Interventions for Asian Americans with or At Risk for Cardiometabolic Diseases: Systematic Review

Angelina P. Nguyen, PhD, RN, CNE;[1] Mamie Tadano, BSN, RN;[2]
Tam H. Nguyen, PhD, MSN/MPH, RN;[2] Brianna Y. Im;[2] Anna Nguyen, PhD, RN, CPN;[3] Miyong T. Kim, PhD, RN[4]

[1]Baylor University, Louise Herrington School of Nursing; [2]Boston College, William F. Connell School of Nursing;
[3]University of Oklahoma, Fran and Earl Ziegler College of Nursing; [4]University of Texas at Austin, School of Nursing

BU BAYLOR University
LOUISE HERRINGTON SCHOOL OF NURSING

BOSTON COLLEGE
Connell School of Nursing

Background/Purpose

Diabetes and cardiovascular disease are ranked in the top five causes of Asian American deaths.[1] Many researchers have tailored interventions to support culturally sensitive and relevant care for this population. However, the focus has mainly been directed at linguistic translations and cultural adaptations using a "one size fits all for an ethnic group" approach. The next step is to provide "targeted and tailored" interventions that attend to the "within group variations" that result from intersectionality. *Precision health is needed to reshape the science of culturally tailored interventions and develop more effective approaches to treat these cardiometabolic diseases.[2]* As a precursor, it is imperative to learn from previous studies in this population.

The purpose of this systematic review was to identify key factors that lead to variations in outcome in cardiac-metabolic interventions among Asian Americans

Aim 1: Determine similarities and unique characteristics related to the study/intervention design used.

Aim 2: Explore factors that were associated with higher retention rates and intervention effectiveness.
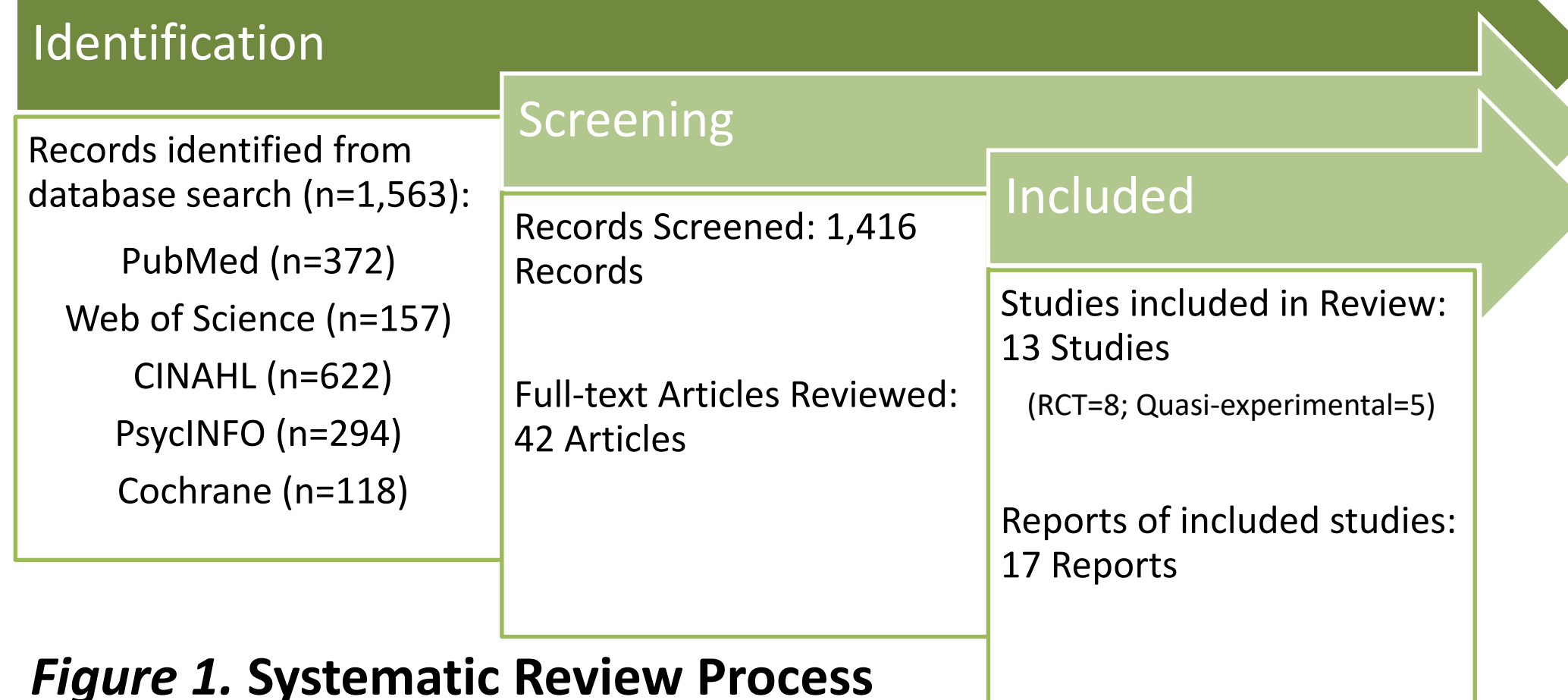

