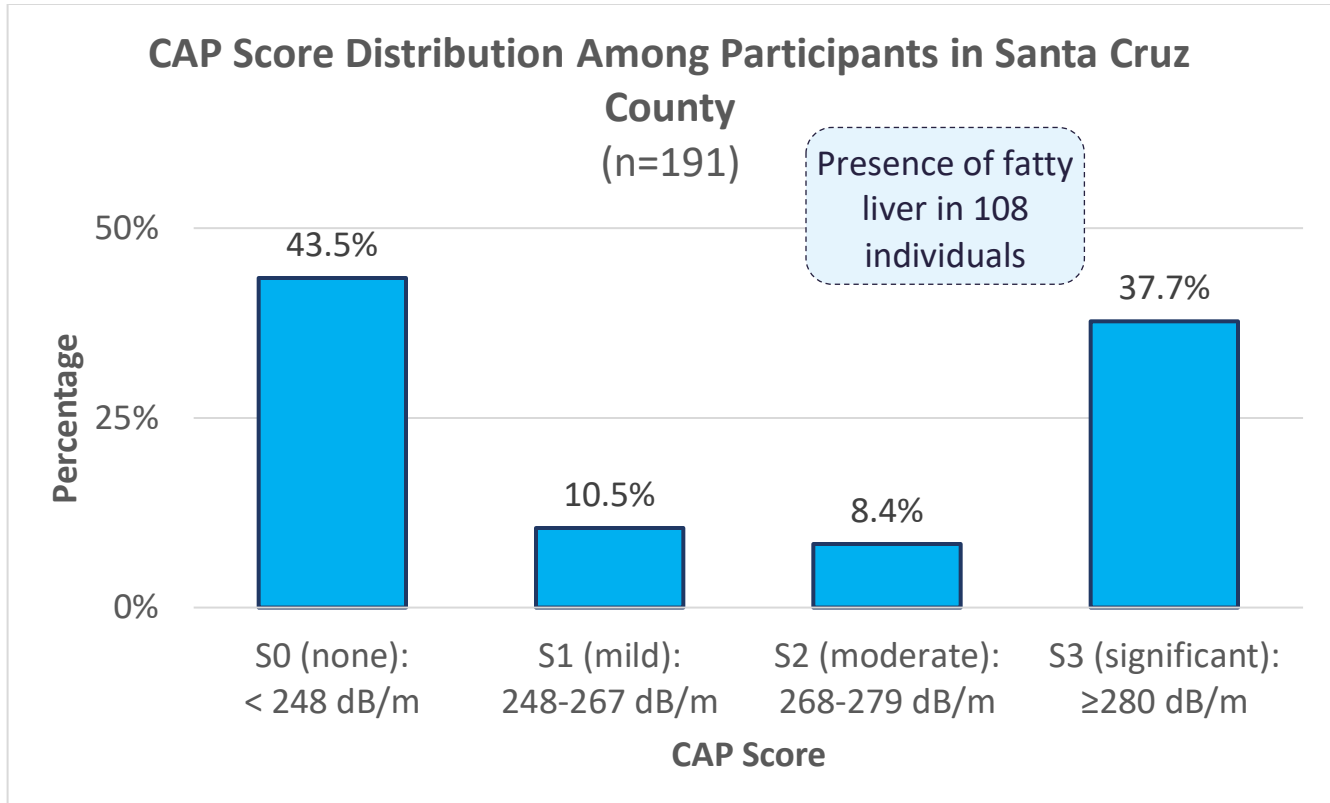
Pima County – 380 Scans

Fibroscan® Results:



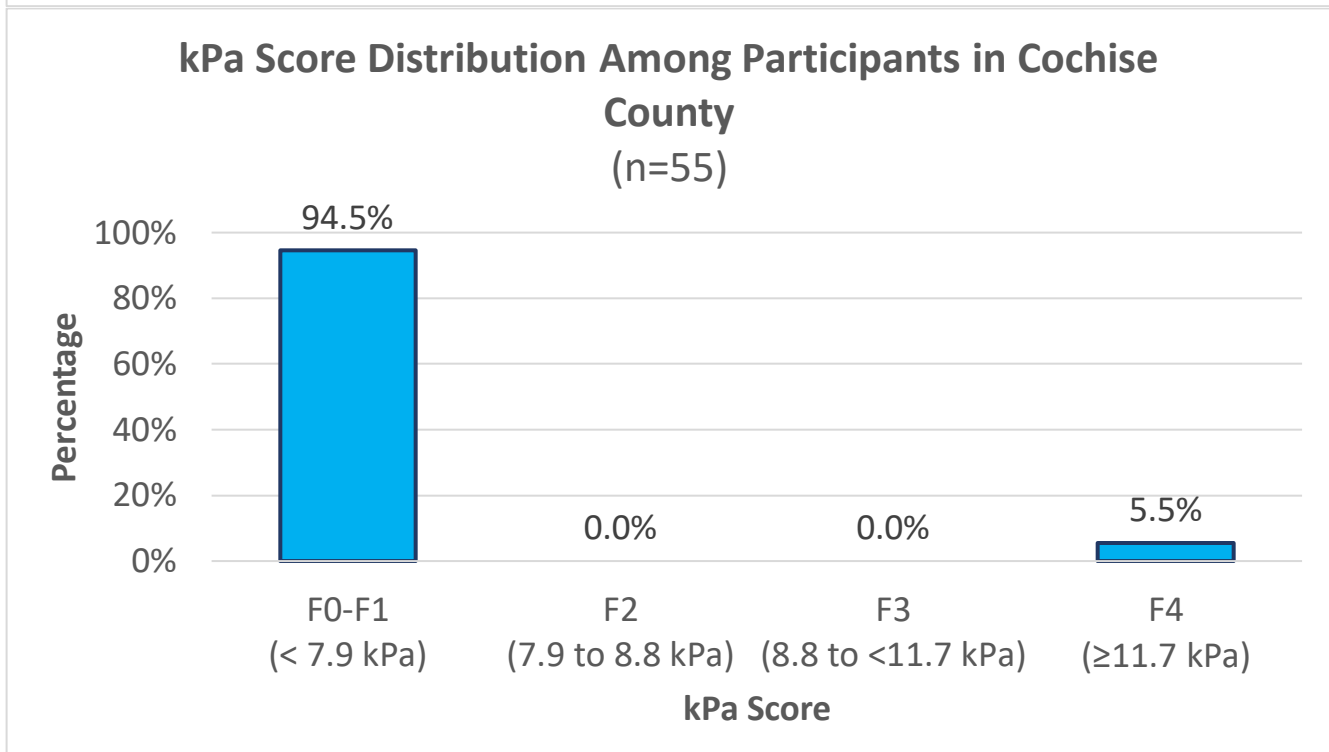
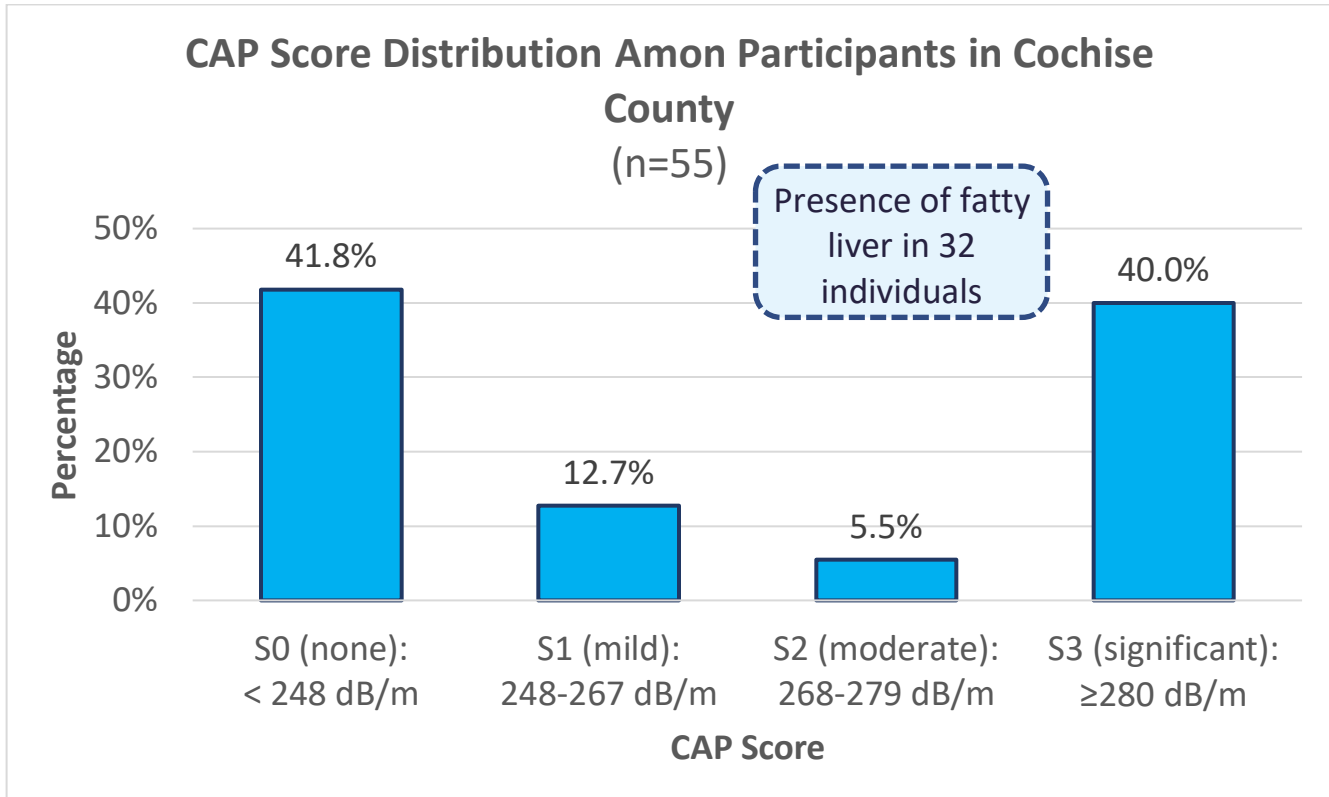
Santa Cruz County – 191 Scans

