RESEARCH LETTER





The Eating Disorder Examination Questionnaire 9: A brief measure of eating pathology

The Eating Disorder Examination Questionnaire (EDE-Q)¹ is one of the most widely used self-report measures for assessing eating disorder (ED) psychopathology. It consists of 22 items divided into four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern, along with six items that measure key ED behaviors, such as binge eating, purging, and excessive exercising. However, the original four-factor model of the EDE-Q (the EDE-Q original) has received limited empirical support.² With its length of 28 items, the EDE-Q may be considered too burdensome when a shorter instrument is needed. Studies utilizing exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) have proposed shorter forms of the EDE-Q for screening or assessing treatment progress and outcomes.² Recent studies^{2.3} suggest that the EDE-Q⁷⁴ can effectively be used for clinical and nonclinical research.

Only two articles have examined the dimensionality of the EDE-Q in the Japanese population.^{5,6} Mitsui et al.⁵ found a fourfactor EDE-Q model (the EDE-Q Mitsui) that yielded four subscales. Otani et al.⁶ noted that while the item assignments in the two Japanese models were similar, they differed from Western models, indicating potential cultural differences in the dimensionality of the EDE-Q between Japan and Western countries. To our knowledge, no articles have addressed the EDE-Q short forms in Japanese samples.

Accordingly, a short form of the EDE-Q was developed, retaining the four-factor structure of the EDE-Q Mitsui.⁵ The criteria for the shortened scales were: (a) to limit the number of items to lessen the burden on participants, (b) to ensure each factor included items from the corresponding dimension in the EDE-Q Mitsui, and (c) to include items with factor loadings above 0.70, based on the EFA in the EDE-Q Mitsui. As a result, nine items were selected: original Items 1, 3, and 4 assessing restriction (Factor 1); Items 22 and 23 evaluating shape/weight overvaluation (Factor 2); Items 25 and 26 measuring body dissatisfaction (Factor 3); and Items 7 and 8 evaluating preoccupation (Factor 4). Thus, the newly created 9-item EDE-Q (EDE-Q9) comprises four factors/subscales: Dietary Restraint, Shape/ Weight Overvaluation, Body Dissatisfaction, and Preoccupation.

Next, factor structures were compared for the EDE-Q original, EDE-Q Mitsui, EDE-Q7, and EDE-Q9 in a Japanese nonclinical sample. The participants comprised 295 female high school adolescents aged 16 to 18 years, with a mean age of 16.3 years (SD = 0.5 years) and a mean body mass index of 20.4 kg/m^2 (SD = 1.9). They completed the validated Japanese version of the EDE-Q. The validity was previously documented.⁷ Each item was rated on a 7-point scale ranging from 0 (*no days* or *not at all*) to 6 (*every day* or *markedly*). The data were treated as continuous, and the EDE-Q short-form scores were derived from the EDE-Q items.

The sample contained no missing data. Internal consistency was found to be acceptable for all factors in the comparative models, except for Factor 2 in the EDE-Q original and Factor 4 in the EDE-Q Mitsui. A series of CFAs were conducted to evaluate and compare the fit of all models. Model fit was assessed following established guidelines.⁸ The CFA results showed a poor model fit for the three-factor and four-factor solutions in the EDE-Q full-scale and EDE-Q7 models (Table 1). However, the EDE-Q9 demonstrated a satisfactory model fit for the four-factor

TABLE 1Goodness of fit statistics for comparative models ofthe EDE-Q full-scale and short-forms.

EDE-Q models	CFI	TLI	SRMR	RMSEA (90% CI)
EDE-Q original	0.78	0.74	0.08	0.13 (0.12-0.13)
Fairburn et al. ¹				
EDE-Q Mitsui	0.81	0.78	0.08	0.12 (0.11-0.12)
Mitsui et al. ⁵				
EDE-Q7	0.97	0.95	0.02	0.12 (0.09-0.15)
Grilo et al. ⁴				
EDE-Q9	0.97	0.95	0.03	0.09 (0.07-0.12)
This study				

Note: Reference values for goodness-of-fit indices: the CFI (\geq 0.90, ideally \geq 0.95), TLI (desirable \geq 0.95), SRMR (\leq 0.08), and RMSEA (<0.10 but around 0.06 desired).

Abbreviations: CFI, comparative fit index; CI, confidence interval; EDE-Q, Eating Disorder Examination-Questionnaire; EDE-Q Mitsui, a four-factor EDE-Q proposed by Mitsui et al.; EDE-Q original, the original model of the four-factor structure EDE-Q; EDE-Q7, 7-item, three-factor EDE-Q; EDE-Q9, 9-item, four-factor EDE-Q, RMSEA, root-mean-square error of approximation; SRMR, standardized root-mean-square residual; TLI, Tucker-Lewis index.

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solution. It is not uncommon for the three- or four-factor structures of the EDE-Q full scale to be unsupported.² Unexpectedly, the EDE-Q7 did not validate the proposed factor structure in this sample, which contrasts with previous studies conducted in Western samples.^{3,9} The reasons for these discrepancies remain unclear, and further research involving other samples in Japan would be beneficial. Conversely, our results support the proposed four-factor solution of the EDE-Q9; adding two preoccupation items to the three-factor structure of the EDE-Q7 improved the goodness of fit for factor structures in this sample. Preoccupation with shape/weight and food/eating may be associated with other facets of ED psychopathology.¹⁰

This study has several limitations. Our findings are based on a nonclinical sample from Japan and included only females within a specific age range; therefore, the results may not be generalizable to more diverse populations. Additionally, the scores for the short forms of the EDE-Q were derived from the full scale, and all behavioral items (binge eating, purging, exercising) were excluded from the short forms like previous studies.^{3,9}

In conclusion, the findings indicate that the EDE-Q9 developed in this study is suitable for epidemiological research when a brief measure of eating pathology is needed to reduce the burden on participants.

AUTHOR CONTRIBUTIONS

Yoshikatsu Nakai designed the study, contributed to the data analysis, and critically reviewed the manuscript. Kazuko Nin contributed to the data analysis and critically reviewed the manuscript. Shunichi Noma contributed to the data collection. All the authors have read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data are available upon reasonable request to the corresponding author.

ETHICS APPROVAL STATEMENT

All procedures were approved by the Ethics Committee of the Kyoto University Graduate School and Faculty of Medicine.

PATIENT CONSENT STATEMENT

All participants provided informed consent and parental permission.

CLINICAL TRIAL REGISTRATION

N/A.

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