

Design and Validation of a Conceptual Model of the Integrated Ego Based on Object Relations Approaches and Davanloo's Psychodynamic Theory

Shaghayegh. Dakhili¹, Davood. Manavipour^{2*}, Alireza. Pirkhaefi²

1 Department of Psychology, Sav.C., Islamic Azad University, Saveh, Iran

2 Department of Psychology, Ga.C., Islamic Azad University, Garmsar, Iran

*Correspondence: manavipour@iau.ac.ir

Article type:
Original Research

Article history:

Received 11 May 2026

Revised 30 July 2026

Accepted 08 August 2026

Initial Publish 13 August 2026

Published online 01 May 2027

ABSTRACT

This study aimed to design and psychometrically validate a conceptual model and measurement instrument for the integrated ego based on object relations approaches and Davanloo's psychodynamic theory. The study employed a survey-based instrument-development design. The statistical population consisted of university students in Tehran, from whom 503 participants were selected through convenience sampling from Islamic Azad University, Central Tehran Branch; Islamic Azad University, Science and Research Branch; Amirkabir University of Technology; and the University of Tehran. The initial conceptual framework was developed through a review of theoretical and empirical literature concerning ego strength, ego development, adaptive capacity, defense mechanisms, emotion regulation, insight, mindfulness, motivation for change, anxiety, attachment, resistance, ego functions, ego differentiation, and object relations. Based on these domains, an initial 177-item questionnaire was constructed and evaluated by experts. Internal consistency was assessed using Cronbach's alpha, and construct validity was examined through exploratory factor analysis using principal component analysis and varimax rotation. The initial questionnaire demonstrated a high total Cronbach's alpha coefficient, but several preliminary components showed inadequate internal consistency. Following item analysis, component refinement, and repeated factor analyses, 46 items were removed, resulting in a final 131-item instrument. The Kaiser-Meyer-Olkin coefficient was .901, and Bartlett's test of sphericity was statistically significant, $\chi^2 = 31,143.442$, $p < .001$, confirming the suitability of the data for factor analysis. The scree plot supported a seven-factor solution comprising defense mechanisms and emotion regulation, mindfulness and motivation for change, resistance and lack of attachment, ego differentiation and quality of object relations, adaptive capacity and ego strength, anxiety, and ego functions. The seven factors jointly explained 37.988% of the total variance. Cronbach's alpha was .928 for the total questionnaire and ranged from .792 to .902 across the seven factors. The findings supported a reliable and construct-valid seven-factor model of integrated ego functioning that encompasses interrelated defensive, emotional, relational, adaptive, motivational, anxiety-related, and executive dimensions consistent with object relations theory and Davanloo's psychodynamic framework.

Keywords: Integrated ego; object relations; Davanloo; psychodynamic theory; ego strength; defense mechanisms; emotion regulation; construct validity

How to cite this article:

Dakhili, Sh., Manavipour, D., & Pirkhaefi, A. (2027). Design and Validation of a Conceptual Model of the Integrated Ego Based on Object Relations Approaches and Davanloo's Psychodynamic Theory. *Mental Health and Lifestyle Journal*, 5(3), 1-26. <https://doi.org/10.61838/mhlj.295>

Introduction

The ego occupies a central position in psychodynamic theories because it is responsible for organizing experience, regulating impulses and emotions, maintaining contact with reality, integrating internal and

external demands, and preserving continuity in the sense of self. From this perspective, psychological health depends not merely on the absence of symptoms but on the degree to which ego functions operate in a coordinated, flexible, and developmentally mature manner. An integrated ego can tolerate anxiety, process affective experience, employ adaptive defenses, maintain stable object representations, differentiate the self from others, and respond constructively to interpersonal and environmental pressures. By contrast, weaknesses in ego organization may be expressed through emotional dysregulation, rigid or immature defenses, unstable attachments, impaired self-reflection, excessive resistance, disturbed object relations, and vulnerability to psychological symptoms. Contemporary studies have increasingly demonstrated that ego strength and ego functions are associated with mental health, relational adaptation, personality organization, and the capacity to manage emotional conflict (1-3).

The concept of ego integration extends beyond any single ego capacity. It refers to the coordinated operation of several psychological systems that together enable the individual to maintain internal coherence while adapting to interpersonal and environmental demands. Ego strength, emotional regulation, defense mechanisms, differentiation, attachment, anxiety tolerance, mindfulness, motivation for change, and object-relational quality can therefore be understood as interconnected manifestations of a broader integrative organization. When these capacities function harmoniously, the person is better able to recognize internal states, contain conflicting impulses, form stable relationships, revise maladaptive patterns, and preserve a coherent identity. When they remain fragmented, the individual may experience unstable self-representations, poorly modulated affect, interpersonal dependency or detachment, distorted perceptions of others, and reliance on rigid defensive strategies. Empirical evidence has shown that ego strength can mediate the relationship between object relations and important psychological or interpersonal outcomes, supporting the view that ego organization links internal representations with observable adaptation (4-6).

Object relations theory provides one of the most important conceptual foundations for understanding ego integration. The theory proposes that early relational experiences are internalized as mental representations of the self, significant others, and the emotional bonds connecting them. These representations subsequently influence identity, attachment, emotion regulation, expectations of intimacy, and patterns of interpersonal behavior. Mature object relations allow the individual to experience both the self and others as complex, stable, and psychologically separate beings who possess both positive and negative qualities. In less integrated forms of psychological functioning, representations may remain fragmented, idealized, devalued, unstable, or dominated by fear of abandonment and rejection. These disturbances can interfere with the ego's capacity to integrate contradictory feelings and may contribute to personality symptoms, relational instability, and maladaptive emotional responses (1, 7, 8).