Figure 1. Systematic Review Process

Identification

Records identified from database search (n=1,563):
PubMed (n=372)
Web of Science (n=157)
CINAHL (n=622)
PsycINFO (n=294)
Cochrane (n=118)

Screening

Records Screened: 1,416 Records

Full-text Articles Reviewed: 42 Articles

Included

Studies included in Review: 13 Studies
(RCT=8; Quasi-experimental=5)

Reports of included studies: 17 Reports

Methods

- A systematic search was conducted with the following inclusion criteria:
  1. Experimental design
  2. Asian American/Pacific Islander (AAPI) sample
  3. Conducted in the United States
  4. Focus on cardiometabolic outcomes (especially hypertension and T2DM)
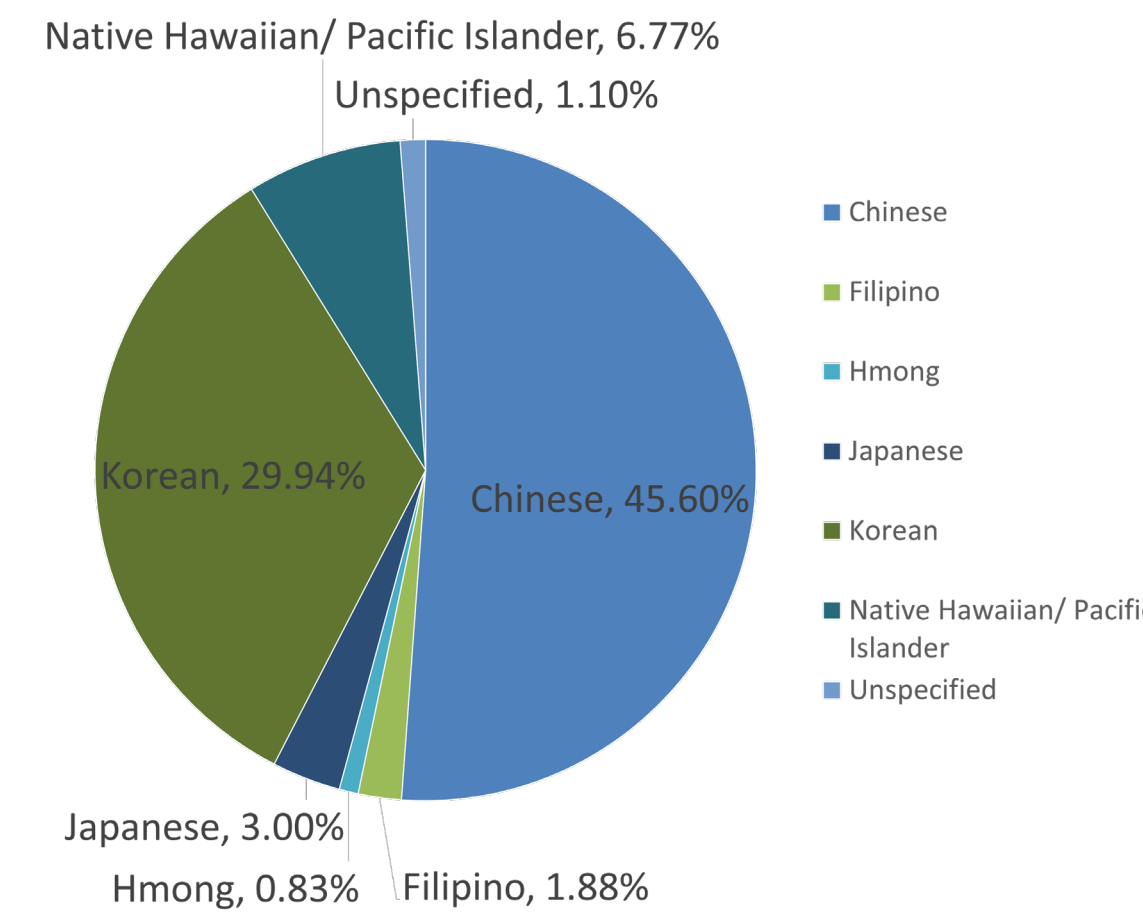- Rayyan® used for independent screening of titles, abstracts, and full texts by two nurse researchers.[3]

