

## Calorie tracking application use and disordered eating attitudes among young adults: A qualitative exploration of psychological experiences

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World Journal of Advanced Research and Reviews, 2026, 30(02), 1123-1126

Publication history: Received on 10 April 2026; revised on 10 May 2026; accepted on 12 May 2026

Article DOI: <https://doi.org/10.30574/wjarr.2026.30.2.1223>

### Abstract

**Background:** Calorie-tracking applications are widely promoted as health-supportive tools for dietary regulation and self-monitoring. However, their psychological impact among individuals with elevated disordered eating attitudes remains insufficiently explored.

**Objective:** This study aimed to qualitatively examine the emotional, cognitive, and self-perceptual experiences associated with calorie-tracking application use among young adults with elevated disordered eating symptomatology.

**Methods:** A qualitative exploratory design was employed. A total of 200 young adults aged 18–30 years were screened using the Eating Disorder Examination Questionnaire (EDE-Q 6.0). Participants demonstrating elevated disordered eating attitudes were purposively selected for semi-structured in-depth interviews. Data were analysed using Braun and Clarke's thematic analysis framework.

**Results:** Five major themes emerged: (1) app as an external authority, (2) emotional impact of calorie numbers, (3) identity tied to discipline and control, (4) harsh self-labelling and inner criticism, and (5) normalisation of distress. Participants frequently described calorie tracking as psychologically controlling, with calorie targets strongly influencing guilt, anxiety, self-worth, and identity.

**Conclusion:** For psychologically vulnerable individuals, calorie-tracking applications may reinforce maladaptive cognitive patterns, externalise dietary control, and intensify disordered eating attitudes. These findings highlight the need for psychologically sensitive clinical recommendations and ethical app design.

**Keywords:** Calorie Tracking Apps; Disordered Eating Attitudes; Young Adults; Digital Health Psychology; Self-Monitoring; Qualitative Research

### 1. Introduction

Digital health technologies have significantly transformed contemporary approaches to dietary monitoring and weight management. Among these technologies, calorie-tracking applications have gained widespread popularity, particularly among young adults seeking greater dietary awareness and behavioural control.

These applications provide users with structured systems for recording food intake, monitoring calorie consumption, and evaluating progress toward health-related goals.

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Although calorie-tracking apps are often framed as empowering tools that promote healthier lifestyles, emerging evidence suggests that their psychological effects may vary considerably depending on individual vulnerability. For individuals with elevated disordered eating attitudes, calorie tracking may extend beyond behavioural monitoring and contribute to guilt, anxiety, rigid self-regulation, and heightened self-criticism.

Disordered eating attitudes include maladaptive concerns related to food, weight, body image, and self-control that may not meet formal diagnostic criteria for eating disorders but remain psychologically significant. Existing literature has primarily focused on measurable behavioural outcomes such as weight loss or dietary adherence, with comparatively limited attention to the lived emotional and cognitive experiences associated with calorie-tracking app use.

This study therefore aimed to explore the subjective psychological experiences of calorie-tracking application use among young adults with elevated disordered eating attitudes. By focusing on emotional responses, cognitive patterns, self-talk, and identity processes, this research contributes to a more nuanced understanding of how digital dietary self-monitoring may interact with psychological vulnerability.

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## **2. Materials and Methods**

### **2.1. Research Design**

A non-experimental, exploratory qualitative research design was adopted to investigate participants' lived experiences of calorie-tracking application use.

### **2.2. Participants**

A total of 200 young adults aged 18–30 years participated in the screening phase. Participants were current or recent users of calorie-tracking applications.

### **2.3. Sampling Technique**

Purposive sampling was used to identify individuals with elevated disordered eating attitudes relevant to the study's objectives.

### **2.4. Screening Instrument**

The Eating Disorder Examination Questionnaire (EDE-Q 6.0) was used to assess disordered eating symptomatology and determine eligibility for qualitative interviews.

### **2.5. Inclusion Criteria**

- Age between 18–30 years
- Active use of calorie-tracking applications
- Elevated disordered eating attitudes
- Provided informed consent

### **2.6. Data Collection Procedure**

Eligible participants completed semi-structured interviews exploring:

- Tracking behaviours
- Emotional experiences
- Cognitive responses
- Self-perception
- Identity-related experiences

### **2.7. Data Analysis**

Interview transcripts were analysed using Braun and Clarke's thematic analysis framework.

## 2.8. Ethical Considerations

Ethical approval was obtained from the relevant academic authority. Written informed consent, confidentiality, and participant welfare were prioritised throughout the study.

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## 3. Results and Discussion

### 3.1. Major Themes Identified

Theme 1: App as an External Authority

Participants frequently described calorie-tracking applications as systems that dictated food-related decisions, often overriding internal hunger and satiety cues. Psychological dependence on tracking behaviours was common.

Theme 2: Emotional Impact of Calorie Numbers

Calorie outcomes strongly influenced emotional states. Exceeding calorie goals elicited guilt, anxiety, shame, and self-criticism, while remaining under target produced relief and pride.

Theme 3: Identity Tied to Discipline and Control

Participants often linked adherence to calorie goals with self-worth, discipline, and personal value. Failure to meet goals was frequently internalised as personal inadequacy.

Theme 4: Harsh Self-Labeling and Inner Criticism

Participants reported intensified negative self-talk, moral judgement, and rigid evaluative thinking surrounding dietary behaviour.

Theme 5: Normalisation of Psychological Distress

Many participants perceived guilt, anxiety, and compulsive tracking as normal aspects of dieting culture, potentially masking psychological harm.

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## 4. Discussion

Findings suggest that calorie-tracking applications may function not merely as neutral health tools but as psychologically active systems that can reinforce maladaptive cognitive and emotional patterns among vulnerable individuals. These results align with cognitive behavioural theories of disordered eating, self-monitoring theory, and sociocultural models of moralised health behaviour.

The study highlights important implications for clinicians, dietitians, and digital health developers. Recommendations regarding calorie-tracking app use should consider users' psychological profiles, particularly among populations vulnerable to eating-related distress.

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## 5. Conclusion

Calorie-tracking applications may offer structure and dietary awareness for some individuals; however, among young adults with elevated disordered eating attitudes, these technologies may intensify psychological distress, reinforce rigid control, and negatively impact self-worth and identity.

A more psychologically informed approach to digital dietary interventions is essential. Future app development should prioritise flexibility, emotional well-being, and ethical design principles to reduce potential harm among vulnerable populations.

## **Compliance with ethical standards**

### *Acknowledgments*

The author(s) acknowledge all participants who contributed to this study and any institutional or academic support received during the research process.

### *Disclosure of conflict of interest*

The author(s) declare no conflict of interest.

### *Statement of ethical approval*

Ethical approval was obtained prior to data collection.

### *Statement of informed consent*

All participants provided informed consent, and confidentiality was maintained throughout the study.

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