The quality of object relations is also closely associated with ego strength and identity development. Ego strength enables individuals to tolerate ambivalence, maintain boundaries, regulate closeness and distance, and preserve a coherent self-image in relationships. In turn, stable object representations provide the relational foundation through which the ego develops resilience, self-cohesion, and emotional continuity. Research among students has indicated that ego strength can mediate or moderate the relationship between object relations and identity states, suggesting that internalized relational patterns influence identity partly through the individual's capacity to organize and regulate psychological experience (4). Similarly, ego development and representations of object relations have been linked to complex life decisions such as

migration, in which the individual must manage separation, uncertainty, identity transition, and the reorganization of attachment bonds (9). These findings illustrate that ego integration is relevant not only to psychopathology but also to developmental decisions and major life transitions.

Object-relational functioning has further been associated with mental and physical health outcomes. Dysfunctional internal representations may increase vulnerability to emotional distress by intensifying fears of rejection, dependency, mistrust, or loss. In students, object relations and ego functions have been identified as mediating mechanisms through which family functioning influences mental health (2). In individuals with fibromyalgia, object relations have been linked to symptom severity through mechanisms involving alexithymia and self-compassion, suggesting that relational representations may influence bodily distress through failures in emotional recognition and self-regulation (10). Object relations have also been associated with social anxiety and defensive functioning, indicating that maladaptive internal representations can contribute to interpersonal threat sensitivity and reliance on protective psychological strategies (8). Collectively, these findings support the inclusion of object-relational quality as a fundamental component of any conceptual model of integrated ego functioning.

Defense mechanisms constitute another essential dimension of ego organization. In classical and contemporary psychodynamic thought, defenses are operations used by the ego to manage anxiety, internal conflict, painful affect, and threatening impulses. Defenses are not inherently pathological; rather, their adaptiveness depends on their flexibility, developmental maturity, and appropriateness to the situation. Mature defenses can protect psychological stability without substantially distorting reality, whereas immature defenses may fragment experience, impair relationships, and prevent emotional processing. Differences in ego strength, defense mechanisms, and object relations have been observed between individuals with depression and psychologically healthy individuals, indicating that these constructs form an interconnected system rather than independent characteristics (1). Structural models involving Cluster B personality disorders have likewise shown meaningful relationships among ego strength, defense styles, object relations, and cognitive emotion regulation (11).

Emotion regulation is closely intertwined with defensive functioning. Both processes concern the management of affective activation, but they differ in their degree of awareness and intentionality. Emotion regulation includes the ability to identify, tolerate, modify, and express emotions in ways that support adaptive behavior, whereas defense mechanisms frequently operate outside conscious awareness. An integrated ego must coordinate conscious regulation with less conscious defensive processes so that affect can be experienced without either overwhelming the individual or being excessively avoided. Research on cognitive emotion regulation has shown that adaptive regulatory capacities can be strengthened through targeted psychological interventions (12). Moreover, mentalization-based treatment has been found to improve both object relations and emotion-regulation difficulties in individuals with dependent personality symptoms, further demonstrating the close connection between relational representations, reflective functioning, and affective regulation (13).

The psychodynamic approach developed by Habib Davanloo offers a particularly relevant framework for understanding the dynamic organization of anxiety, defenses, resistance, and emotional experience. Intensive Short-Term Dynamic Psychotherapy conceptualizes psychological symptoms as consequences of unresolved emotional conflicts, particularly those involving attachment, loss, anger, guilt, love, and grief.

When these feelings are activated, anxiety rises and defenses are mobilized to prevent their conscious experience. Resistance emerges when defensive processes become organized against emotional contact, insight, or therapeutic change. Within this framework, effective psychological functioning requires the ego to tolerate anxiety, recognize defenses, overcome resistance, and integrate previously avoided feelings. The capacity to experience and regulate complex emotions without resorting to excessive defensive avoidance is therefore a central indicator of ego strength and integration (12, 14, 15).

Davanloo's approach is especially valuable because it does not treat anxiety, resistance, defenses, and attachment as isolated variables. Instead, these processes are regarded as elements of a dynamic sequence. Attachment-related feelings activate anxiety; anxiety mobilizes defenses; defenses become organized as resistance; and persistent resistance restricts emotional awareness and psychological flexibility. Therapeutic work aims to identify this sequence and strengthen the individual's ability to observe and tolerate internal experience. Thus, mindfulness, insight, and motivation for change can be understood as capacities that support the weakening of resistance and the development of a more integrated ego. Although these concepts have often been examined separately, their organization within a unified conceptual model may provide a more comprehensive representation of psychodynamic functioning (14-16).

Evidence from studies of intensive short-term psychodynamic psychotherapy supports the relevance of this framework. This treatment has been reported to improve alexithymia, defense styles, and ego strength in patients with irritable bowel syndrome, suggesting that emotional awareness, defensive organization, and ego capacity can change together through focused psychodynamic intervention (16). Accelerated short-term psychodynamic therapy has also been associated with improvements in ego functions among patients with generalized anxiety disorder, indicating that therapeutic work on unconscious conflict and affective processing may strengthen fundamental ego capacities (14). In the context of marital relationships, intensive short-term dynamic psychotherapy has been studied in relation to sensation seeking, self-differentiation, and attachment behavior among women prone to marital infidelity, highlighting the relevance of the approach to relational boundaries, attachment patterns, and differentiation of self (15).