Figure 2. Participant Ethnicity

- Chinese, 45.60%
- Korean, 29.94%
- Native Hawaiian/ Pacific Islander, 6.77%
- Japanese, 3.00%
- Filipino, 1.88%
- Unspecified, 1.10%
- Hmong, 0.83%

Legend: Chinese, Filipino, Hmong, Japanese, Korean, Native Hawaiian/ Pacific Islander, Unspecified

Results

- 13 studies (17 articles) published between 2002 and 2021
- 92.3% of the studies used cultural-tailoring[4-19]
- 38.5% of the studies included community health workers[10,12-14,15-18]
- Mean Age of Participants[4-20]: 58.9 years
- Mean BMI of Participants[4-7,10,13-14,16,19-20]: 27.1 kg/m^2
- Statistically Significant Improvement of Physiological Outcomes[4-5,7-10,12-13,15,17-18]
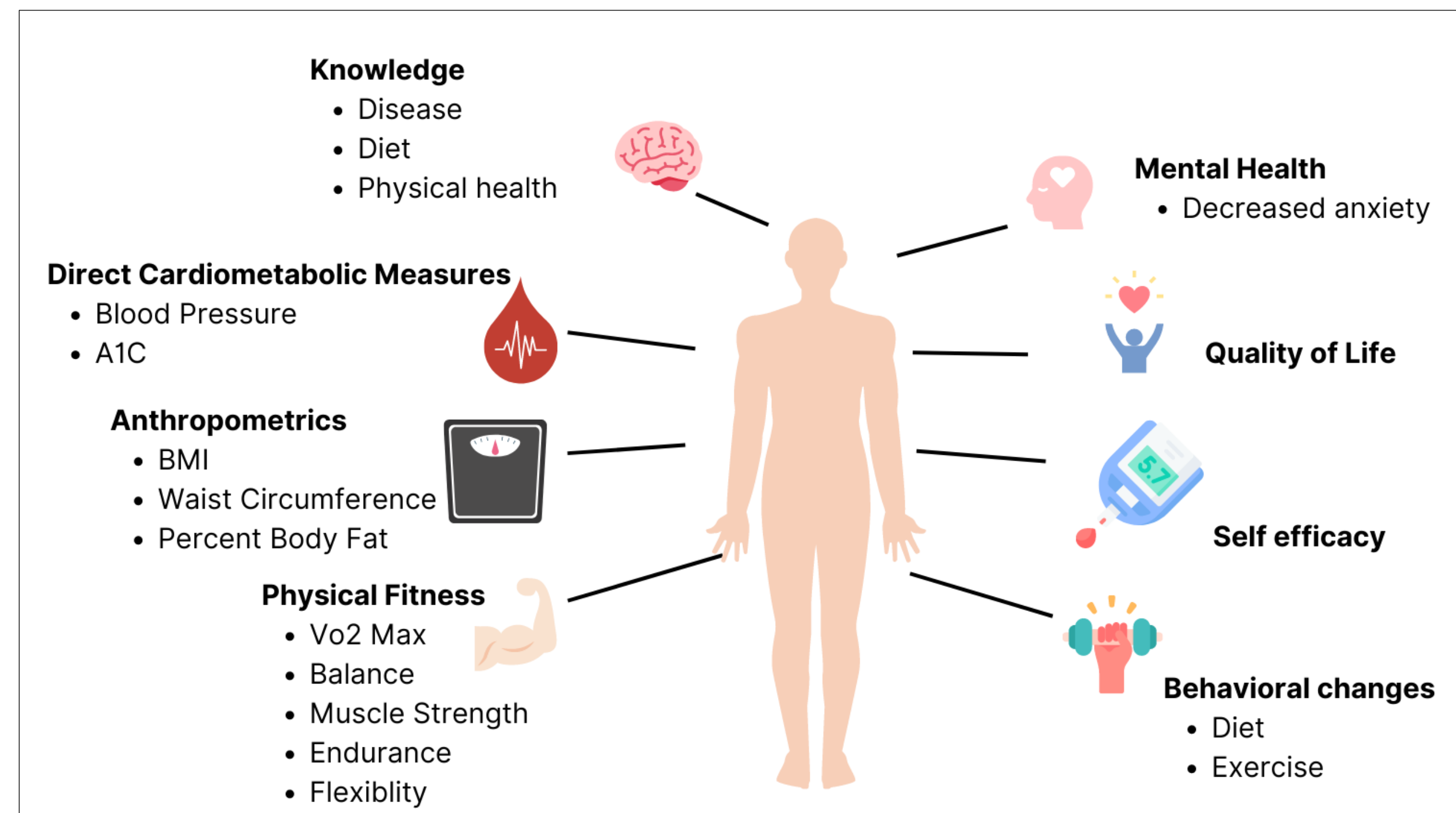- Statistically Significant Improvement of Psychosocial and Behavioral Outcomes[6,8,14-20]

Knowledge
- Disease
- Diet
- Physical health

Mental Health
- Decreased anxiety

Direct Cardiometabolic Measures
- Blood Pressure
- A1C

Quality of Life

Anthropometrics
- BMI
- Waist Circumference
- Percent Body Fat

Self efficacy

Physical Fitness
- Vo2 Max
- Balance
- Muscle Strength
- Endurance
- Flexiblity

Behavioral changes
- Diet
- Exercise

Figure 3. Improved Physiological & Psychosocial Outcomes

Discussion

- Key components of effective interventions in AANHPI populations:
  1) Cultural-Tailoring
  2) Community/Relationship-Building
- Some studies suggested that lifestyle interventions that are initially intensive but that include long-term maintenance with ongoing support have great potential.[5,10]
- Technology is a potential tool for improving health outcomes.
- Cultural-tailoring can be an effective tool, but **the great potential of precision health is underutilized in intervention studies.**
- Recommendations for future studies:
  - Determine best practice for improved retention rates
  - *Precision Health Implementation requires examining associated sociodemographic variables with AANHPI's success in cardiometabolic health intervention studies*
    - *Improve subgroup analysis and identify major psychosocial phenotypes*

Summary

1. Motivators for Asian American participation in interventional studies to improve cardiometabolic health include:
   - Increasing representation of their ethnic group in research
   - Improving their health knowledge
   - Financial incentives
2. Literature supports the need for relationship building to increase participant satisfaction. Cultural and linguistic similarities between community health workers and participants may improve retention rates.
3. Authors suggest focus group interviews be conducted with researchers from included studies to gain further insight into facilitators of participant retention.

Acknowledgements

For link to poster and reference list: