Leveraging WhatsApp Micro-Learning to Enhance Diabetes Awareness in Young Adults

Findings from a Quasiexperimental Study in Non-Medical University Students

Mohammad Azeem Malik
4th Year MBBS
King Edward Medical University

Why this matters?

- According to the International Diabetes Federation (IDF) Diabetes Atlas (2024), Pakistan has 34.5 million adults with diabetes (3rd highest globally).

- Young adults have very low awareness, high misconceptions.

- Traditional health education is boring, inaccessible, and ineffective.

- Digital platforms—especially WhatsApp—are underused for preventive health.

Why Target University Students?

- **Knowledge Gaps**
  - Low awareness of signs, complications, and screening; misconceptions like diabetes only affects elderly or obese.
  - 29.7% have family history but lack education
- Critical life stage for forming healthy habits
- **Digital Opportunity**
  - Youth in fast-paced, connected world; traditional methods fail to engage.
  - WhatsApp: 40M+ users in Pakistan, ideal for scalable mHealth.
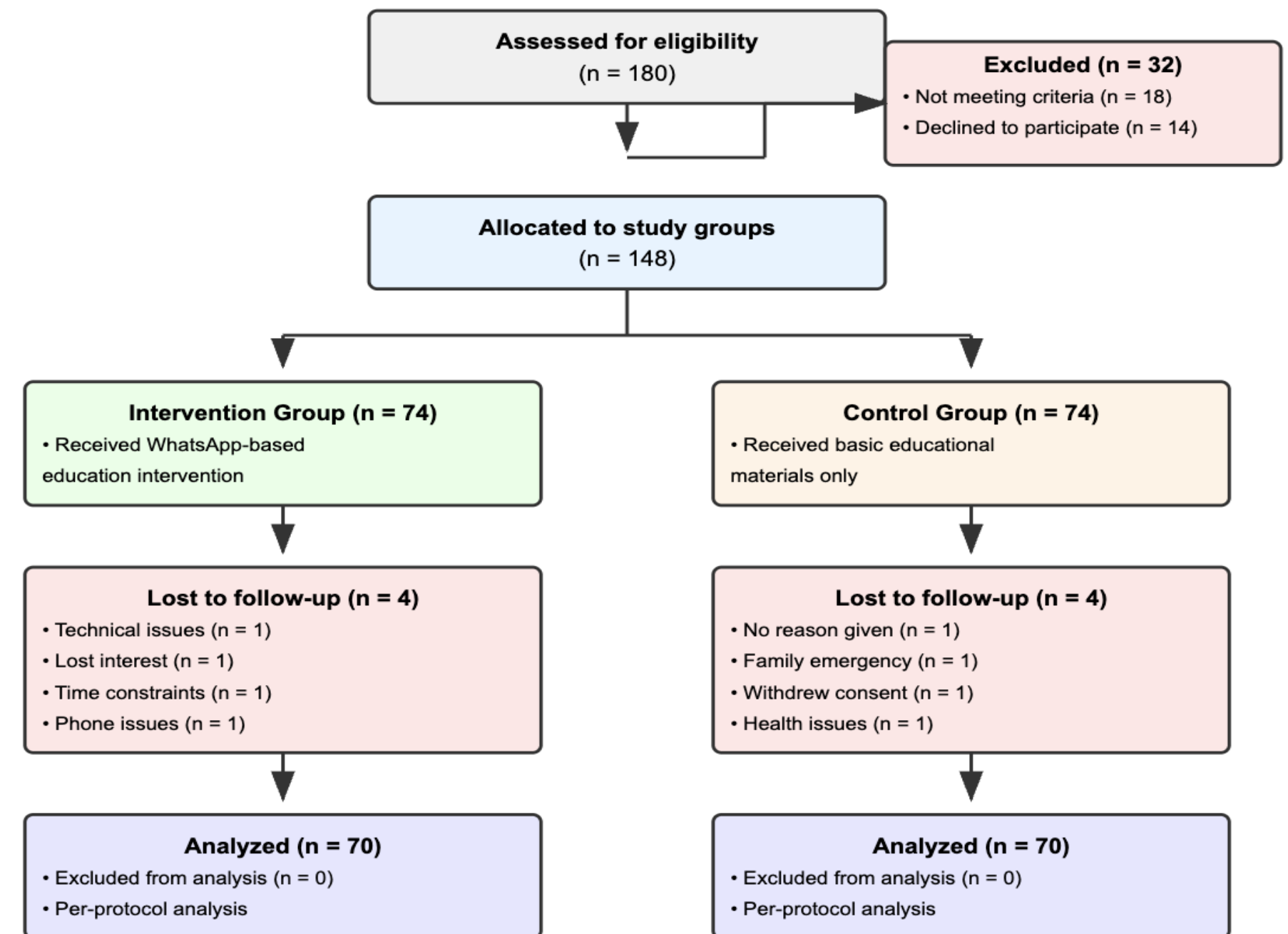
Novelty of our Approach

✓ First microlearning diabetes intervention using WhatsApp in

Pakistan

✓ Uses short, twice-daily multimedia content

✓ Grounded in a behavioral framework (Theory of Planned

Behavior)

✓ High scalability (low-cost platform)

✓ Strong engagement achieved (60.8% high engagement)
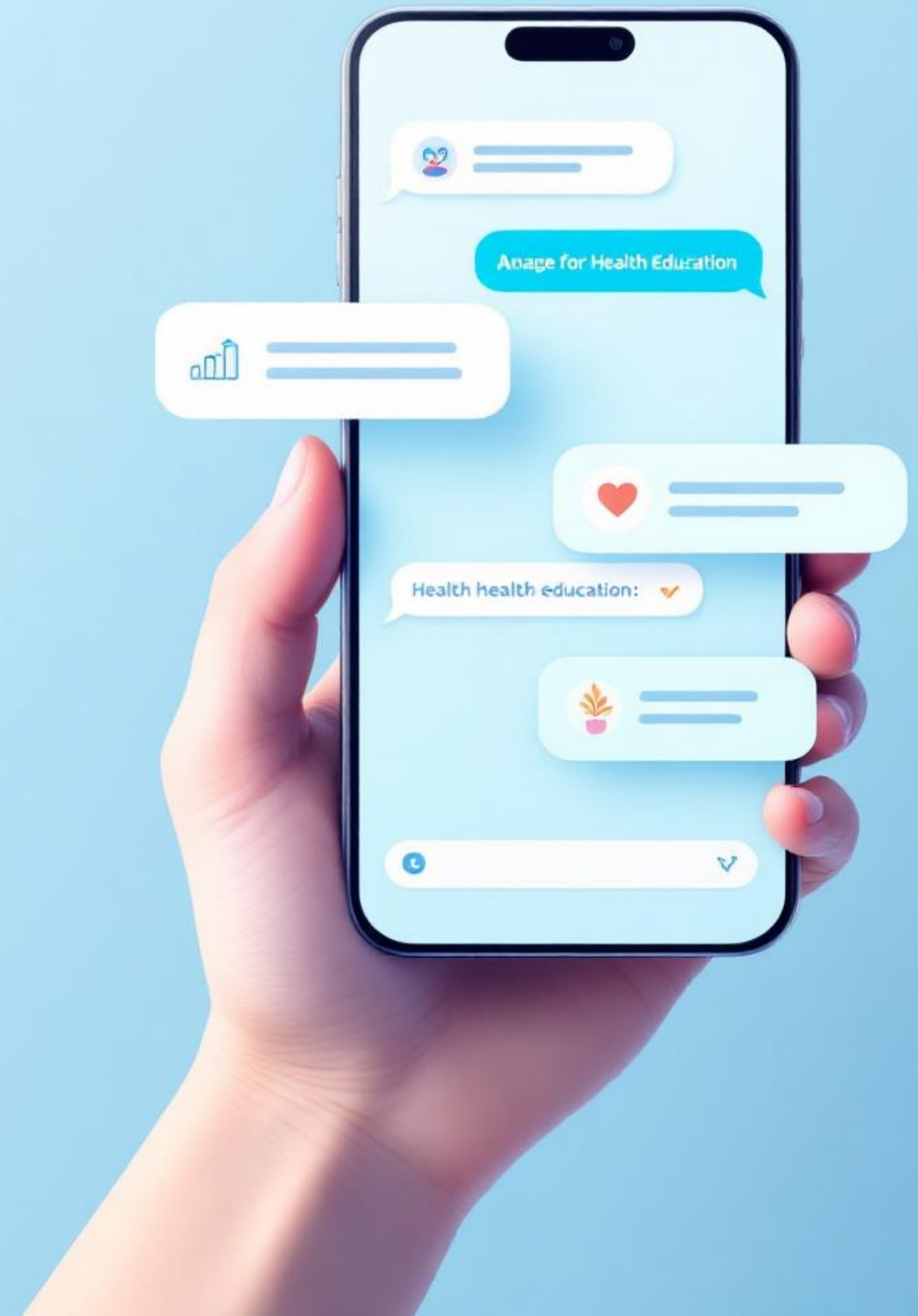
Study Design