Anxiety has a distinctive role in this model. From a psychodynamic perspective, anxiety is not merely a symptom to be reduced; it also serves as a signal of internal conflict and emotional activation. The ego's ability to regulate anxiety determines whether emotionally meaningful material can be processed or whether defensive operations will dominate. Excessive or poorly regulated anxiety may disrupt cognition, impulse control, bodily functioning, and interpersonal engagement. Insufficient recognition of anxiety may also lead individuals to attribute internal tension to external events or physical symptoms. Research examining mentalization in relation to attachment styles, ego strength, object relations, and patterns of anxiety manifestation among students demonstrates that anxiety expression is connected with broader dimensions of personality and relational organization (3). The effectiveness of psychodynamic interventions for generalized anxiety further supports the assumption that improving ego functions can alter the person's capacity to manage anxiety (14).

Resistance is similarly central to both psychopathology and change. It includes conscious and unconscious processes that prevent the individual from approaching emotionally threatening experiences, revising established relational patterns, or acknowledging internal conflict. Resistance may appear as avoidance, intellectualization, passivity, emotional detachment, dependency, self-criticism, or difficulty forming a

therapeutic alliance. In everyday functioning, the same processes may restrict intimacy, self-awareness, and adaptive decision-making (1, 3, 15, 16). From the standpoint of ego integration, resistance becomes problematic when it rigidly blocks the communication between affect, cognition, memory, and behavior. Therefore, an integrated model must consider not only ego strength and adaptive functions but also the obstacles that prevent those capacities from being fully used.

Attachment and self-differentiation are particularly relevant to the relational dimension of ego integration. Secure attachment facilitates emotional exploration, trust, and the ability to seek support without losing autonomy. Self-differentiation allows a person to remain emotionally connected to others while preserving an independent identity and reflective judgment. Weak differentiation may lead to emotional fusion, excessive dependency, detachment, or unstable interpersonal boundaries. Object-relations interventions have been shown to influence self-awareness, social anxiety, and alexithymia, indicating that changes in internal relational organization can improve both emotional and interpersonal functioning (17). Relationship imagery therapy and object-relations therapy have also been associated with improvements in sense of coherence and self-regulation among women with repeated divorces, demonstrating the practical relevance of internal relational representations to psychological organization and relational stability (18).

The relationship between object relations and marital functioning further illustrates the integrative role of ego strength. A structural model of marital commitment showed that object relations contributed to commitment through the mediating role of ego strength, suggesting that internal relational representations affect interpersonal stability through the ego's capacity to regulate affect, preserve boundaries, and tolerate conflict (5). Likewise, models of ego strength based on object relations and personality organization indicate that ego capacity emerges from a broader structural system involving internal representations and levels of personality integration (6). These studies emphasize that ego strength should not be measured as an isolated trait but as part of an interconnected network of relational, emotional, defensive, and structural functions.

Mindfulness and motivation for change can also be situated within this integrative framework. Mindfulness involves observing internal experiences with awareness and reduced automatic reactivity. In psychodynamic terms, this capacity may help individuals recognize anxiety, defenses, and repetitive relational patterns before acting on them. Motivation for change reflects the willingness to confront painful material, question established defenses, and engage in psychological development. Without sufficient awareness and motivation, even individuals with relatively strong adaptive capacities may remain trapped in rigid patterns. Conversely, increased awareness may facilitate the recognition of defensive processes and promote more flexible emotion regulation. The inclusion of these variables therefore expands the concept of integrated ego beyond static functioning and incorporates the person's capacity for self-observation and transformation.

Ego functions form the operational core of the broader construct. These functions include reality testing, judgment, impulse control, stimulus regulation, synthetic-integrative functioning, mastery, competence, and the ability to maintain stable self- and object representations. Their effectiveness determines whether the individual can organize thought, emotion, behavior, and relationships coherently. Impaired ego functions may contribute to anxiety disorders, personality disturbance, relational instability, and maladaptive coping. The mediating role of ego functions in the relationship between family functioning and

student mental health supports their importance as mechanisms connecting relational environments with psychological outcomes (2). Evidence that psychodynamic therapy can improve ego functions further demonstrates that these capacities are clinically meaningful and potentially modifiable (14).

Despite the growing body of research, most existing studies have examined ego strength, ego functions, defense mechanisms, object relations, attachment, emotion regulation, anxiety, or differentiation as separate variables. Some studies have proposed structural relationships among selected constructs, such as ego strength, object relations, defense styles, and cognitive emotion regulation (11), while others have focused on specific outcomes such as depression, social anxiety, migration decisions, marital commitment, physical symptoms, or personality pathology (1, 5, 8-10). Although these investigations provide valuable evidence, they do not offer a comprehensive psychometric framework capable of assessing integrated ego functioning as a multidimensional whole.

A further limitation is the absence of an instrument that explicitly combines the relational assumptions of object relations theory with the dynamic principles of Davanloo's psychodynamic approach. Existing measures may assess ego strength, defense styles, attachment, emotional regulation, or object relations, but they often fail to capture the dynamic interplay among unconscious anxiety, resistance, defensive operations, attachment, emotional awareness, and fundamental ego functions. Such fragmentation limits both theoretical understanding and clinical assessment. A multidimensional instrument could help researchers identify how these domains cluster empirically and whether they form a coherent higher-order representation of ego integration.

Developing and validating such a model is also important for clinical practice. A comprehensive assessment of integrated ego functioning may assist therapists in identifying the individual's principal vulnerabilities, including rigid defenses, deficient emotion regulation, maladaptive attachment, limited differentiation, weak anxiety tolerance, or impaired ego functions. It may also help clarify treatment priorities and provide a framework for evaluating changes during psychodynamic, object-relational, mentalization-based, or integrative interventions. The demonstrated effectiveness of treatments targeting object relations, emotional regulation, defense styles, self-awareness, and ego functioning indicates that these domains are clinically responsive and theoretically connected (13, 16-18).