Fibroscan® Results:



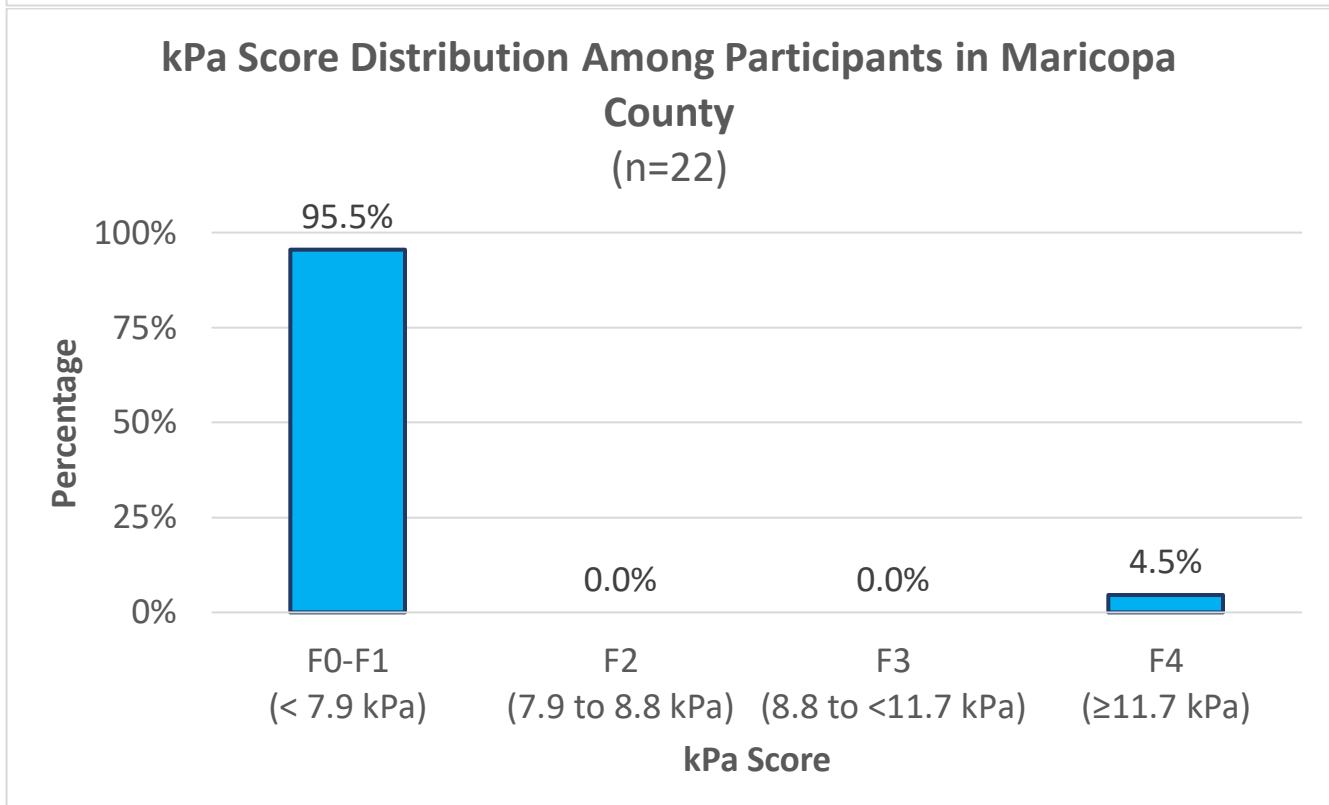
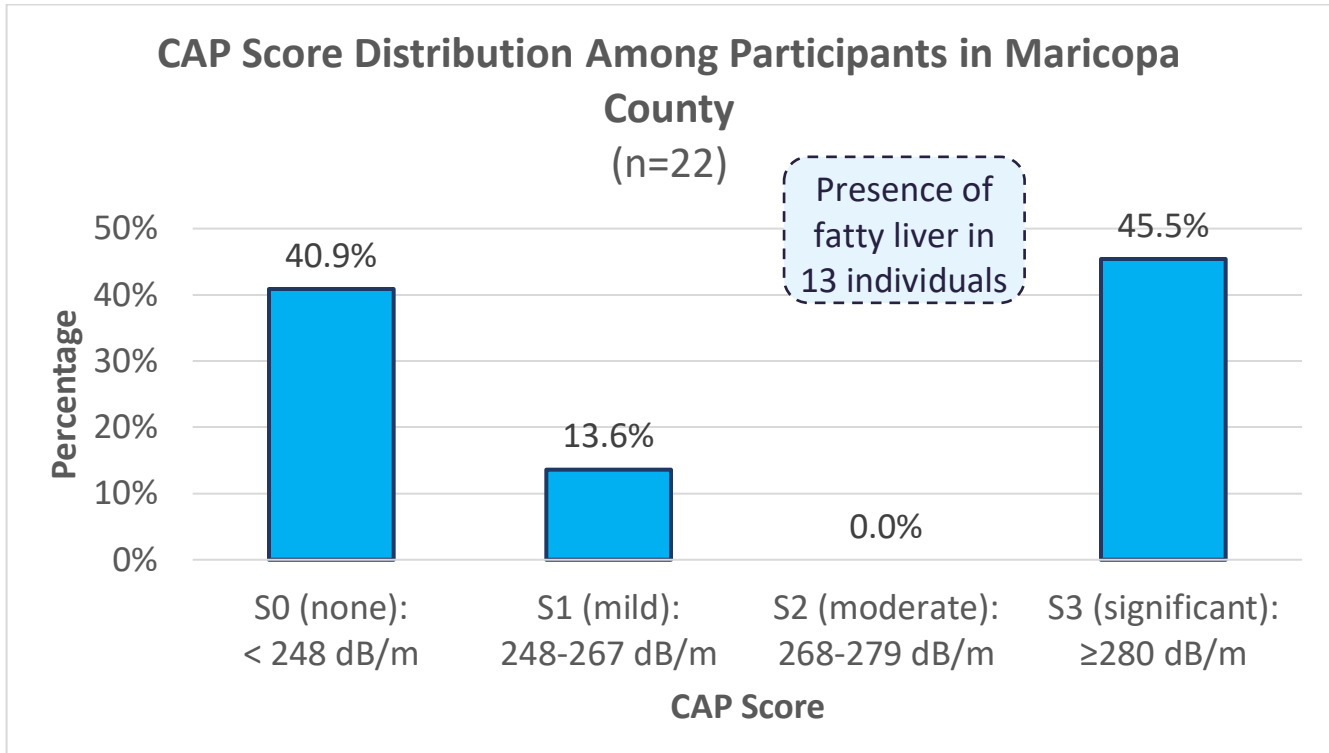
Cochise County – 55 Scans

Fibroscan® Results:



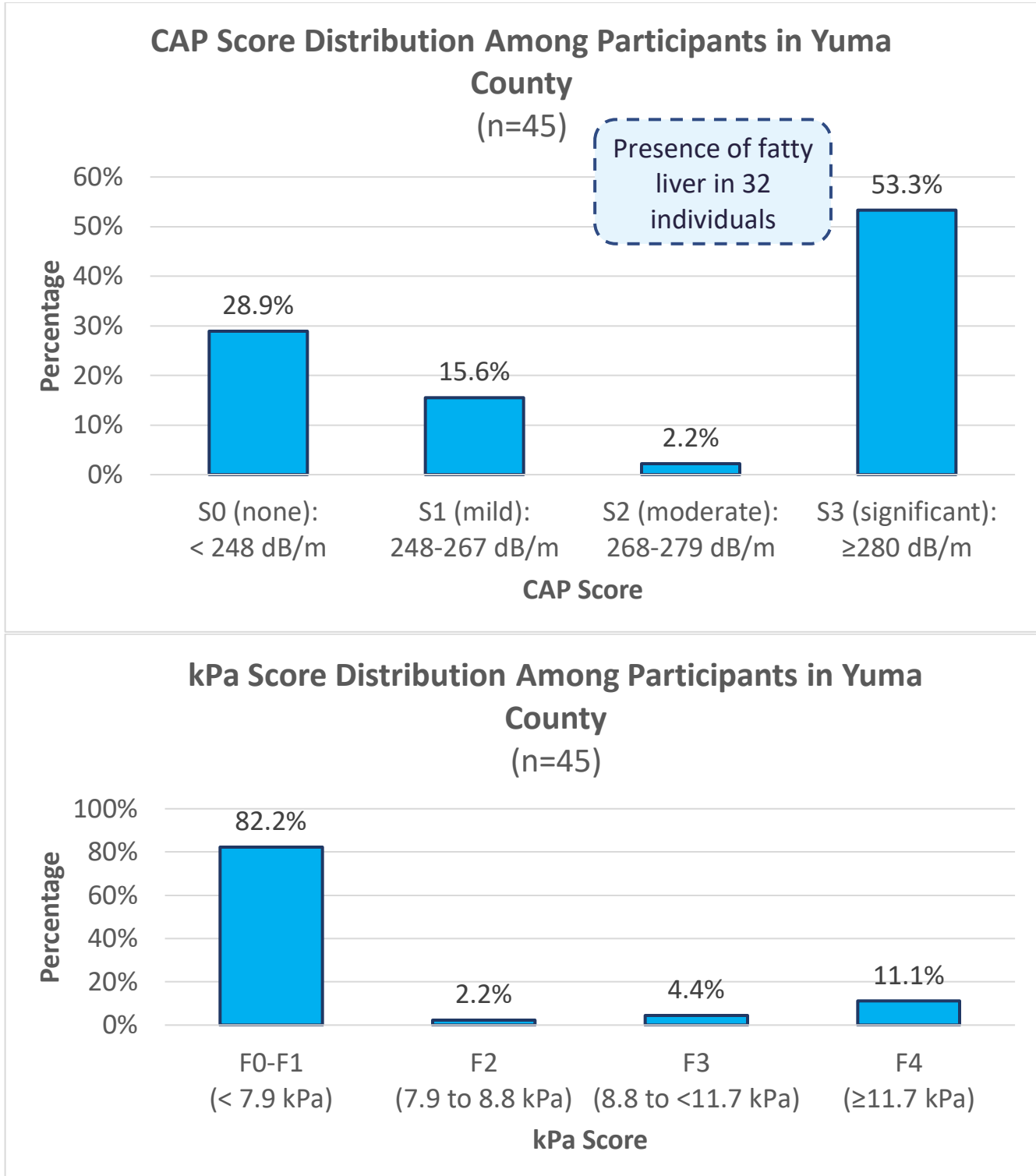
Maricopa County – 22 Scans

Fibroscan® Results:



Yuma County – 45 Scans

Fibroscan® Results:



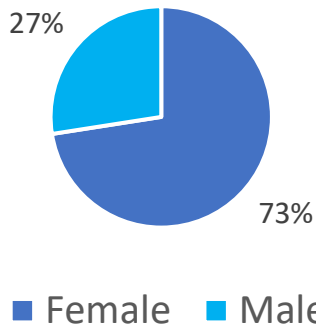
RESULTS-RESEARCH

608 Total Scans

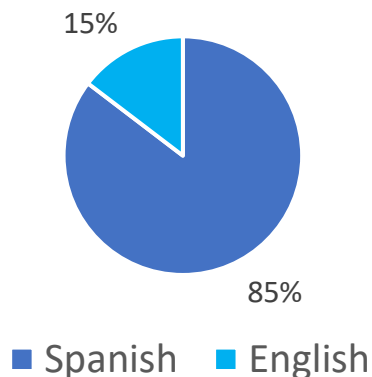
The results in this section were obtained from *research* participants. Study participants provided informed consent, completed questionnaires on personal health and liver knowledge, and received the Fibroscan®.

DEMOGRAPHICS:

Sex
(n=608)

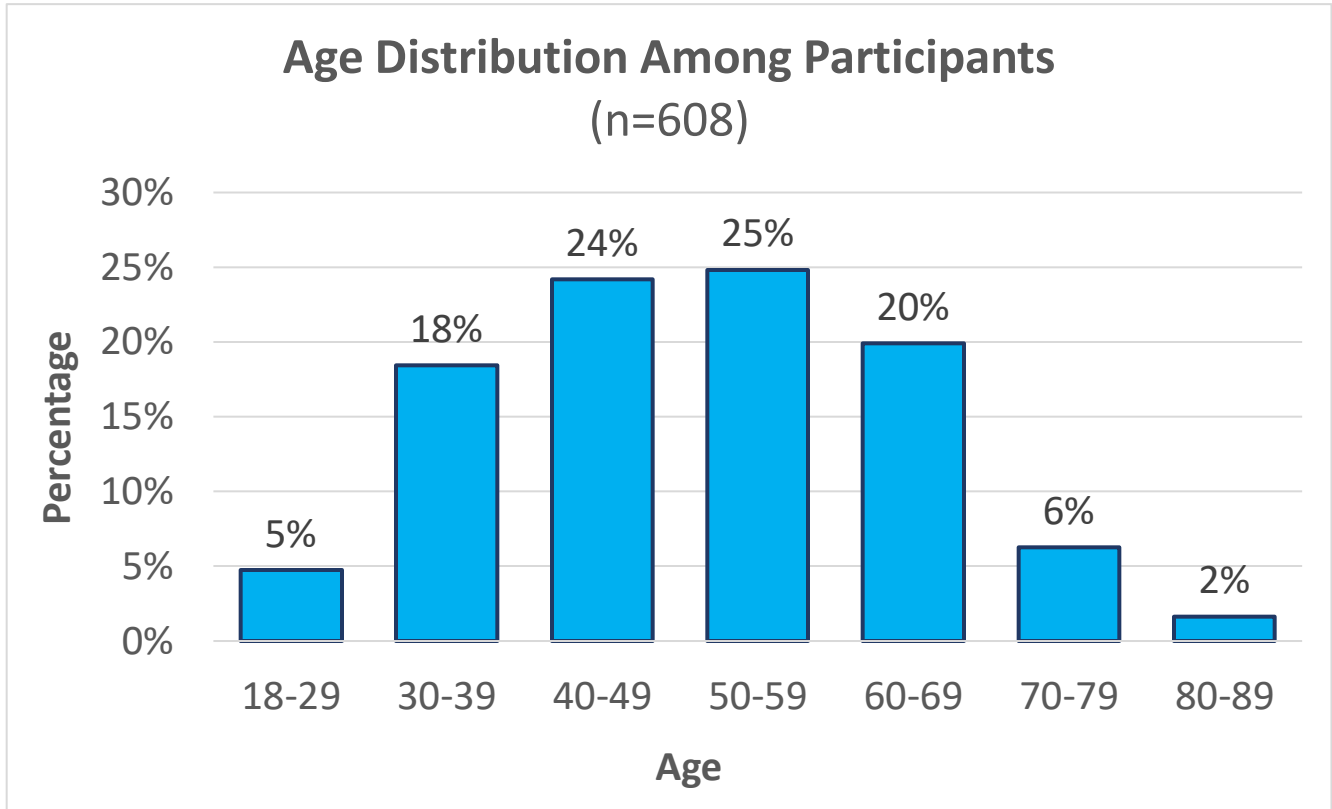


Preferred Language
(n=608)