- Quasi-experimental pretest–posttest design

- 148 participants, 74 per group

- 14-day WhatsApp microlearning

- Intervention = multimedia + quizzes + moderated discussions

- Control = single PDF only

Figure 1. CONSORT Flow Diagram

Assessed for eligibility
(n = 180)

Excluded (n = 32)
- Not meeting criteria (n = 18)
- Declined to participate (n = 14)

Allocated to study groups
(n = 148)

Intervention Group (n = 74)
- Received WhatsApp-based education intervention

Control Group (n = 74)
- Received basic educational materials only

Lost to follow-up (n = 4)
- Technical issues (n = 1)
- Lost interest (n = 1)
- Time constraints (n = 1)
- Phone issues (n = 1)

Lost to follow-up (n = 4)
- No reason given (n = 1)
- Family emergency (n = 1)
- Withdrew consent (n = 1)
- Health issues (n = 1)

Analyzed (n = 70)
- Excluded from analysis (n = 0)
- Per-protocol analysis

Analyzed (n = 70)
- Excluded from analysis (n = 0)
- Per-protocol analysis

Flow of participants through the WhatsApp-based diabetes education study
February - March 2025, Lahore, Pakistan

Intervention Content

Infographics (14)

Visuals on facts, risk factors, prevention; delivered twice daily over 14 days.

Short Videos (7)

2-3 minute animations on pathophysiology and complications.
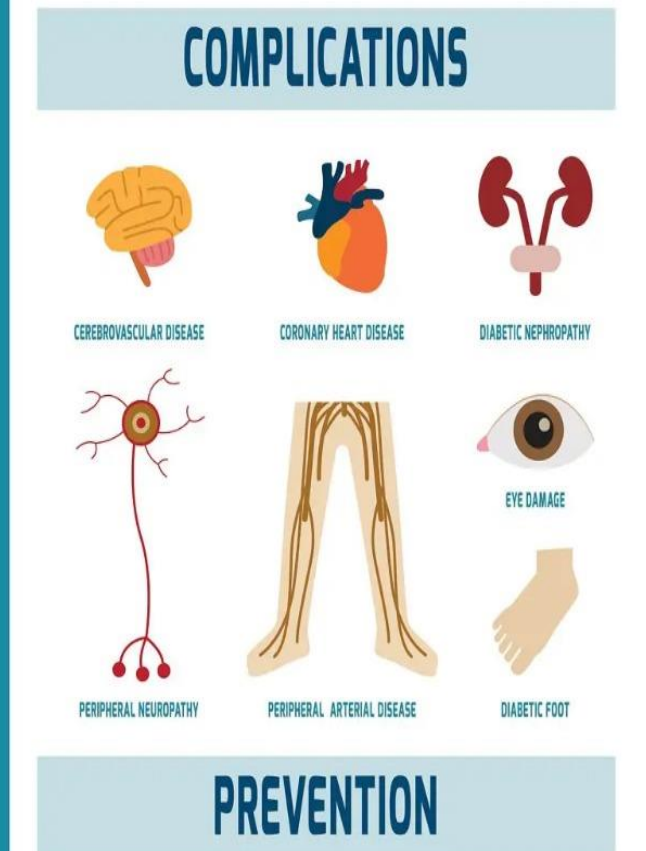
Interactive Quizzes (4)

Weekly assessments with feedback; discussion prompts for peer interaction.

E-Posters

Myth-busting and lifestyle tips; moderated WhatsApp groups.

