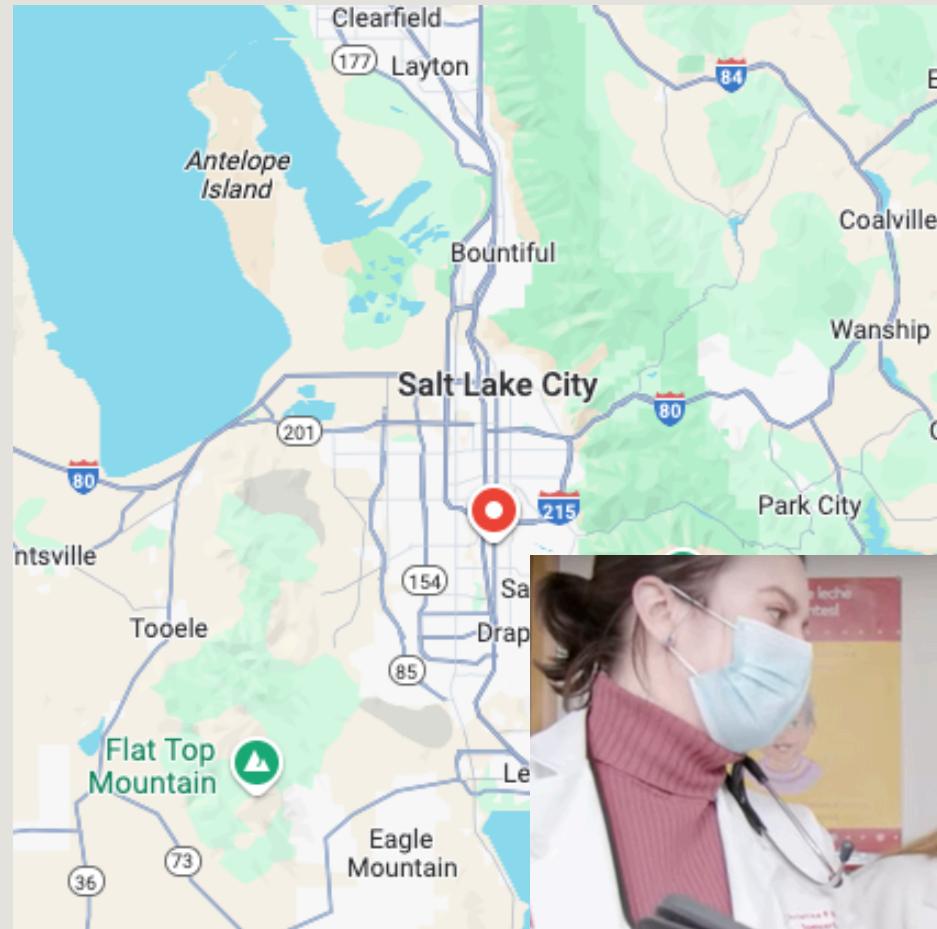


Understanding Distinct Needs in Diabetes and Fatty Liver Online Communities: A Reddit Analysis

March 2025



A Real-World Inspiration Meets Online Conversations



"At CBC Midvale – a community health center in Utah that support patients, managing chronic conditions like Diabetes and Fatty Liver (NAFLD)".

- Both are chronic, growing health issues with emotional and lifestyle impact.
- Reddit gives raw, real conversations

The Question

How can we better **understand** the distinct **needs, concerns, and communication patterns** of diabetes and fatty liver disease online communities to improve **healthcare support**?