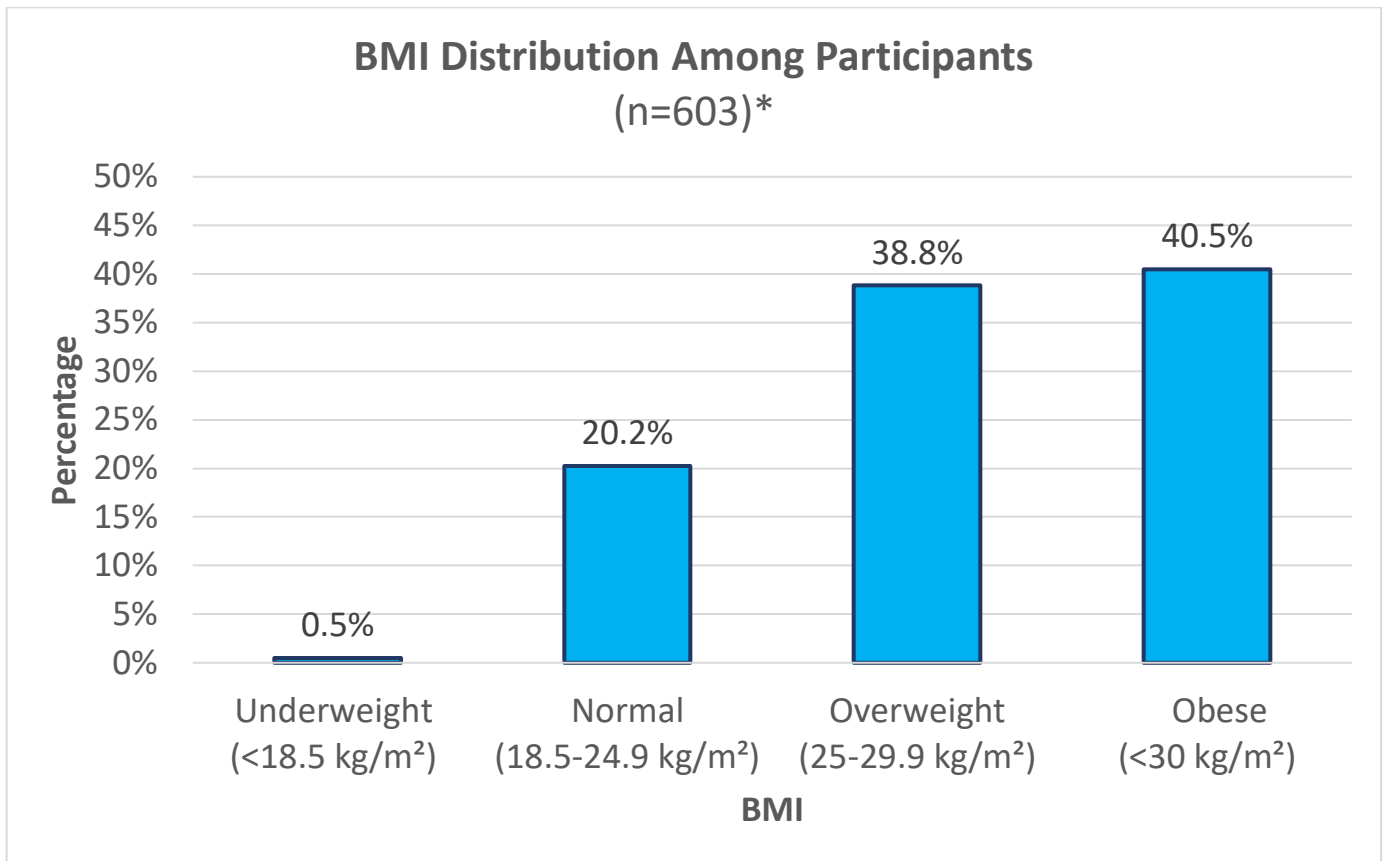


Data Interpretation

The majority of participants were female, preferred Spanish, and were in between the ages of 30 and 69. Considering that most of the sites we conducted the scans were in Mexican Consulates in Southern Arizona, a majority of the participants identified as Hispanic or Latino. Of the 561 participants who identified as Hispanic or Latino, 86% identified as Mexican and 10% identified as Mexican-American.



Self-Reported Race/Ethnicity	Number of respondents	Percent of respondents
Hispanic/Latino	561	92.3%
White or Caucasian	34	5.6%
Black/African American	7	1.2%
Asian	5	0.8%
American Indian or Alaskan Native	1	0.2%

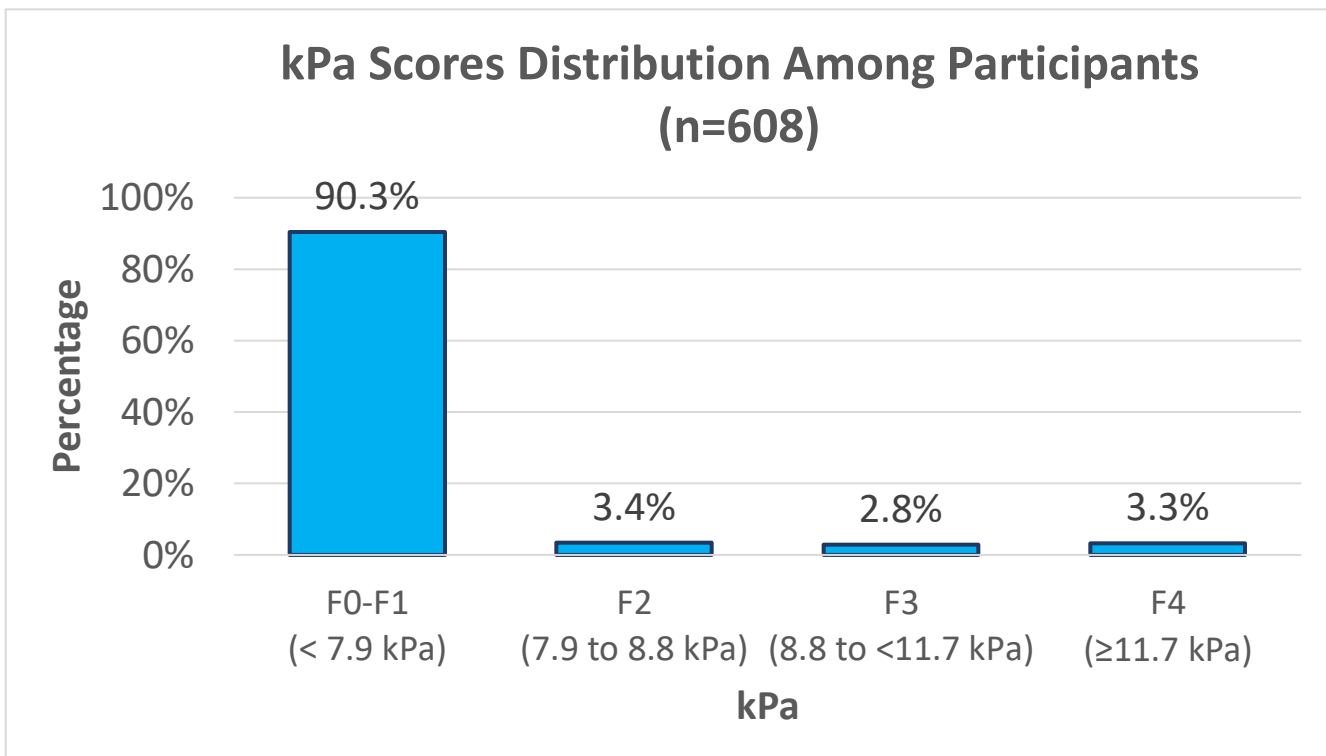
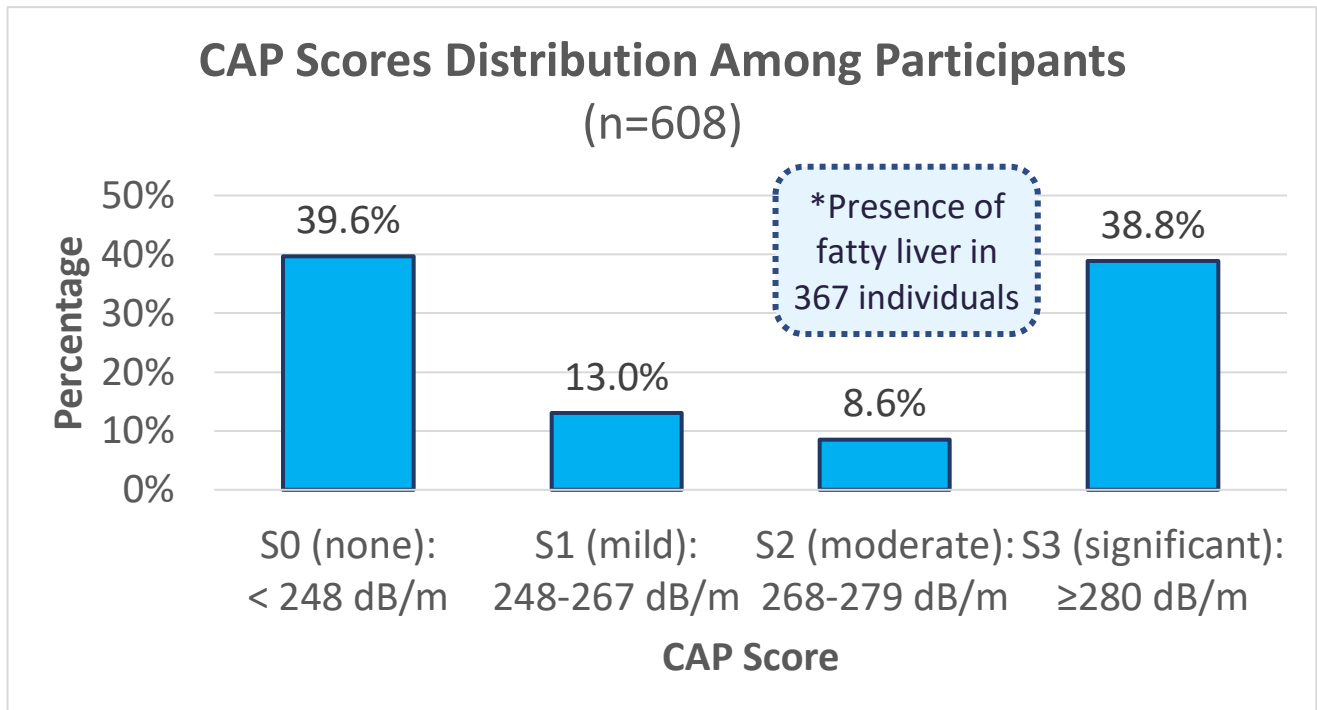