Predictors and Engagement

Regression Analysis

Attitudes (β=0.468, p<0.001) and PBC (β=0.185, p=0.001) predict intentions; explain 46.8% variance.
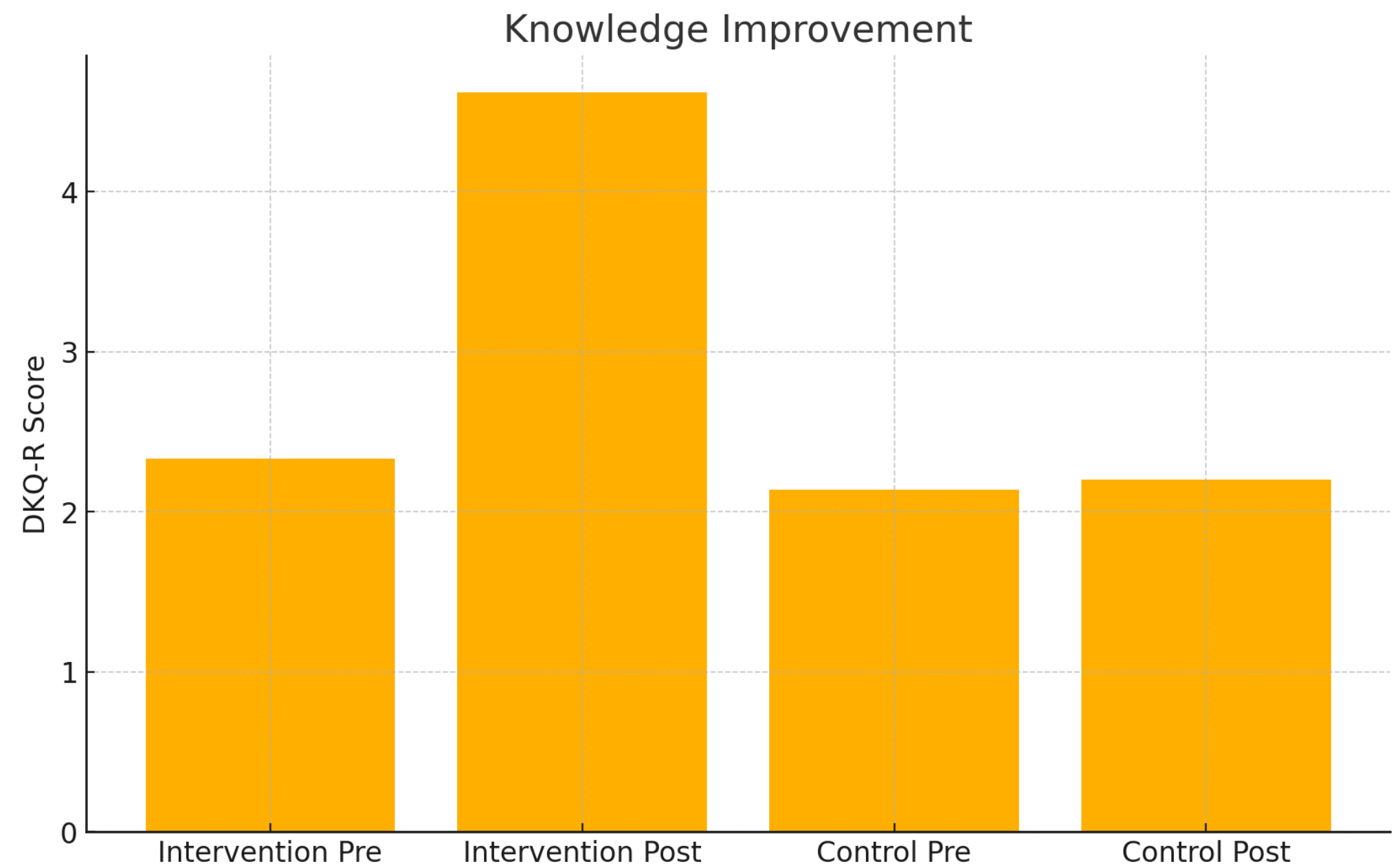
High Engagement

60.8% highly engaged in intervention; 94.6% retention rate, minimal dropouts (5.4%).

Supports Theory of Planned Behaviour; WhatsApp's interactivity boosts participation.

Results: Knowledge

- DKQ-R improved: 2.33 → 4.62 (p<0.001, d=1.71)

- Control: 2.14 → 2.20 (non-significant)

Results: Attitudes & TPB Constructs

- Attitudes (DAS-3):
  - Intervention: 3.65 → 4.40
  - Control: 3.72 → 3.75
  (corrected slight non-significant improvement)