Furthermore, a validated model can contribute to research involving nonclinical populations. University students face developmental challenges related to identity, autonomy, attachment, academic pressure, career choice, migration, and intimate relationships. These challenges require the coordinated use of ego strength, differentiation, emotional regulation, and adaptive object relations. Studies among students have already demonstrated meaningful relationships among object relations, identity states, borderline symptoms, mentalization, anxiety manifestation, and mental health (2-4, 7). University students therefore constitute an appropriate population for examining the latent organization of integrated ego functioning and developing a psychometrically robust assessment instrument.

Accordingly, the aim of the present study was to design and validate a conceptual model and multidimensional questionnaire of the integrated ego based on object relations approaches and Davanloo's psychodynamic theory.

Methods and Materials

Study Design and Participants

The present study employed a survey-based, instrument-development design to construct and psychometrically validate a conceptual model of the integrated ego grounded in object relations theories and Davanloo's psychodynamic approach. The research process was conducted in two interconnected phases. The first phase focused on conceptualization and item generation, whereas the second phase involved the empirical examination of the factor structure, construct validity, and internal consistency of the developed instrument. During the conceptual phase, relevant theoretical and empirical literature concerning the ego, ego integration, ego strength, ego development, ego adaptive capacity, ego differentiation, ego functions, object relations, attachment, defense mechanisms, anxiety, resistance, emotion regulation, mindfulness, insight, and motivation for change was systematically reviewed. Particular attention was given to concepts derived from object relations theories and Davanloo's intensive short-term dynamic psychotherapy, especially the dynamic interactions among unconscious anxiety, resistance, defensive operations, attachment processes, and the individual's capacity to experience and regulate emotion. The concepts extracted from the reviewed literature were organized into preliminary conceptual categories, which subsequently formed the theoretical basis for the initial model and the development of the Integrated Ego Questionnaire.

The statistical population consisted of all students enrolled at universities in Tehran during the period in which the study was conducted. The study sample included 503 students selected through convenience sampling from four universities: Islamic Azad University, Central Tehran Branch; Islamic Azad University, Science and Research Branch; Amirkabir University of Technology; and the University of Tehran. Students from both Islamic Azad and public universities were included to increase the diversity of the sample and to provide a broader representation of university students with different academic and institutional backgrounds. Eligibility for participation required current enrollment at one of the selected universities, willingness to participate voluntarily, and the ability to understand and complete the questionnaire. Questionnaires with extensive missing responses or clearly invalid response patterns were considered unsuitable for analysis.

The sample size was determined according to established recommendations for exploratory factor analysis and psychometric instrument development. Previous methodological literature has suggested that factor-analytic models containing a limited number of factors generally require at least 100 to 200 participants, whereas larger samples are preferable when a substantial number of items and parameters must be estimated. Conventional guidelines characterize a sample of approximately 100 participants as poor, 200 as fair, 300 as good, 500 as very good, and 1,000 as excellent for factor-analytic research. Because the preliminary instrument contained 177 items and was expected to represent several interrelated dimensions of ego integration, a target sample of approximately 500 participants was considered appropriate. Accordingly, the final sample of 503 students was regarded as sufficient for stable factor extraction, reliable estimation of item-factor relationships, and evaluation of the construct validity of the proposed model.

Data were collected at two levels. At the first level, theoretical and descriptive information was obtained through library-based inquiry and the review of Persian and English books, scientific articles, research

reports, and relevant scholarly resources. Qualitative sources of information, including expert consultation, interviews, observations, documentary evidence, and field notes, were also used where necessary to clarify the conceptual boundaries of the proposed domains. This phase continued from approximately June 2018 to June 2019 and was guided by the principle of conceptual saturation, meaning that the process continued until further examination of the available materials no longer produced substantially new conceptual categories. At the second level, quantitative data were collected in the field by administering the researcher-developed questionnaire to the 503 participating students.

After the necessary institutional permissions had been obtained, the questionnaires were distributed among students at the selected universities. Before completing the instrument, participants received an explanation of the study's general purpose, the voluntary nature of participation, and the appropriate procedure for answering the items. They were informed that they were not required to provide their names or other directly identifying information. Participants were also assured that their responses would remain confidential, would be analyzed only for research purposes, and would not influence their academic standing or access to university services. Completion and return of the questionnaire were regarded as indications of informed consent. Participants were encouraged to answer all items honestly and were informed that they could discontinue participation at any stage without penalty.

Data Collection Tools

The principal data collection instrument was the researcher-developed Integrated Ego Questionnaire. The questionnaire was constructed after the preliminary conceptual model had been formulated through the review of theoretical literature, empirical findings, and psychodynamic constructs related to ego integration. Item development was conducted through an indicator-generation process in which several statements were written to operationalize each conceptual category. The wording and conceptual relevance of the items were reviewed in consultation with specialists and university faculty members familiar with psychodynamic theory, object relations, personality assessment, psychotherapy, and psychological measurement. This process resulted in an initial questionnaire containing 177 items.

The preliminary version of the questionnaire represented 14 theoretically derived domains. These domains included ego strength, ego development, ego adaptive capacity, defense mechanisms, emotion regulation, insight, mindfulness, motivation for change, anxiety, attachment, resistance, ego functions, ego differentiation, and the quality of object relations. Ego strength referred to the individual's capacity to maintain psychological organization, tolerate emotional pressure, preserve reality testing, and respond effectively to internal and external demands. Ego development represented the maturity and developmental organization of ego-related capacities. Ego adaptive capacity concerned the individual's flexibility and ability to adjust to changing personal and environmental demands. Defense mechanisms reflected habitual psychological operations used to manage conflict, affect, anxiety, and threatening impulses. Emotion regulation represented the capacity to identify, tolerate, modulate, and express emotional experiences in an adaptive manner.