*Missing data (n=608) due to missing height/weight responses

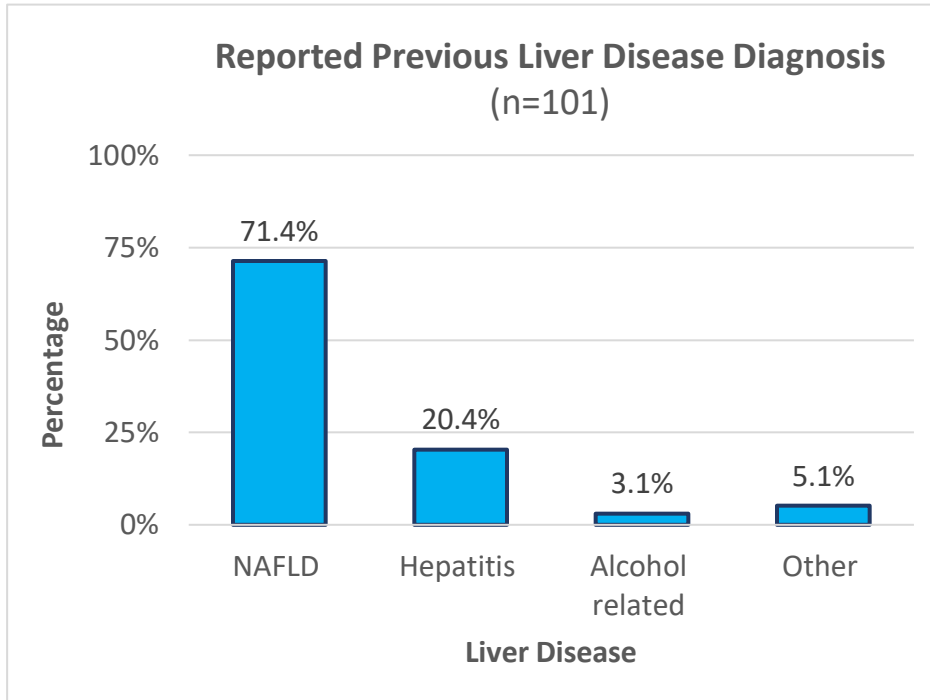
Data Interpretation

Over 79% of the participant population is overweight or obese, putting them at higher risk of developing NAFLD.⁴

RESEARCH RESULTS:

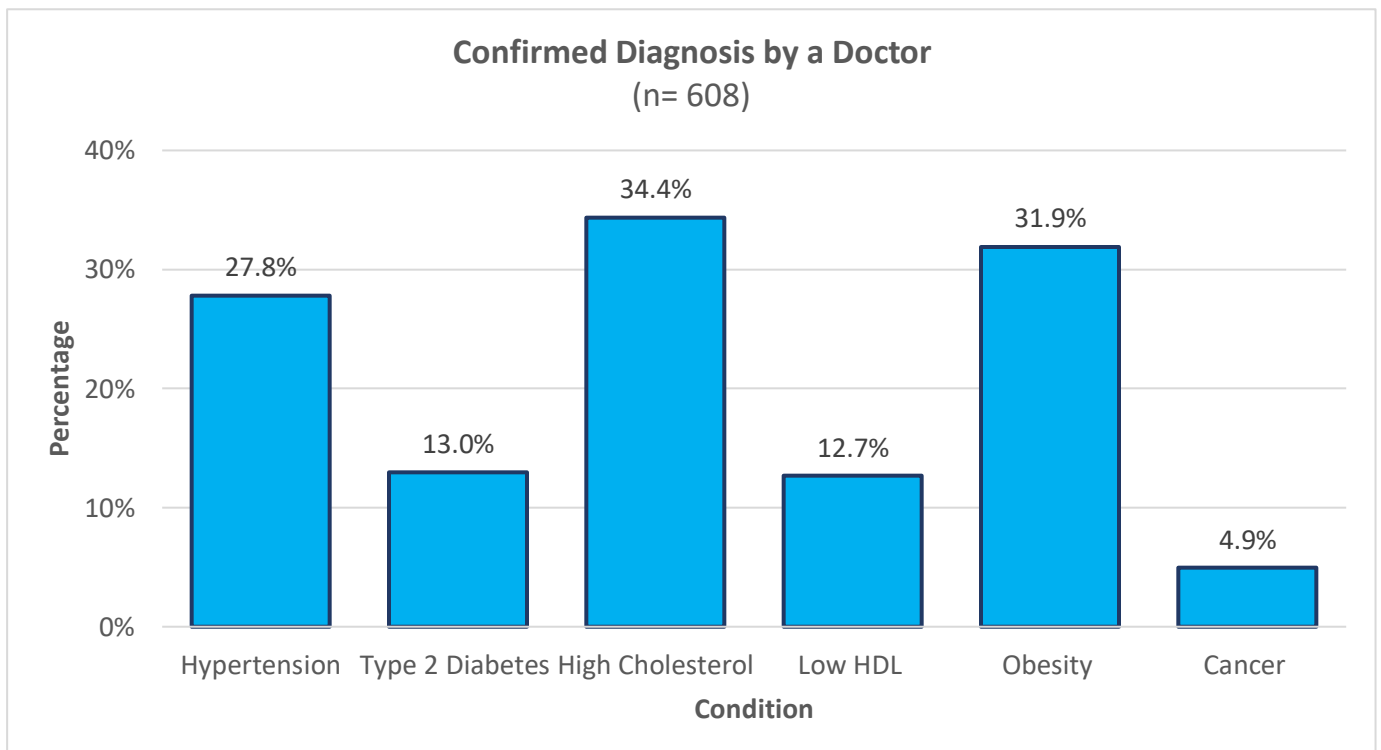


PREVIOUS DIAGNOSIS:



Data Interpretation

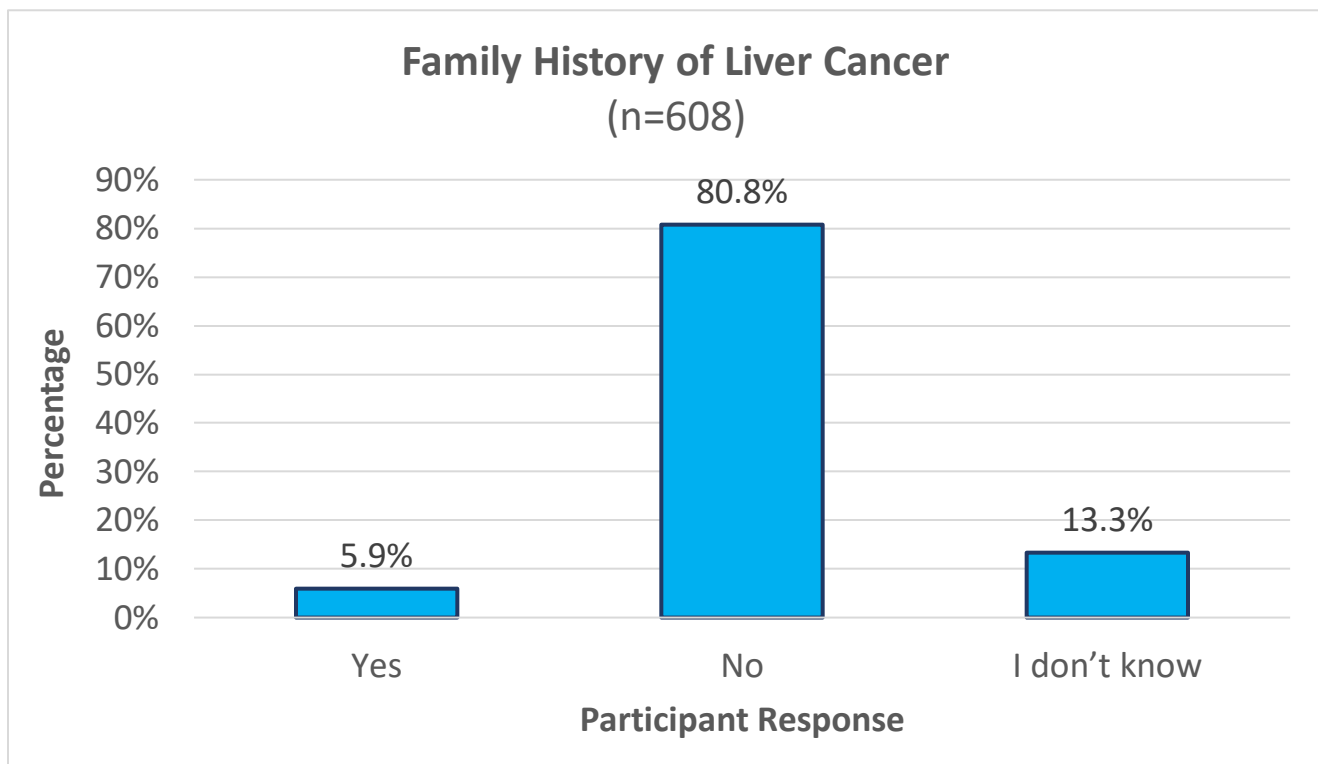
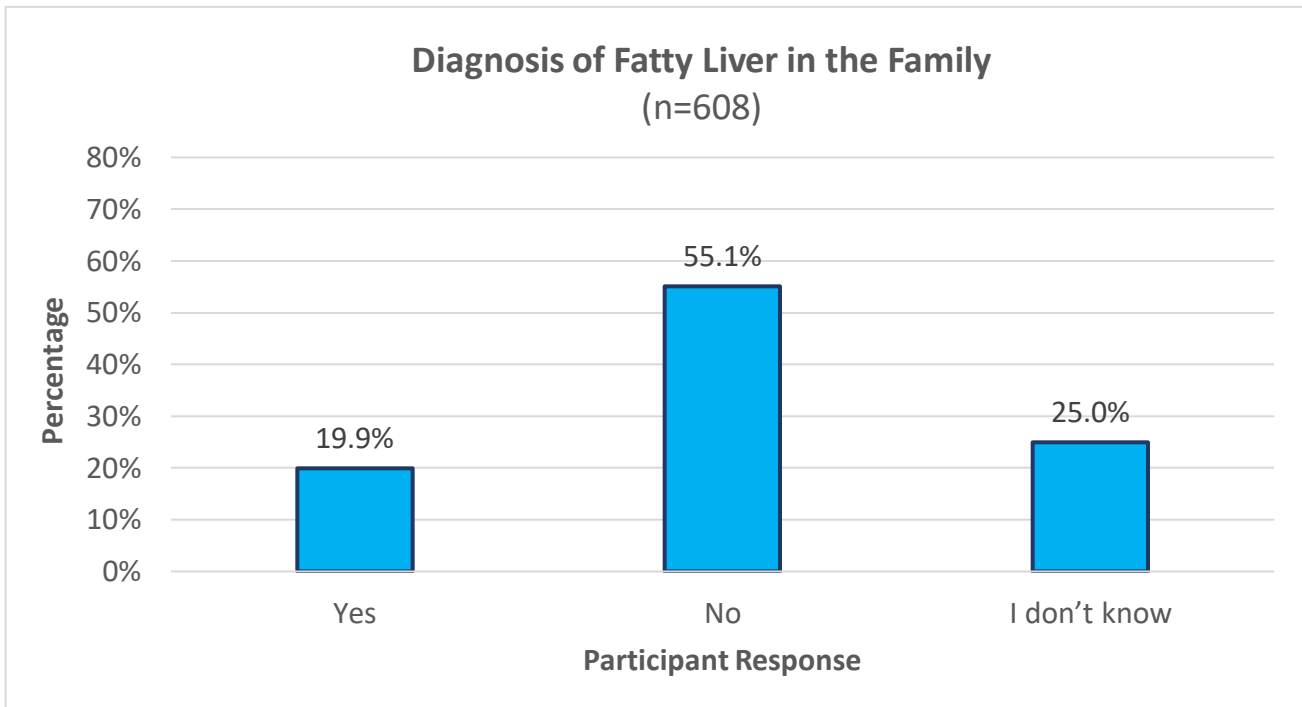
A total of 16.6% (n=101) of participants reported previous liver disease diagnosis. Of this amount, a majority of them had been diagnosed with NAFLD. The next highest diagnosis was hepatitis which mostly consisted of Hepatitis A. The 'other' category included presence of cysts or



FAMILY HISTORY:

Data Interpretation

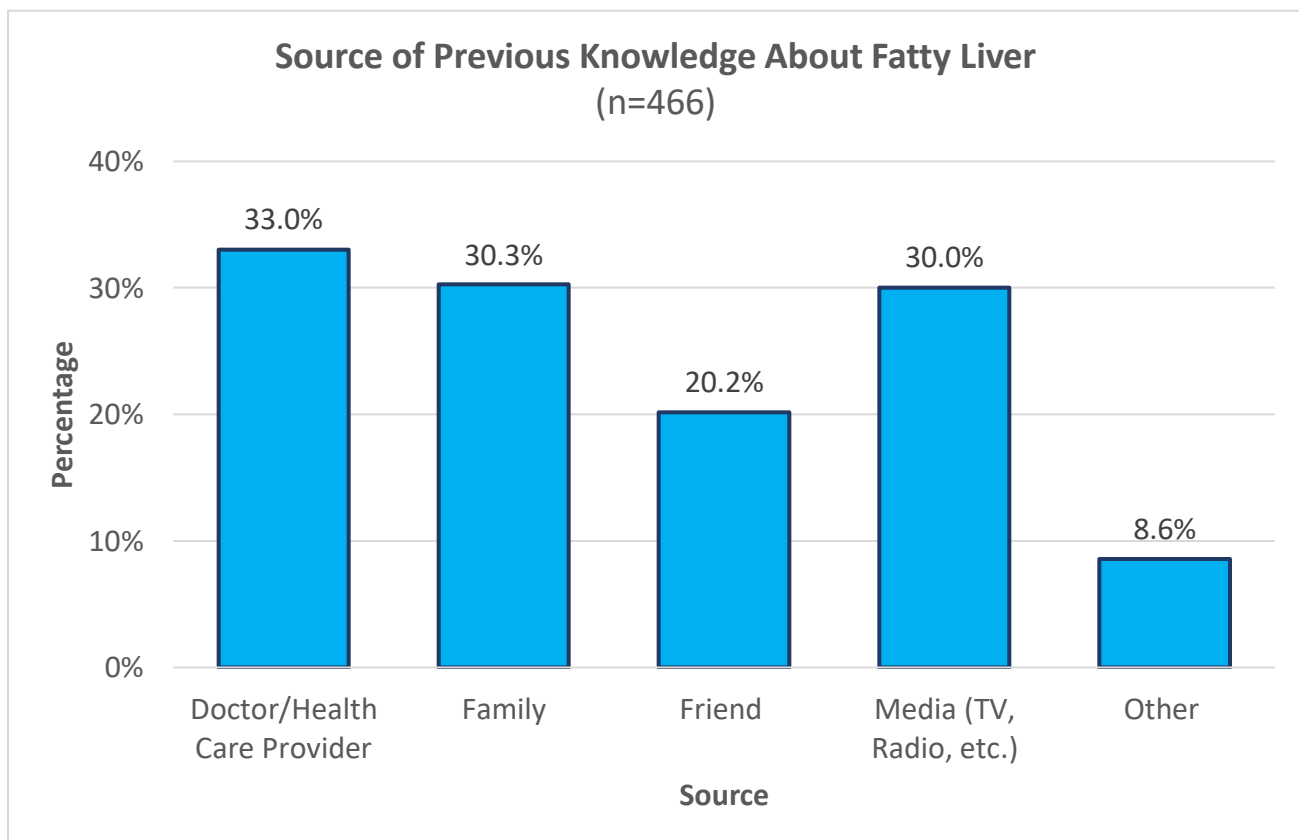
Genetic susceptibility is an influencing factor in the presence and progression of NAFLD. Around 20% of participants reported that there was a family history of fatty liver.