- Intentions (2–10 scale):
  - Intervention: +~5 points
  - Control: slight rise

Attitude Improvement
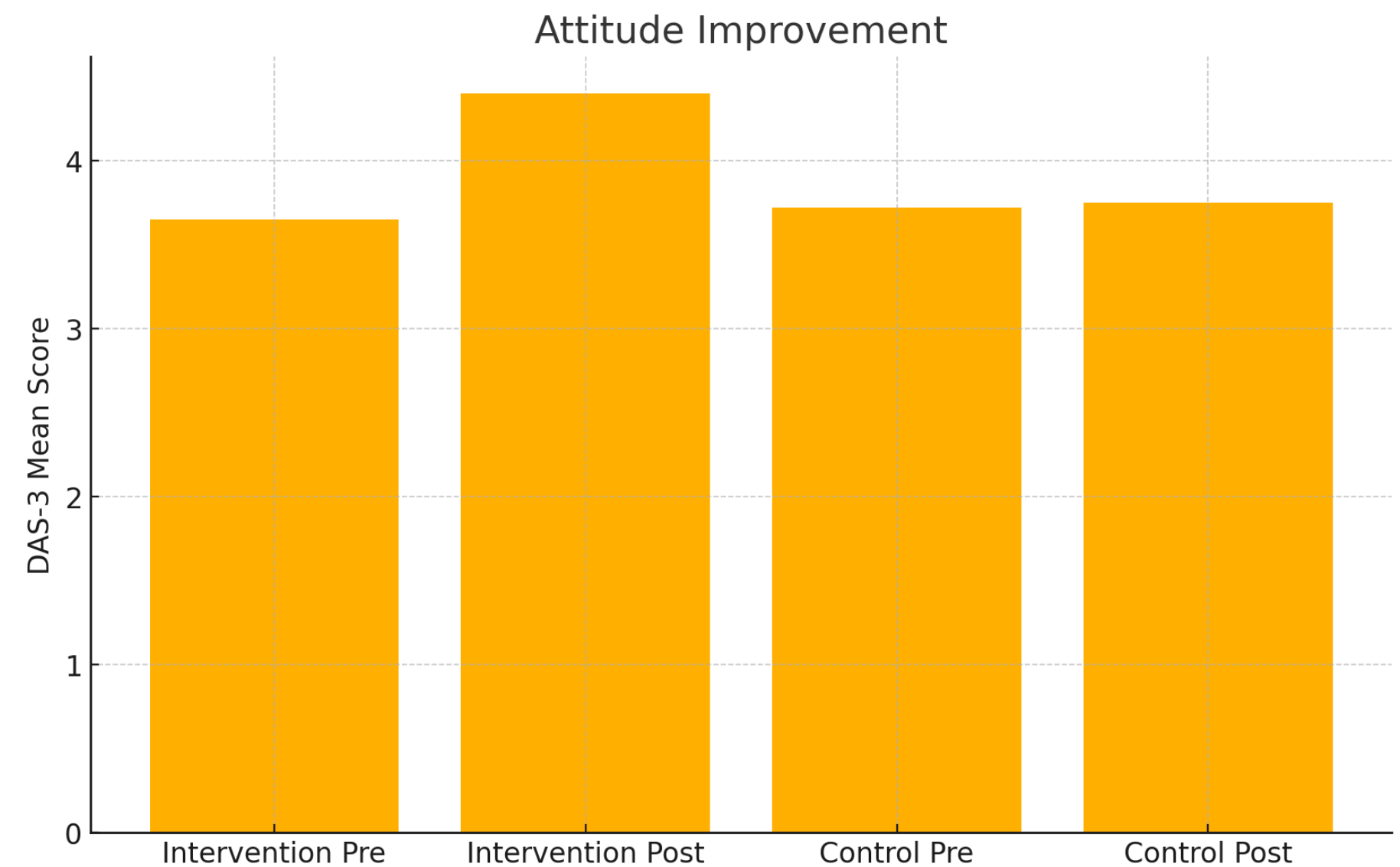
Interpretation

- WhatsApp microlearning = highly acceptable, highly engaging

- Interactive, reinforced content → strong short-term gains

- TPB framework helps explain intention changes

- Findings are exploratory, not causal

- No long-term follow-up or objective behaviors measured

Limitations

- Quasi-experimental (no randomization)

- Short duration (14 days)

- Self-reported outcomes only

- Urban, educated sample → limited generalizability

- No objective behavioural outcomes

Conclusion & Future Directions

- WhatsApp microlearning is promising, scalable, low-cost

- Shows strong potential for youth-targeted diabetes literacy

- Future: RCTs, 3–12 months follow-up, objective behaviour measurement, scaling to universities nationwide