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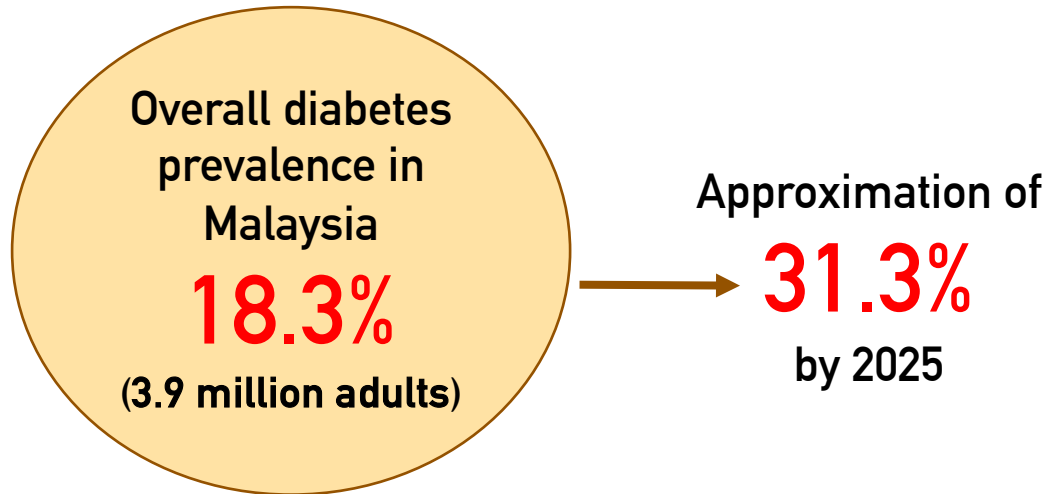
# Home-Based Exercise Program Integrated with Patient Education for Patients with Type 2 Diabetes Mellitus: A Study on Feasibility and Preliminary Effectiveness

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# BACKGROUND OF THE STUDY



**99.3%** were diagnosed with type 2 diabetes mellitus (T2DM)

## DIABETES-RELATED COMPLICATIONS



Primary management is to avert or delay diabetes-related complications by targeting near-normal glycemic levels

## STRUCTURED EXERCISE INTERVENTION

### PROBLEMS

1. Not always emphasize in clinical practice
2. Poor adherence to exercise

### STRATEGY

#### HOME-BASED EXERCISE PROGRAM INTEGRATED WITH PATIENT EDUCATION

- ✓ Promoting long-term exercise participation
- ✓ Providing effective exercise
- ✓ Reducing physical visits to physiotherapists
- ✓ Education may increase adherence to home exercise

# METHODS OF THE STUDY

## DEVELOPMENT OF THE PROGRAM

### SYSTEMATIC REVIEWS

1. What are the characteristics of **exercise protocols** according to current international guidelines for T2DM?
2. Which exercise protocol is most effective in patients with T2DM?
3. What are the characteristics of educational programs based on health belief model (HBM) for T2DM?
4. Is **patient education based on HBM** effective in improving the exercise behavior of patients with T2DM?