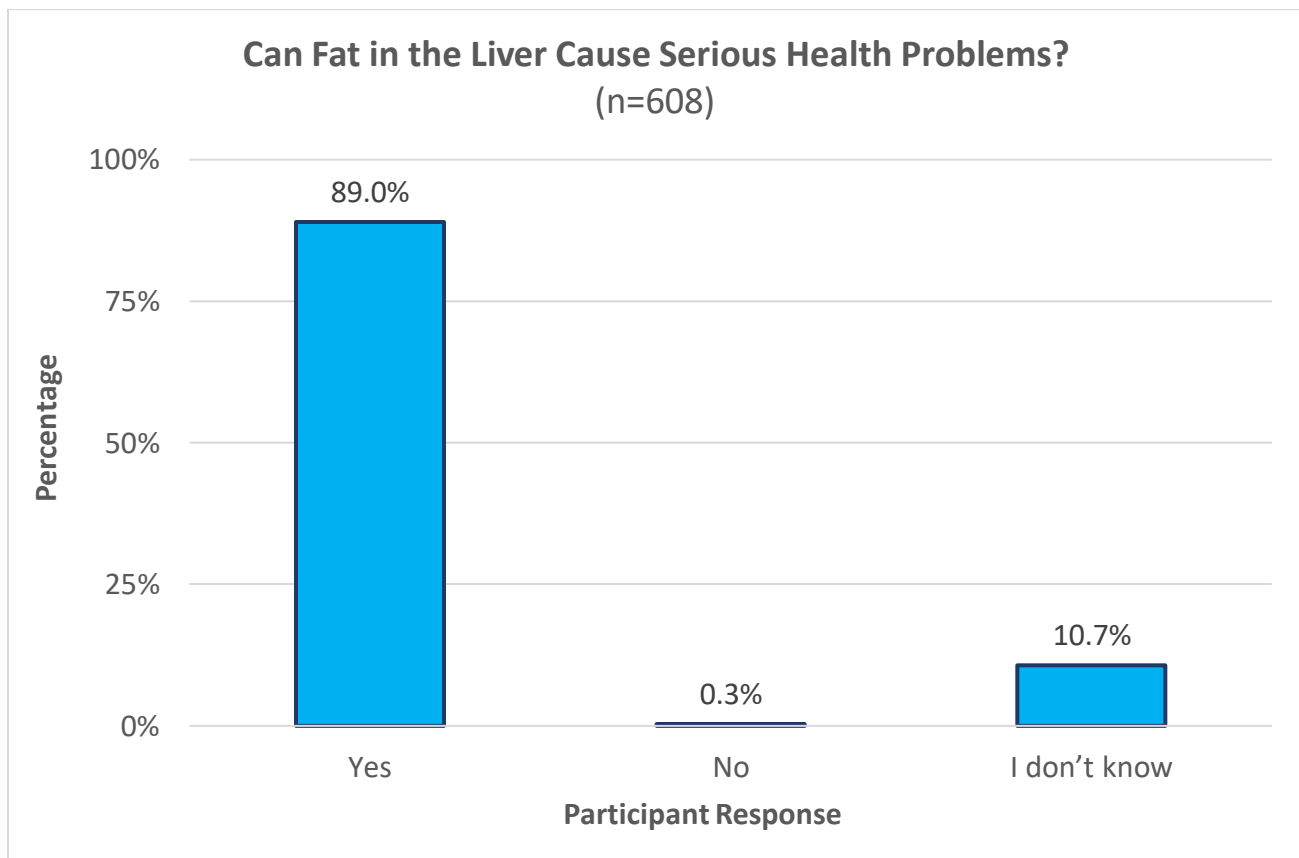
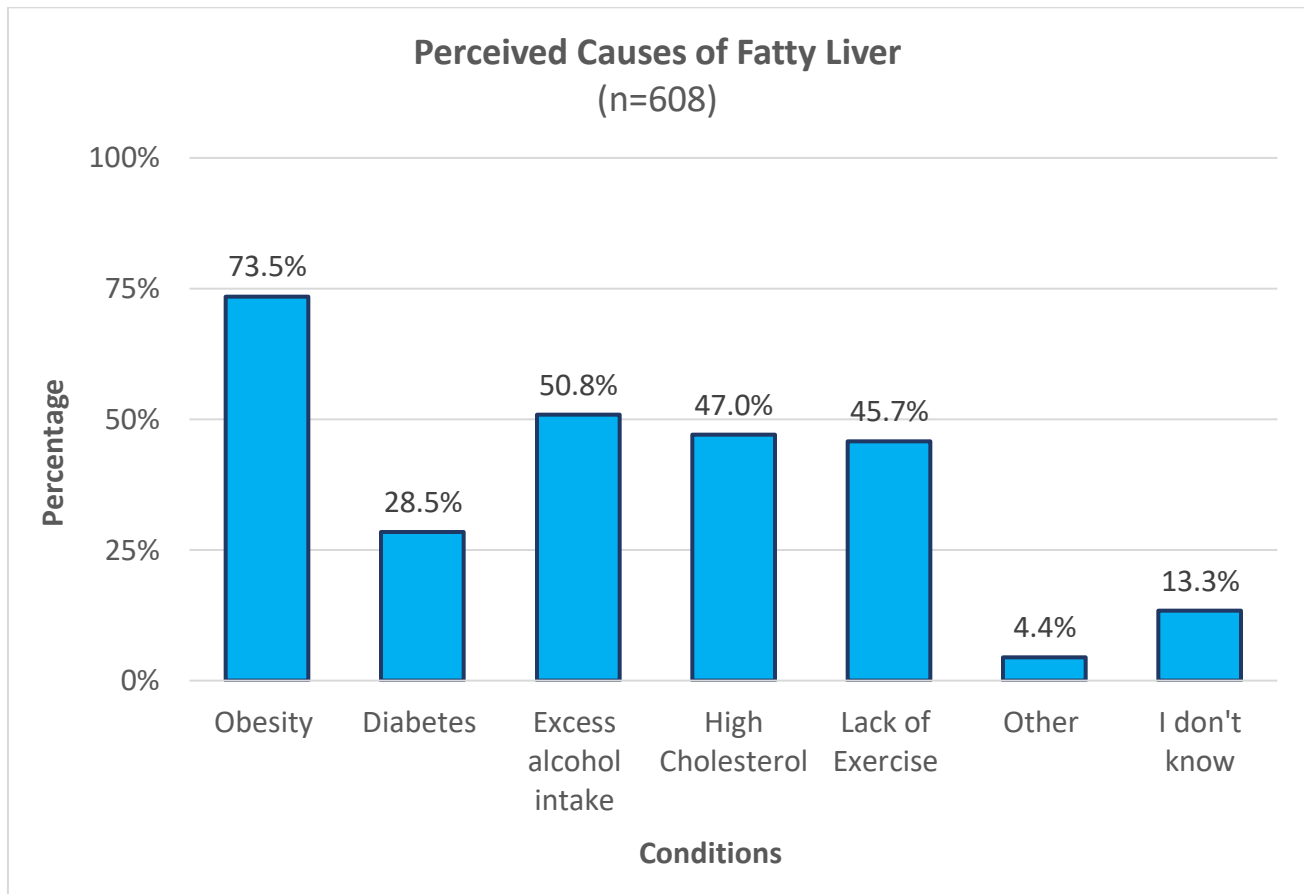