Introduction

- Analysis of 2,000 posts that have 39,000+ comments from r/diabetes and r/FattyLiverNAFLD
- Used text analysis, classification modeling, and sentiment analysis
- Found clear differences in communication patterns, concerns, and support needs

Methodology Overview

Data Collection:

- 1,000 posts from each subreddit (r/diabetes and r/FattyLiverNAFLD)
- 27,403 (1:27) comments from diabetes and 11,627 (1:11) from fatty liver communities
- Text preprocessing: lemmatization, removal of stop words, vectorization

Analytical approach:

- Topic modeling
- Sentiment analysis
- Classification model to distinguish communities

Top Words Comparison

r/diabetes

Key Unique Words:

sugar

Insulin

blood sugar

low

glucose

carb

type

Community Focus:

- Daily monitoring of blood sugar levels
- Insulin management and administration
- Managing hypoglycemia ("low")

r/FattyLiverNAFLD

Key Unique Words

liver

fatty liver

alt

ast

ultrasound

weight

pain

Community Focus:

- Diagnosis testing (alt/ast enzymes, ultrasound)
- Weight management and loss strategies
- Dietary changes and restrictions
- Symptom management (e.g. pain)

Common Words Across Both Communities

eat

day

know

time

year

month

help

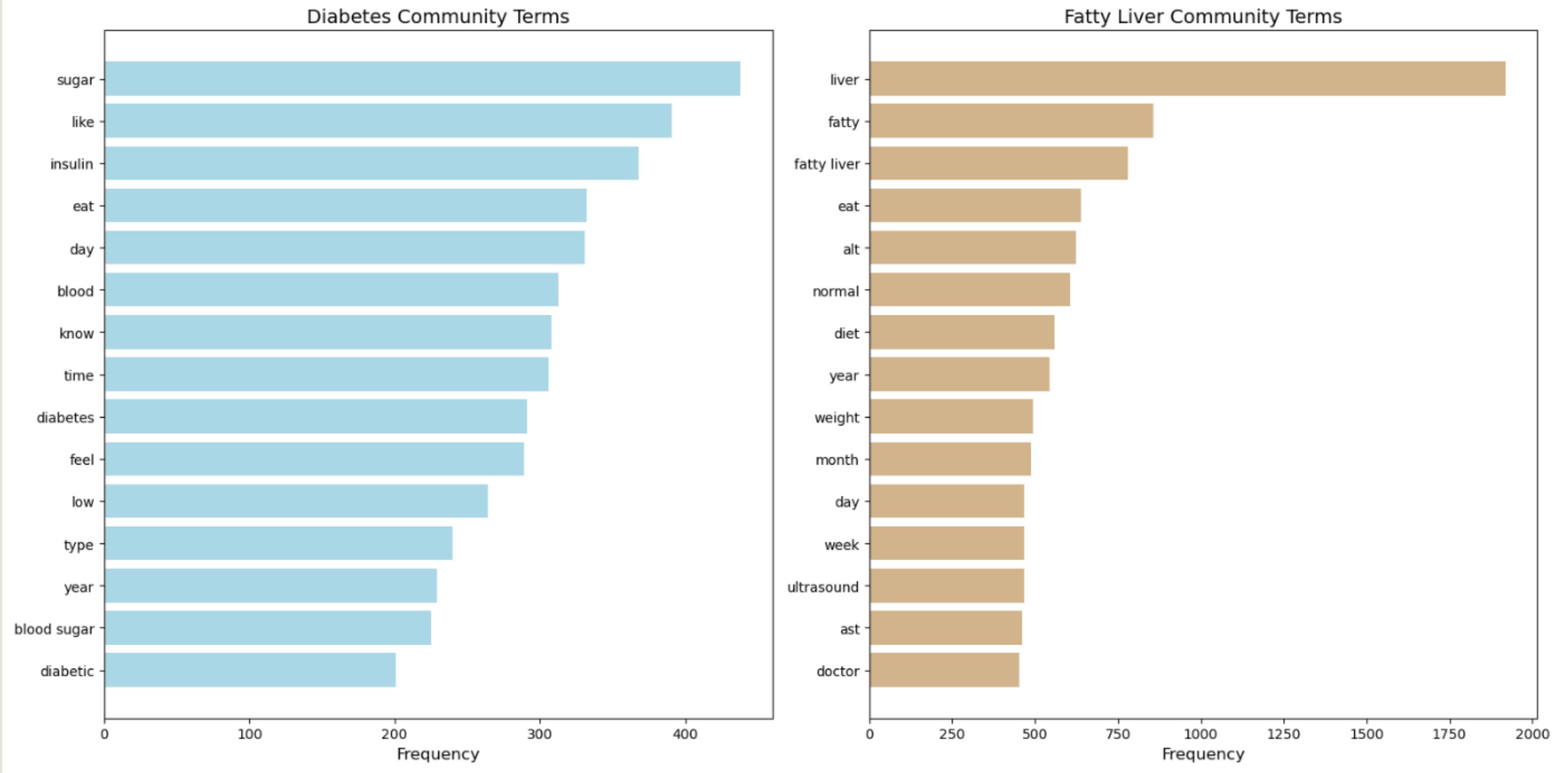
high

diagnose

week

work

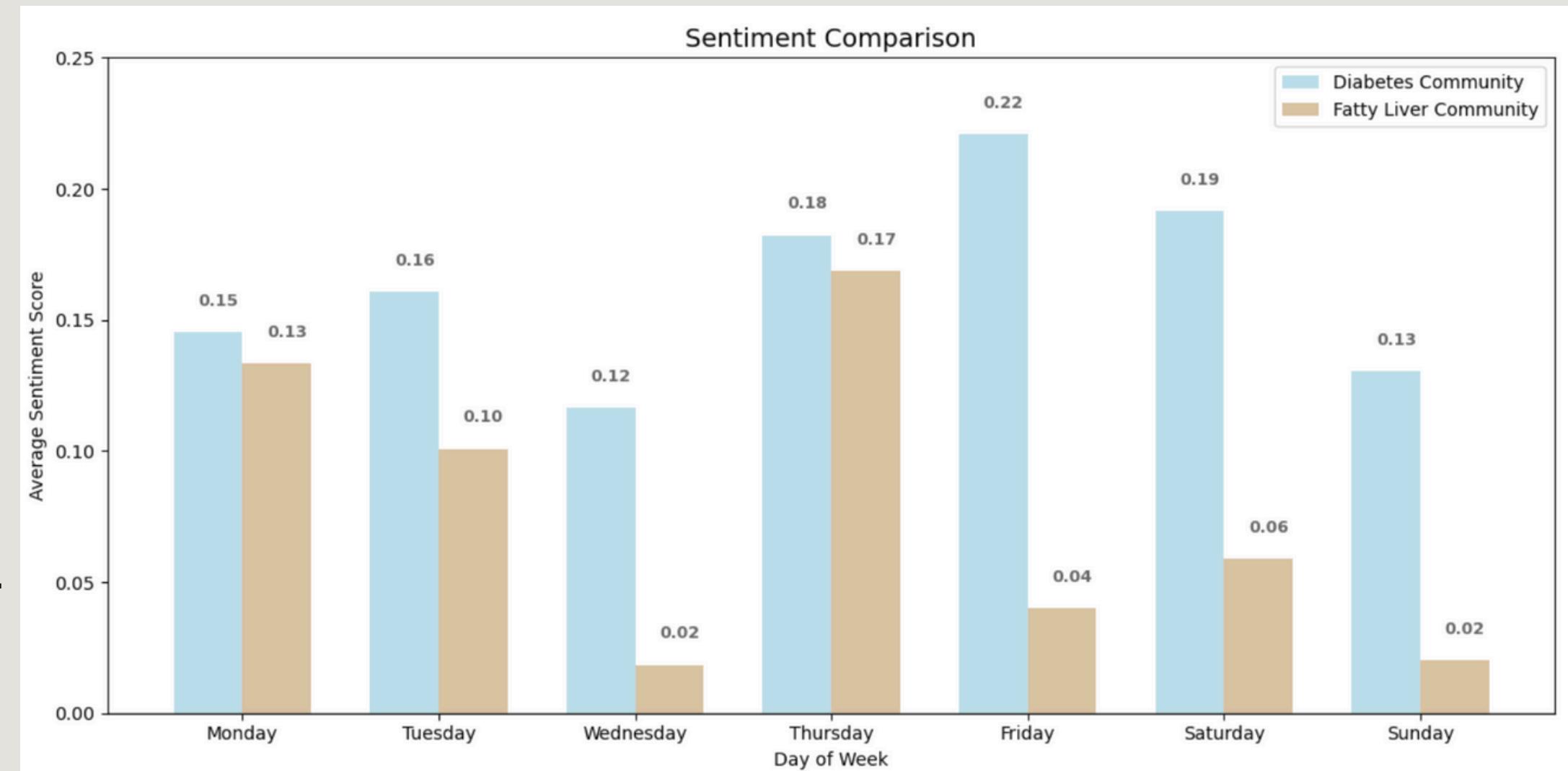
Top Terms Comparison



Sentiment Analysis

Key Findings:

- Both communities maintain surprisingly positive sentiment (>0 scores)
- Diabetes community shows more consistent positive sentiment across weekdays
- Fatty liver community has higher sentiment variation by day of week
- Thursday shows alignment between communities



Classification Models

	Logistic Regression	Naive Bayes	Baseline
Accuracy	0.947368	0.894737	0.50

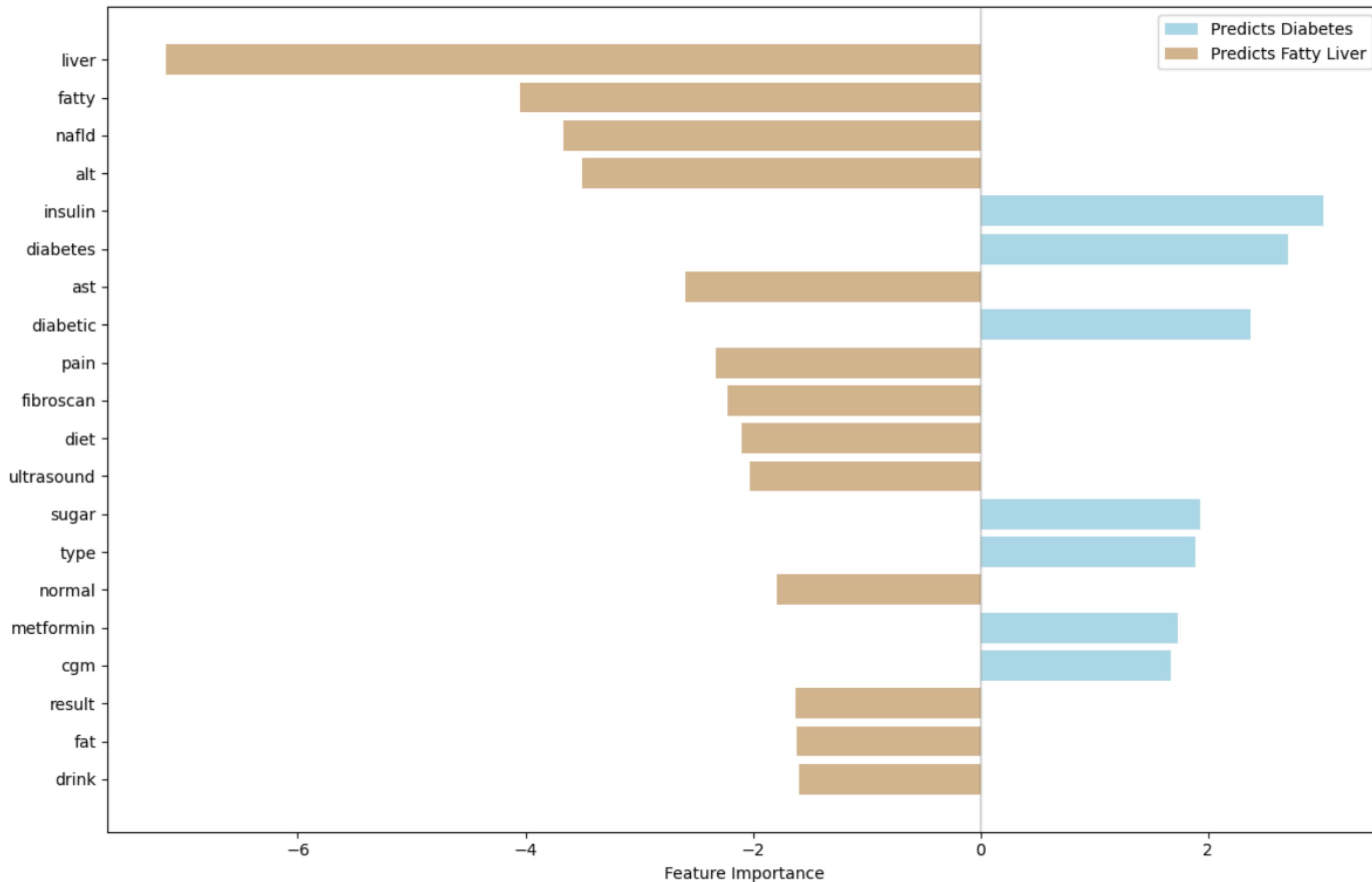
Best Model Performance:

- Logistic Regression achieved 95.49% accuracy
- Top predictive features clearly differentiate communities

Top Predictive Features:

- Diabetes indicators: insulin, diabetes, diabetic, sugar, type, metformin, CGM
- Fatty liver indicators: liver, fatty, NAFLD, ALT, AST, ultrasound, fibroscan

Most Influential Words



Diabetes Subreddit	sugar, like, insulin , eat, day, blood, know, time, diabetes, feel, low, type, year, blood sugar , diabetic , start, help, month, high, try, think , want , week, diagnose, need , good , work , glucose, long, carb
Diabetes Subreddit Patients	sugar, blood, eat, insulin, day, feel, like, blood sugar, time, low, know, start, year, diabetes, number , diagnose, high, week, hour , glucose, type, spike , try, meal , month, carb, help, level , change, long
Key features Model	insulin, diabetes, diabetic, sugar, type, metformin , cgm

Fatty Liver NAFLD	liver, fatty, fatty liver, eat, alt , normal, diet, year, weight, month, ultrasound , week, day, ast , doctor, like, result, blood, nafld, high, test , lose, time, know, pain, diagnose, drink, work, say, start
Fatty Liver NAFLD Patients	liver, fatty, alt, normal, fatty liver, eat, pain, ast, year, weight, week, ultrasound, doctor, month, high, result, lose, blood, diet, test, time, drink, day, like, know, work, start, say, nafld, diagnose
Key Features Model	liver, fatty, nafld, alt, ast, pain, fibroscan , diet, ultrasound, normal, result, fat , drink

Comparative Analysis

r/Diabetes

- Focus on management (insulin, blood sugar)
- Patient data reveals monitoring focus (number, hour, spike, level)
- Model identifies treatment tools (metformin, cgm)
- Emotional/cognitive terms (think, want, need) prominent in general discussion

r/Fatty Liver NAFLD

- Focus on diagnosis (alt, ast, ultrasound, test)
- Patient data mirrors general discussion closely
- Model identifies diagnostic tools (fibroscan) and core issues (fat)
- More medical/technical terminology compared to diabetes

Key Insights & Implications

Communication Differences:

- Diabetes community: focused on day-to-day management and monitoring
- Fatty liver community: focused on diagnosis, test results, and lifestyle change

Support Needs:

- Diabetes: Practical advice on device management, food choices
- Fatty liver: Information on diagnosis interpretation, dietary guidance

Healthcare Applications:

- Tailored educational materials addressing specific concerns
- Community-specific support approaches based on communication patterns
- Using community language in patient materials

Conclusion & Future Work

Summary Statement: "Online communities for diabetes and fatty liver reveal distinctly different communication patterns, concerns, and support needs that can inform targeted healthcare communication."

Future Research:

- Compare with clinical communication to identify gaps
- Develop and test tailored support interventions based on findings
- Explore how community language evolves over time, particularly in response to new treatments or guidelines

THANK YOU