## VALIDATION OF THE PROGRAM

**0.83-1.00** Item-content validity index (I-CVI)

**0.95** Scale-CVI/Average (S-CVI/Ave)

**76.5%-100%** Patient Education Material & Assessment Tool (PEMAT)

**1.00** Item-face validity index (I-FVI) and Scale-FVI/Average (S-FVI/Ave)

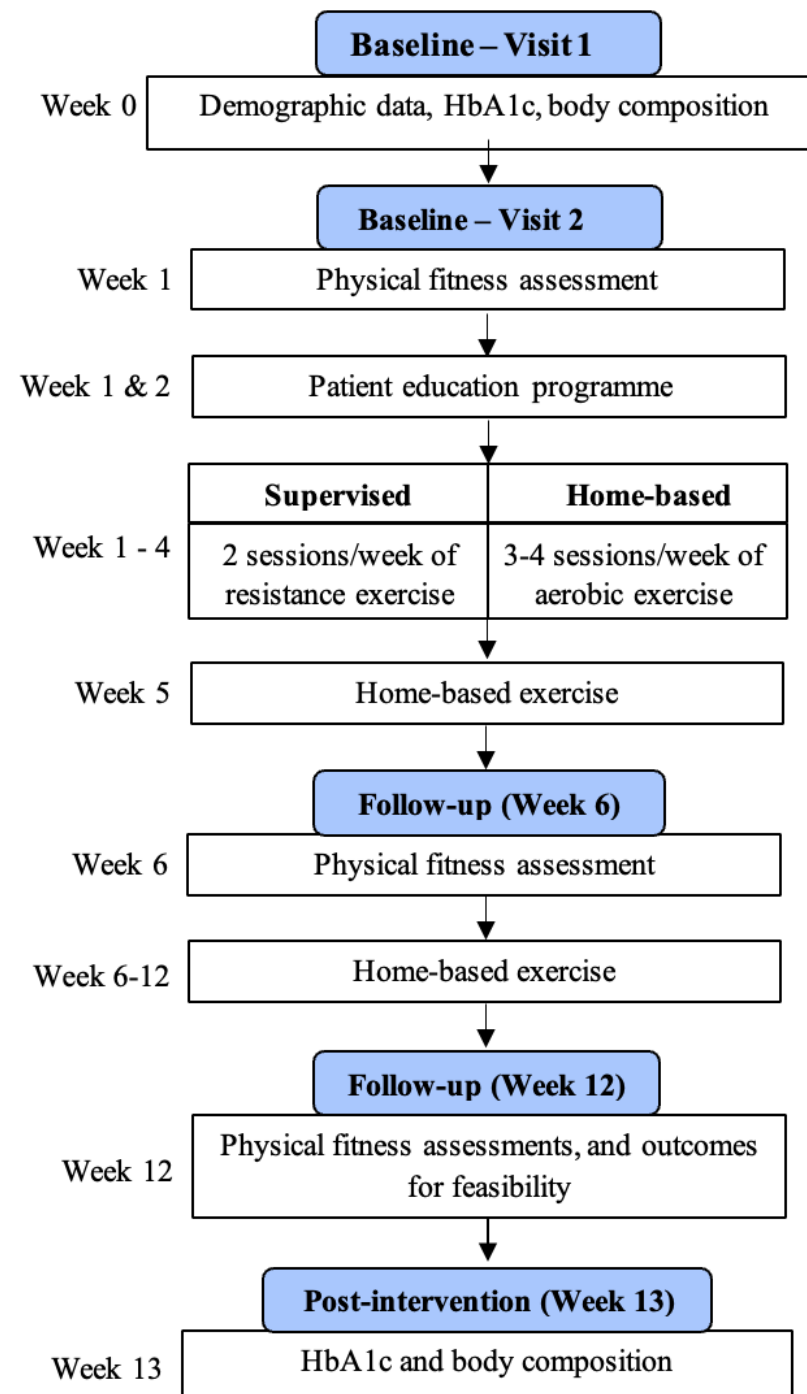
# INTERVENTION

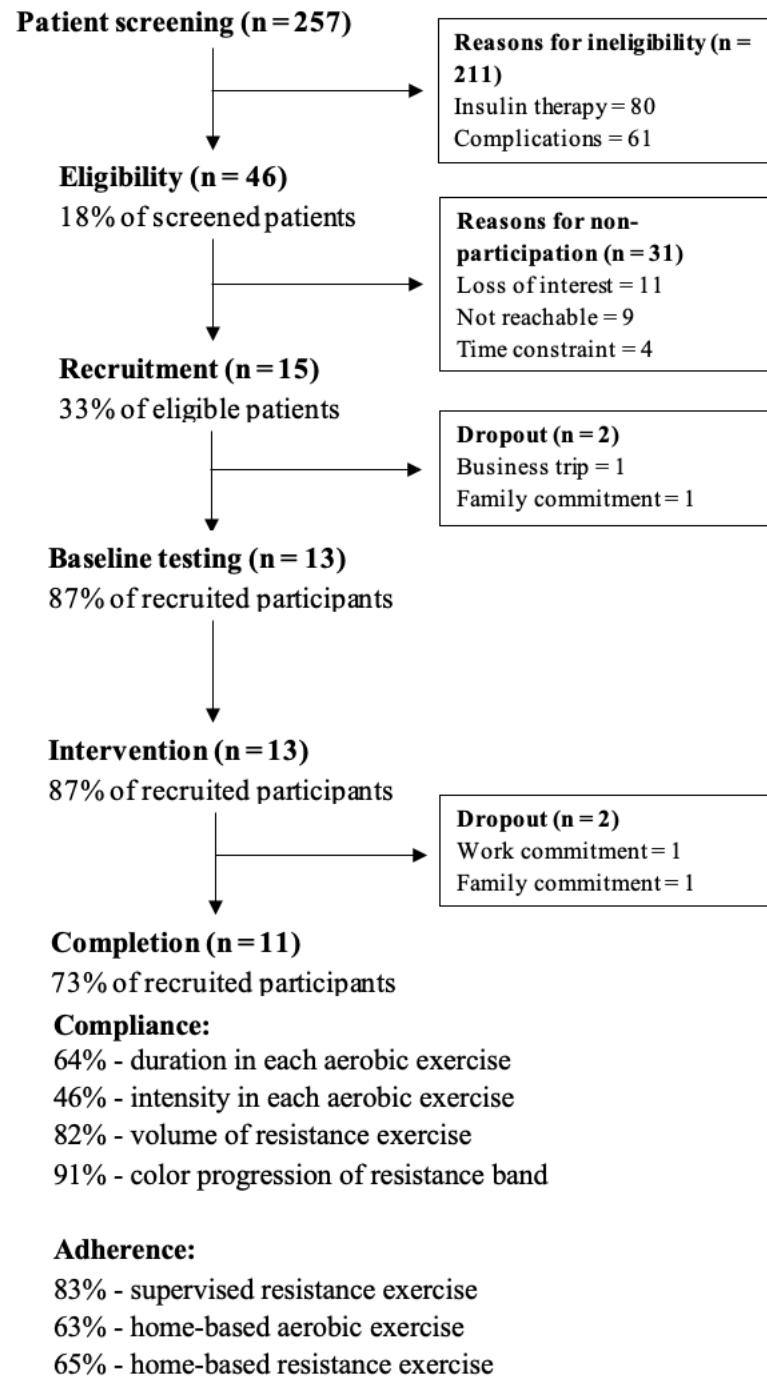
## EDUCATION

F2F group-based education  
60 min per session/ biweekly at the Week 1 and 2

## EXERCISE

<p>F: 5x/week I: 40%-59% of HRR T: 30 min T: Aerobic (brisk walking)</p>	<p>F: 2x/week I: RPE 3-4; 8-10reps x 3sets T: 30 min T: Resistance (band &amp; body weight) - 6 muscle groups</p>
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Satisfaction  $8.73 \pm 0.9$

3 non-serious knee pains (study-related)

4♂, 7♀ |  $60 \pm 3.2$  years

## PRELIMINARY EFFECTS

HbA1c **2.6%**

Fat mass **0.4%**

Waist circumference **2.0%**

6MWT **13%**

Muscle strength of elbow flexor **18%**

Muscle strength of knee extensor **17%**

Muscle mass **0.8%**

# DISCUSSION AND CONCLUSION



The program demonstrates strong validity for patients with T2DM, making it a promising intervention for primary care and community settings



Despite integration with education, a moderate level of exercise adherence was reported owing to competing priorities (e.g., working, personal travel, family commitments, and health issues)



With initial guidance and supervision, patients with T2DM can safely perform independent exercise (low risk of exercise-related severe adverse events)



The program had a potentially positive outcome on glycemic control, aerobic capacity, muscle strength, and body composition in T2DM patients

Mustapa, A., Justine, M., Latir, A. A., & Manaf, H. (2021). Home-Based Physical Activity in Patients With Type 2 Diabetes Mellitus: A Scoping Review. *Annals of rehabilitation medicine*, 45(5), 345–358.  
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Mustapa, A., Justine, M., & Manaf, H. (2022). Effects of patient education on the quality of life of patients with type 2 diabetes mellitus: A scoping review. *Malaysian family physician : the official journal of the Academy of Family Physicians of Malaysia*, 17(3), 22–32.  
<https://doi.org/10.51866/rv.208>

Thank you!