Insight was conceptualized as the individual's ability to recognize psychological patterns, conflicts, motives, and the relationships between internal experiences and behavior. Mindfulness referred to awareness of present-moment experiences with reduced automatic judgment or avoidance. Motivation for

change represented readiness to examine problematic patterns and engage in psychological development. Anxiety was conceptualized in accordance with psychodynamic formulations as a response associated with internal conflict, emotionally charged attachment experiences, and the activation of unconscious feelings. Attachment represented the person's capacity to establish and maintain emotionally meaningful relationships, whereas resistance referred to psychological processes that obstruct awareness, emotional experience, therapeutic engagement, or behavioral change. Ego functions included capacities such as reality testing, judgment, impulse control, affect tolerance, and the synthesis of psychological experience. Ego differentiation referred to the ability to preserve a coherent sense of self while remaining emotionally connected to others. Quality of object relations represented the maturity, stability, reciprocity, and emotional depth of the individual's internalized and external interpersonal relationships.

The initial item pool was subjected to repeated psychometric analyses. Items demonstrating weak item-total relationships, inadequate factor loadings, conceptual redundancy, or poor contributions to internal consistency were removed. Following item refinement and factor analysis, 131 items were retained in the final questionnaire. These items were organized into seven empirically supported factors. The first factor, defense mechanisms and emotion regulation, consisted of 27 items and assessed the ways in which individuals manage emotionally threatening material, regulate affect, and employ defensive operations. The second factor, mindfulness and motivation for change, contained 21 items and measured awareness of internal experience, psychological openness, and willingness to modify maladaptive patterns. The third factor, resistance and lack of attachment, included 16 items and represented avoidance of emotional involvement, defensive opposition, and difficulties in forming or maintaining meaningful emotional bonds.

The fourth factor, ego differentiation and quality of object relations, comprised 20 items and evaluated the individual's ability to maintain a distinct and coherent identity while establishing mature, stable, and reciprocal relationships. The fifth factor, adaptive capacity and ego strength, included 23 items and assessed psychological resilience, flexibility, coping capacity, tolerance of emotional pressure, and the ability to preserve organized functioning under stress. The sixth factor, anxiety, consisted of 11 items and measured manifestations of psychological and psychodynamic anxiety. The seventh factor, ego functions, contained 13 items assessing fundamental ego capacities, including reality testing, behavioral regulation, judgment, emotional integration, impulse control, and adaptive functioning.

Responses to the final 131-item questionnaire were recorded on a four-point Likert scale consisting of "never," "rarely," "sometimes," and "always." The response alternatives were scored from 0 to 3. Depending on the direction of the item, higher scores indicated either stronger ego integration or greater difficulty in the relevant domain. To ensure that the total and subscale scores followed a consistent interpretive direction, 74 negatively worded items were reverse-scored. For reverse-scored items, responses were recoded so that a response scored as 0 became 3, a score of 1 became 2, a score of 2 became 1, and a score of 3 became 0. After reverse scoring, item scores could be summed to calculate scores for each factor and an overall integrated ego score. Higher corrected scores were interpreted as indicating a greater degree of ego integration, more adaptive ego functioning, stronger emotional regulation, greater psychological flexibility, more mature object relations, and lower levels of maladaptive resistance and defensive functioning.

The content relevance and conceptual coverage of the preliminary questionnaire were examined through expert review. Specialists evaluated whether the items adequately represented the theoretical domains

derived from object relations approaches and Davanloo's psychodynamic framework. Particular consideration was given to the clarity, comprehensibility, theoretical correspondence, and nonredundancy of the items. Construct validity was subsequently investigated through factor analysis. The adequacy of the correlation matrix for factor analysis was evaluated using the Kaiser–Meyer–Olkin measure of sampling adequacy and the relevant test of factorability. The obtained Kaiser–Meyer–Olkin value of .901 indicated that the sample and inter-item correlation structure were highly suitable for factor extraction. The final seven-factor structure provided empirical support for the proposed multidimensional conceptualization of the integrated ego.

Internal consistency was assessed using Cronbach's alpha. In the preliminary 177-item version, the alpha coefficient for the total questionnaire was .927; however, the coefficients for the original 14 domains ranged from .405 to .825, indicating that several initial dimensions did not demonstrate adequate internal consistency. Following the deletion of weak items and the restructuring of the questionnaire through factor analysis, the final 131-item version demonstrated improved and acceptable reliability. Cronbach's alpha for the total questionnaire was .928. The alpha coefficients for the seven factors ranged from .792 to .902. Specifically, the reliability coefficient was .902 for defense mechanisms and emotion regulation, .848 for mindfulness and motivation for change, .845 for resistance and lack of attachment, .893 for ego differentiation and quality of object relations, .830 for adaptive capacity and ego strength, .792 for anxiety, and .798 for ego functions. These coefficients indicated satisfactory to excellent internal consistency for both the total instrument and its component factors.

Data Analysis

The quantitative data were analyzed using descriptive and inferential statistical procedures appropriate for questionnaire development and psychometric validation. Before conducting the principal analyses, the data were screened for incomplete responses, invalid response patterns, coding errors, and other potential data-quality problems. Negatively worded items were reverse-coded before total and factor scores were calculated. Descriptive statistics were then used to summarize the participants' responses and examine the distributional characteristics of the questionnaire items. Item-level analyses were conducted to evaluate the performance of each statement, including its relationship with the overall scale and its contribution to the internal consistency of the relevant domain.

The construct validity of the Integrated Ego Questionnaire was evaluated through exploratory factor analysis using principal component analysis. This procedure was selected because it permits a large number of correlated observed variables to be reduced to a smaller number of interpretable components that account for a substantial proportion of the total variance. The initial 177 items were entered into the analysis, and repeated factor-analytic procedures were performed to identify the most coherent and theoretically meaningful structure. Decisions concerning item retention were based on the magnitude and interpretability of factor loadings, the presence of cross-loadings, conceptual consistency with the factor, item redundancy, and the effect of each item on internal consistency. Items with weak psychometric performance or inadequate conceptual correspondence were progressively removed.

The suitability of the data for factor analysis was assessed by examining the pattern of inter-item correlations and calculating the Kaiser–Meyer–Olkin measure of sampling adequacy. The Kaiser–Meyer–

Olkin value of .901 demonstrated that the shared variance among the items was sufficient for factor extraction and that the sample size was appropriate for identifying the underlying structure. The number of factors was determined through consideration of statistical criteria and theoretical interpretability. Factor-retention decisions were informed by eigenvalues, the proportion of explained variance, the distribution of items across factors, and the conceptual coherence of the extracted dimensions. The final solution consisted of seven factors and 131 retained items. The extracted factors were interpreted in relation to the theoretical foundations of object relations theory, ego psychology, and Davanloo's psychodynamic model.

Reliability was estimated through the internal consistency method using Cronbach's alpha. This method assesses the extent to which items intended to measure the same construct produce consistent responses. Alpha coefficients were calculated for the total scale and separately for each extracted factor. Item-total correlations and changes in alpha following item deletion were examined during the refinement process. The initial 177-item scale showed high overall internal consistency, but several of its 14 preliminary domains demonstrated inadequate reliability. Consequently, weak and inconsistent items were removed in conjunction with the factor-analytic findings. Cronbach's alpha was then recalculated for the final 131-item questionnaire and its seven factors. Coefficients of .70 or higher were regarded as acceptable evidence of internal consistency, although the interpretation of each coefficient also considered the number of items, the conceptual breadth of the factor, and the developmental nature of the instrument.

The final conceptual model was established by integrating the empirical factor structure with the theoretical constructs identified during the literature review and expert-evaluation stages. The extracted factors were not treated merely as statistical groupings; rather, they were interpreted as interrelated dimensions of integrated ego functioning. The analysis therefore combined psychometric evidence with theoretical judgment to ensure that the final model remained consistent with object relations formulations and Davanloo's understanding of anxiety, resistance, defenses, attachment, and emotional experience. Through this process, the original 14-domain framework was reorganized into a more parsimonious seven-factor model comprising defense mechanisms and emotion regulation, mindfulness and motivation for change, resistance and lack of attachment, ego differentiation and quality of object relations, adaptive capacity and ego strength, anxiety, and ego functions.

Findings and Results

The final sample consisted of 503 university students. Of the participants, 160 were men (31.8%) and 343 were women (68.2%). Regarding age, 356 participants (70.8%) were aged 21–30 years, 131 (26.0%) were aged 31–40 years, 14 (2.8%) were aged 41–50 years, and 2 (0.4%) were older than 50 years. In terms of educational level, 38 participants (7.6%) were associate-degree students, 265 (52.7%) were undergraduate students, 163 (32.4%) were master's students, and 37 (7.4%) were doctoral students. Regarding marital status, 100 participants (19.9%) were married, 397 (78.9%) were single, and 6 (1.2%) were separated or divorced. With respect to field of study, 149 participants (29.6%) were studying engineering and technical disciplines, 191 (38.0%) humanities, 29 (5.8%) art and architecture, 71 (14.1%) basic sciences, 21 (4.2%) foreign languages, and 42 (8.3%) medical sciences. Regarding occupational status, 47 participants (9.3%) were homemakers, 217 (43.1%) were unemployed or not employed while studying, 125 (24.9%) were salaried employees, and 114 (22.7%) were self-employed.

The initial psychometric evaluation was conducted using the internal-consistency method. The preliminary questionnaire contained 177 items representing 14 theoretically derived components. The overall Cronbach's alpha coefficient was reported as .927 in the preliminary analysis, indicating strong internal consistency at the total-scale level. In the detailed component-level analysis, however, the overall coefficient was recorded as .923, while the coefficients for the individual components varied substantially. This difference did not affect the general conclusion that the preliminary questionnaire had high overall reliability but that several of its proposed components required revision.

As presented in Table 1, ego strength, defense mechanisms, mindfulness, anxiety, resistance, ego functions, ego differentiation, and quality of object relations initially demonstrated coefficients at or near acceptable levels. By contrast, ego development, ego adaptive capacity, emotion regulation, insight, motivation for change, and attachment showed comparatively weak internal consistency. The insight component produced a negative alpha coefficient of $-.139$, indicating severe inconsistency among its items. Ego development also produced an inadequate coefficient of .422.

Table 1. First-Stage Internal-Consistency Assessment of the Preliminary 177-Item Questionnaire

Component	Initial item numbers	Initial Cronbach's α	Items removed during revision	Revised Cronbach's α	Final decision
Ego strength	1–19	.826	None	.826	Retained without deletion
Ego development	20–29	.422	20, 21, 23, 26, 27, and 29	.516	Entire component removed
Ego adaptive capacity	30–43	.608	31, 42, and 43	.755	Three items removed
Defense mechanisms	44–63	.700	None	.700	Retained without deletion
Emotion regulation	64–73	.618	65, 67, and 69	.772	Three items removed
Insight	74–87	$-.139$	All items	—	Entire component removed
Mindfulness	88–102	.806	None	.806	Retained without deletion
Motivation for change	103–114	.676	113	.697	One item removed
Anxiety	115–124	.816	None	.816	Retained without deletion
Attachment	125–137	.682	132 and 137	.761	Two items removed
Resistance	138–147	.785	None	.785	Retained without deletion
Ego functions	148–157	.702	None	.702	Retained without deletion
Ego differentiation	158–167	.767	None	.767	Retained without deletion
Quality of object relations	168–177	.765	None	.765	Retained without deletion
Total questionnaire	1–177	.923	No total-scale deletion at this stage	.923	Retained for subsequent refinement

Although the overall coefficient was high, the component-level results showed that several of the original dimensions did not possess adequate internal consistency. Item-deletion analysis was therefore performed to improve the reliability of the weak components. The removal of Items 31, 42, and 43 increased the coefficient for ego adaptive capacity from .608 to .755. The removal of Items 65, 67, and 69 increased the coefficient for emotion regulation from .618 to .772. Removing Item 113 improved the coefficient for motivation for change from .676 to .697, which remained marginal but was sufficiently close to the

conventional criterion to allow the construct to remain in the subsequent analyses. Removing Items 132 and 137 increased the attachment coefficient from .682 to .761.

The ego development and insight components did not reach an acceptable level even after progressive item removal. Ego development improved only from .422 to .516 after six items were removed, while the insight component remained psychometrically uninterpretable because of its negative initial coefficient. These two components were therefore removed in their entirety. Across the preliminary reliability and subsequent refinement process, 33 of the original 177 items were eliminated, leaving 144 items for exploratory factor analysis. Thus, the standardization process continued with 12 of the original 14 theoretical components.

Exploratory factor analysis was performed to evaluate the construct validity of the instrument and identify the latent organization underlying the retained items. Before factor extraction, the suitability of the data for factor analysis was examined using the Kaiser–Meyer–Olkin measure and Bartlett’s test of sphericity. The final analysis produced a KMO value of .901, substantially exceeding the minimum acceptable criterion of .60 and indicating excellent sampling adequacy. Bartlett’s test of sphericity yielded a value of 31,143.442 and was statistically significant at $p < .001$. This result rejected the hypothesis that the population correlation matrix was an identity matrix and confirmed that the correlations among the items were sufficiently strong for factor analysis.

Table 2. Kaiser–Meyer–Olkin and Bartlett’s Tests of Sampling Adequacy and Factorability

Test	Obtained value	Criterion	Significance	Interpretation
Kaiser–Meyer–Olkin measure	.901	> .60	—	Excellent sampling adequacy
Bartlett’s test of sphericity	31,143.442	—	$p < .001$	The correlation matrix was not an identity matrix

These indices remained satisfactory throughout the repeated factor-analytic procedures. The values reported in Table 2 correspond to the final iteration of the analysis. Taken together, the KMO and Bartlett findings established that the sample size was adequate and that the inter-item correlation structure supported the extraction of latent factors.

Principal component analysis was initially conducted on the 144 items that remained after preliminary reliability screening. Several diagnostic criteria were considered to determine the appropriate number of factors. The first criterion was Kaiser’s eigenvalue-greater-than-one rule. As shown in Table 3, 32 components had eigenvalues exceeding 1.00. The first component had an eigenvalue of 22.296 and accounted for 17.020% of the total variance. The second component had an eigenvalue of 8.856 and accounted for an additional 6.760%, increasing the cumulative explained variance to 23.780%. The first seven components jointly accounted for 36.956% of the total variance.

Table 3. Initial Eigenvalues and Explained Variance Used to Examine the Number of Factors

Component	Eigenvalue	Variance explained (%)	Cumulative variance (%)
1	22.296	17.020	17.020
2	8.856	6.760	23.780
3	4.827	3.685	27.465
4	4.171	3.184	30.649
5	3.115	2.378	33.027

6	2.617	1.998	35.024
7	2.531	1.932	36.956
8	2.005	1.530	38.487
9	1.870	1.427	39.914
10	1.810	1.382	41.296
11	1.920	1.466	42.761
12	1.594	1.217	43.978
13	1.607	1.227	45.205
14	1.571	1.200	46.404
15	1.563	1.193	47.598
16	1.561	1.191	48.789
17	1.420	1.084	49.873
18	1.339	1.022	50.895
19	1.344	1.026	51.923
20	1.262	.936	52.884
21	1.263	.964	53.848
22	1.173	.896	54.744
23	1.176	.898	55.642
24	1.164	.889	56.530
25	1.180	.901	57.431
26	1.098	.838	58.270
27	1.115	.851	59.121
28	1.119	.854	59.975
29	1.042	.796	60.770
30	1.024	.782	61.552
31	1.050	.801	62.353
32	1.001	.764	63.117

The eigenvalue criterion suggested retaining 32 factors, which was statistically possible but theoretically and practically unsuitable. A 32-factor structure would have been excessively fragmented, difficult to name, and inconsistent with the conceptual foundations of the study. The proportion-of-variance criterion also failed to yield a parsimonious model. Approximately 60% of the total variance was explained by the first 28 factors, indicating that a variance-based rule would require retaining nearly 28 dimensions. Such a structure would not provide an interpretable model of integrated ego functioning.