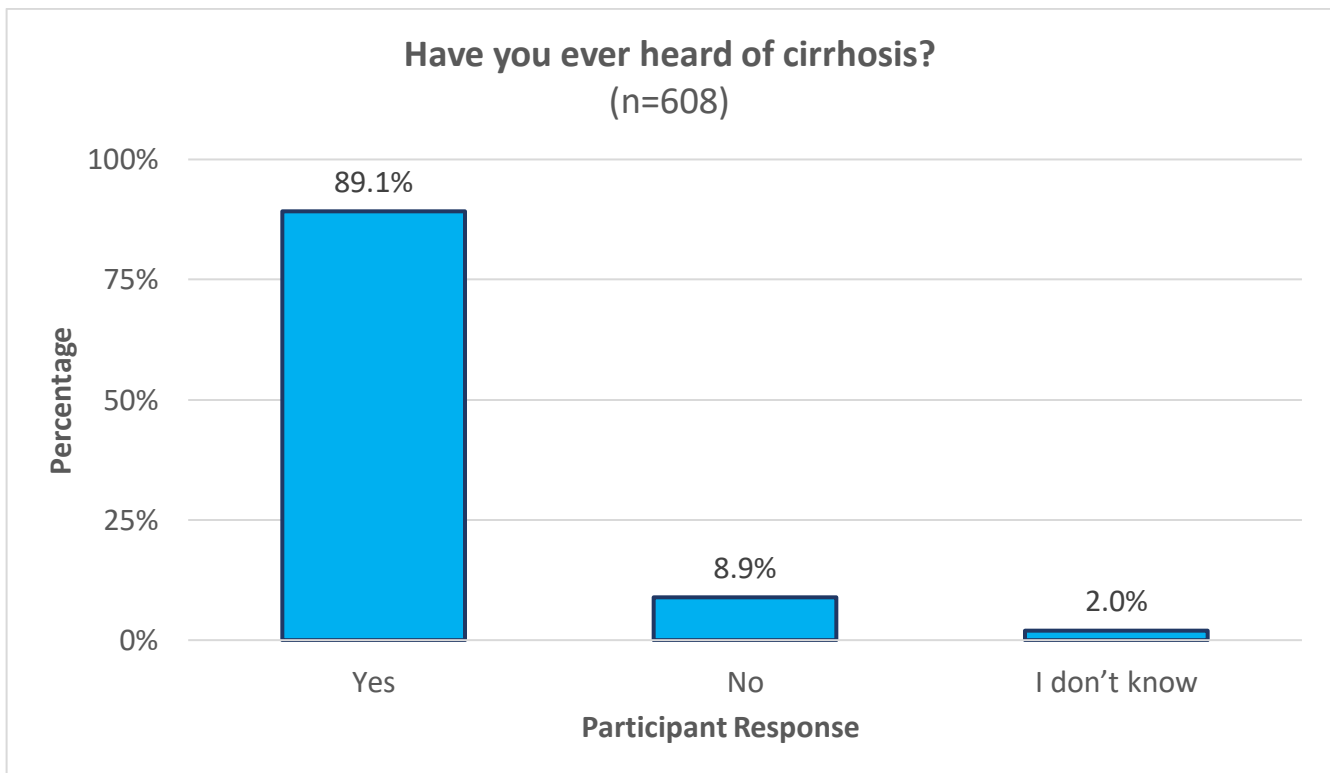
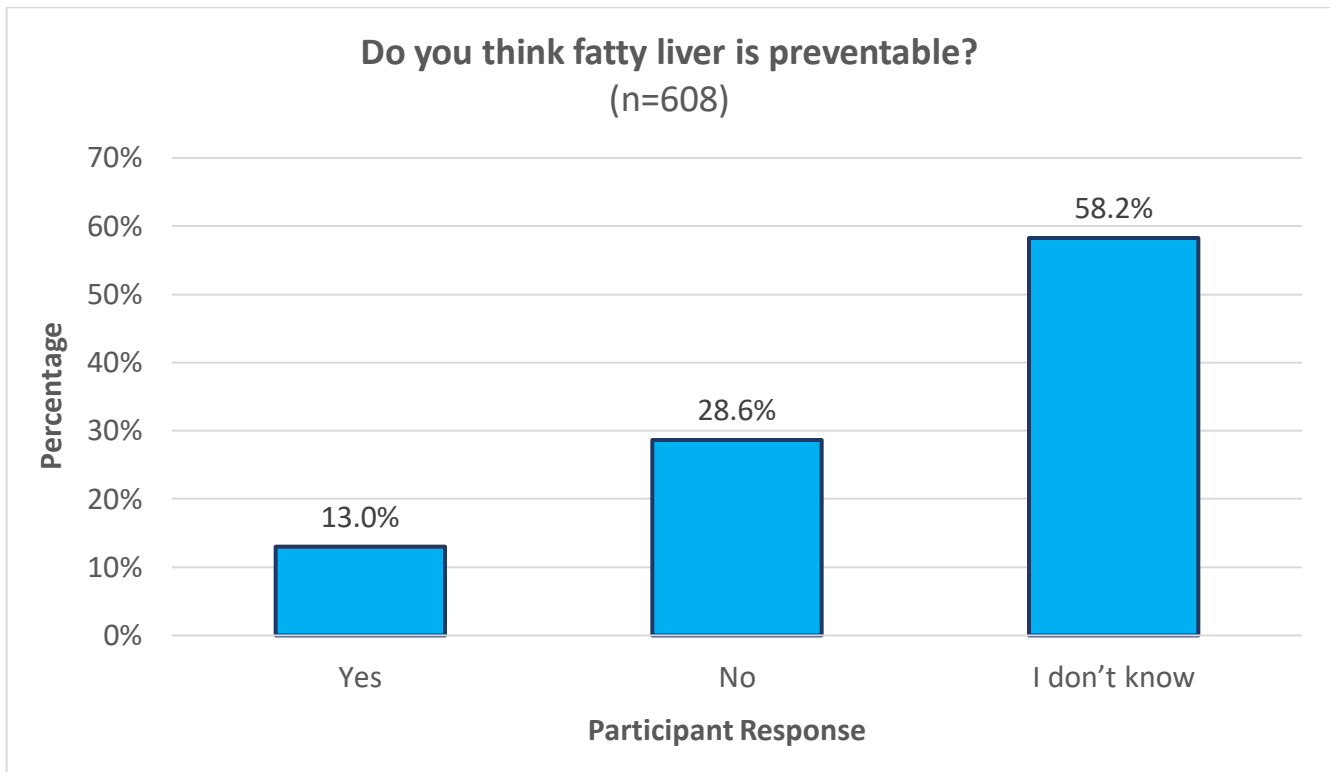
KNOWLEDGE OF LIVER DISEASE:

Data Interpretation

Assessing participant knowledge of fatty liver, including causes, progression, and prevention, helped us understand the gap in information, especially coming from health care sources. For example, many people (n=174) believe that fatty liver is not preventable, and a large majority (n=354) did not know that it is preventable. This data can help us understand how to better educate and empower community members.







CONCLUSIONS

Findings from the ‘Community Outreach and Engagement for Liver Disease Prevention and Treatment in Southern Arizona’ project highlighted the importance of making the screening tool, Fibroscan®, accessible to communities who are at higher risk of developing NAFLD, such as border and Hispanic/Latino populations.

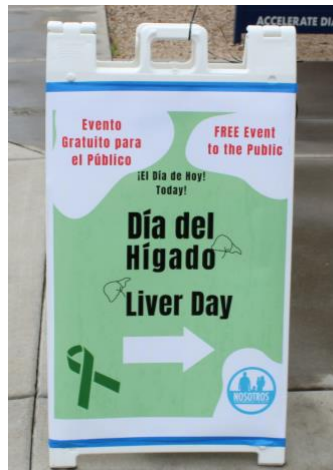
Many participants had limited knowledge of liver disease or had misinformation. In addition, many reported never hearing about fatty liver from their doctor. It is clinically recommended that people who are considered ‘high risk’ are screened for NAFLD every 2 years.⁴ Since NAFLD is a hepatic manifestation of metabolic syndrome, individuals who experience other manifestations, such as overweight or obesity, diabetes, high cholesterol, or high triglycerides, are considered high risk. Additionally, the genetic variation in the PNPLA3 gene that affects those of Mexican-origin at a greater frequency, means that Mexican-origin individuals are considered at an even higher risk. Study results show a high percentage of participants being Mexican-origin, and having one or more of the metabolic manifestations, which proves making this non-invasive, cost-effective tool available to these communities is essential to prevent presence of liver disease and progression.

Future steps will lead Nosotros to reach more communities in Arizona, including the Navajo and Tohono O’odham nations, while also increasing the support and education for participants.

ACKNOWLEDGEMENTS

The Nosotros team would like to acknowledge the community partners in Southern Arizona who helped us reach participants:

- Consulate of Mexico in Tucson
- Consulate of Mexico in Nogales
- Consulate of Mexico in Douglas
- Tucson Unified School District Family Resource Centers
- Menlo Family Resource Center
- Sahuarita Food Bank
- Campesinos Sin Fronteras
- Reyes Maria Ruiz Leadership Academy
- Our clinical partner, Arizona Liver Health
- Participants
- Past and current Nosotros team members



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3. Nguyen MP, Amoon AT, Lee L, et al. Health Literacy, Knowledge, and Risk Factors for Fatty Liver Disease among Asian American and Pacific Islanders and Latinos in Los Angeles. *Asian Pac J Cancer Prev*. 2021;22(6):1737-1744. Published 2021 Jun 1. doi:10.31557/APJCP.2021.22.6.1737
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5. Cusi K, Isaacs S, Barb D, et al. American Association of Clinical Endocrinology Clinical Practice Guideline for the Diagnosis and Management of Nonalcoholic Fatty Liver Disease in Primary Care and Endocrinology Clinical Settings: Co-Sponsored by the American Association for the Study of Liver Diseases (AASLD). *Endocr Pract*. 2022;28(5):528-562. doi:10.1016/j.eprac.2022.03.010

Suggested Citation:

Nosotros Comprometidos A Su Salud, University of Arizona Mel and Enid Zuckerman College of Public Health (2023). Community Outreach and Engagement for Liver Disease Prevention and Treatment in Southern Arizona Annual Report 2022.