

# A Lifestyle Intervention in Hispanic Adolescents with Nonalcoholic Fatty Liver Disease

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## Significance of the Problem

- ❖ Pediatric NAFLD is now the most prevalent liver disease in childhood (Khurana et al., 2022).
- ❖ U.S. population studies have confirmed that Hispanics have the highest prevalence of NAFLD and the worst disease prognosis (Katz et al., 2021).
- ❖ As of 2019, in the U.S., NAFLD has surpassed hepatitis C and is now the most common cause of liver transplant in adults younger than 50 years old, suggesting that pediatric onset can have an aggressive course (Yu & Schwimmer, 2021).

## PICOT Question

In Hispanic adolescents aged 10-21 with obesity and NAFLD (P), what is the effect of a multicomponent lifestyle modification intervention (I) on ALT (O), over a 12-week time period (T)?

## Review of the Literature

Evidence	Database	LOA/ Quality
Gonzalez-Ruiz et al. (2021) Malecki et al. (2021) Yurtdas et al. (2021) Katsagoni et al. (2020) Medrano et al. (2018) Moran et al. (2017)	CINAHL	II/ Moderate <sup>b</sup> IV/ High <sup>b</sup> II/ High <sup>b</sup> I/ High <sup>b</sup> I/ High <sup>b</sup> IV/ High <sup>b</sup>
Cohen et al. (2021) Van Name et al. (2020) Schwimmer et al. (2019) Gibson et al. (2017)	MEDLINE	II/ Moderate <sup>b</sup> III/ High <sup>b</sup> II/ High <sup>b</sup> I/ High <sup>b</sup>
Cusi et al. (2022) Lefere et al. (2022) Arab et al. (2020) Mann et al. (2019) Utz-Melere et al. (2018)	Science Direct	I/ High <sup>a</sup> IV/ Moderate <sup>b</sup> I/ Moderate <sup>a</sup> I/ High <sup>b</sup> I/ Moderate <sup>b</sup>
Vos et al. (2017)	TRIP	I/ High <sup>a</sup>

<sup>a</sup>AGREE II; <sup>b</sup>CASP

## Best Practices

- ❖ Lifestyle modifications centered around a well-balanced diet, based on the principles of the Mediterranean diet, that avoids high sugar consumption, especially sugar-sweetened beverages (Arab et al., 2020; Cohen et al., 2021; Cusi et al., 2022; Katsagoni et al., 2020; Malecki et al., 2021; Mann et al., 2019; Moran et al., 2017; Schwimmer et al., 2019; Vos et al., 2017; Van Name et al., 2020; Yurtdas et al., 2021).
- ❖ A decrease in sedentary activity and an increase in moderate to vigorous aerobic exercise and/ or resistance training at least 30-60 minutes a day, for at least 3 times a week (Gonzalez-Ruiz et al., 2021; Medrano et al., 2018).
- ❖ Adherence promotion through parental involvement, educational sessions, psychosocial support, and frequent follow-up (Cohen et al., 2021; Lefere et al., 2022; Malecki et al., 2021; Moran et al., 2017; Schwimmer et al., 2019; Yurtdas et al., 2021; Van Name et al., 2020).

## Implementation

- Setting:** Urban underserved pediatric primary care office in New York
- Participants:** **Sample:** 21 Hispanic youth  
**Age Range:** 10-19  
**Mean Age:** 10.66 (*SD* = 2.98)  
**Gender:** 16 male/ 5 female  
**Preferred Language:** 10 English/ 11 Spanish
- Intervention:** Nutrition and physical activity education folder  
Timestamp water bottle  
Neighborhood resource guide  
Individualized goals set  
Parental involvement  
Two nutrition classes  
Follow up phone calls at week 3, 6, 9, and 12
- Comparison:** ALT, BMI *z* Score, and KIDMED questionnaire pre- and post-intervention
- Timeframe:** 12 weeks

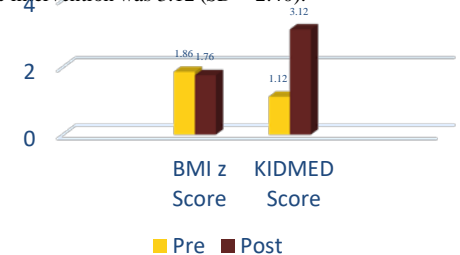
## Evaluation

### Primary Outcome

- ❖ A Wilcoxon test was calculated to compare the mean ALT levels: pre-intervention ALT was 76.48 (*SD* = 43.92), and post-intervention was 69.81 (*SD* = 33.65). A decline was noted, but a significant difference was not found ( $Z = -1.113$ ,  $p > .05$ ).

### Secondary Outcomes

- ❖ **BMI *z* Scores.** A paired-samples *t* test found a significant decrease from the start of the intervention ( $t(20) = 2.518$ ,  $p = 0.02$ ). The mean pre-intervention was 1.86 (*SD* = 0.73), and post-intervention was 1.76 (*SD* = 0.68).
- ❖ **KIDMED Scores.** A paired-samples *t* test found a significant increase from pre- to post-intervention ( $t(24) = -8.165$ ,  $p < 0.001$ ). The mean pre-intervention was 1.12 (*SD* = 2.13), and post-intervention was 3.12 (*SD* = 2.40).



## Conclusion & Recommendations

- ❖ Lifestyle modification interventions can benefit Hispanic adolescents ALT and BMI *z* scores.
- ❖ More research is needed to ascertain the optimal BMI *z* reduction in Hispanic adolescents to achieve ALT normalization.
- ❖ Future research considerations should include ways to maintain cultural competence, cultural humility, and professional diversity through the biased Mediterranean diet.