Because neither Kaiser's criterion nor the cumulative variance criterion produced a theoretically coherent solution, the scree-plot criterion was examined. Inspection of the Cattell scree plot showed a relatively steep decline across the first seven factors, followed by a pronounced leveling of the curve from the eighth factor onward. The point of inflection therefore occurred after the seventh factor. On this basis, a seven-factor solution was judged to provide the most defensible balance between empirical adequacy, parsimony, and theoretical interpretability.

An initial seven-factor solution was extracted before rotation. Factor loadings below .30 were suppressed. The unrotated solution was highly uneven. The first factor contained 76 items, the second contained 27 items, the third contained 12 items, the fourth contained 8 items, the fifth and sixth each contained 2 items, and the seventh contained only 1 item. Several items loaded on more than one factor, some had negative loadings, and a small number did not reach the .30 criterion on any factor.

In the initial matrix, the strongest absolute loadings on the first factor included preliminary Items 117, 129, 166, 176, 126, 134, 174, 130, 161, and 155, with loadings ranging approximately from .628 to .690 in absolute magnitude. The second factor included stronger loadings for Items 109, 70, 68, 71, and 41. The third factor was primarily represented by Items 158, 131, 125, 147, 17, and 127. The fourth factor was represented

most clearly by Items 12, 18, 39, and 115. The fifth factor was principally associated with Items 159 and 163, the sixth with Items 123 and 124, and the seventh was represented primarily by Item 93.

The distribution of items in this unrotated solution lacked balance and simple structure. The concentration of most items on the first factor, the presence of several cross-loadings, and the very small number of items on the later factors indicated that the initial matrix was not sufficiently interpretable. Rotation was therefore required to redistribute the explained variance and obtain a clearer pattern of item-factor relationships.

Before rotation, the seven extracted factors jointly accounted for 37.988% of the common variance. As shown in Table 4, the first factor accounted for 18.234% of the variance, and the remaining six factors individually accounted for between 2.026% and 6.258%.

Table 4. Eigenvalues and Explained Variance of the Seven-Factor Solution Before Varimax Rotation

Factor	Eigenvalue	Variance explained (%)	Cumulative variance (%)
1	18.657	18.234	18.234
2	6.403	6.258	24.491
3	3.908	3.819	28.310
4	3.051	2.982	31.292
5	2.644	2.584	33.876
6	2.135	2.086	35.962
7	2.073	2.026	37.988

The unrotated results therefore confirmed that seven factors could collectively represent a meaningful proportion of variance, but they did not yet provide a sufficiently differentiated or interpretable factorial pattern. Consequently, orthogonal varimax rotation was applied.

Varimax rotation was used to obtain a simpler and more interpretable factor structure. The rotation maximized the variance of the squared loadings within each factor, thereby increasing the separation between items that loaded strongly on a given factor and those that showed weak relationships with it. Several rounds of factor analysis were conducted. After each iteration, items with loadings below .30 were removed. Items that demonstrated conceptually inconsistent loadings or that did not correspond meaningfully with any factor were also excluded, even when their statistical loading exceeded .30.

Of the 144 items entered into the first factor analysis, 13 additional items were removed during repeated extraction and interpretive refinement. The final questionnaire therefore contained 131 items. Every retained item had an absolute factor loading greater than .30 and demonstrated a meaningful association with at least one factor. For clarity, only the strongest and most theoretically appropriate loading for each item is reported in Table 5. Cross-loadings on secondary factors were omitted from the final presentation.

Table 5. Final Seven-Factor Structure and Item Loadings After Varimax Rotation

Final item	Preliminary item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
1	109	.721	—	—	—	—	—	—
2	10	.624	—	—	—	—	—	—
3	8	.621	—	—	—	—	—	—
4	66	.619	—	—	—	—	—	—
5	70	.589	—	—	—	—	—	—
6	44	.585	—	—	—	—	—	—

7	71	.581	—	—	—	—	—	—
8	68	.581	—	—	—	—	—	—
9	46	.560	—	—	—	—	—	—
10	7	.539	—	—	—	—	—	—
11	73	.531	—	—	—	—	—	—
12	41	.531	—	—	—	—	—	—
13	50	.504	—	—	—	—	—	—
14	61	.484	—	—	—	—	—	—
15	100	.439	—	—	—	—	—	—
16	62	.420	—	—	—	—	—	—
17	16	.412	—	—	—	—	—	—
18	103	.410	—	—	—	—	—	—
19	6	.393	—	—	—	—	—	—
20	32	.374	—	—	—	—	—	—
21	3	.371	—	—	—	—	—	—
22	49	.364	—	—	—	—	—	—
23	47	.350	—	—	—	—	—	—
24	45	.345	—	—	—	—	—	—
25	152	.340	—	—	—	—	—	—
26	64	.337	—	—	—	—	—	—
27	52	.313	—	—	—	—	—	—
28	95	—	.647	—	—	—	—	—
29	94	—	.619	—	—	—	—	—
30	101	—	.615	—	—	—	—	—
31	97	—	.604	—	—	—	—	—
32	108	—	.578	—	—	—	—	—
33	90	—	.545	—	—	—	—	—
34	96	—	.523	—	—	—	—	—
35	89	—	.510	—	—	—	—	—
36	88	—	.509	—	—	—	—	—
37	91	—	.451	—	—	—	—	—
38	112	—	.444	—	—	—	—	—
39	111	—	.442	—	—	—	—	—
40	92	—	.425	—	—	—	—	—
41	110	—	.409	—	—	—	—	—
42	99	—	.403	—	—	—	—	—
43	93	—	.369	—	—	—	—	—
44	114	—	.363	—	—	—	—	—
45	140	—	.349	—	—	—	—	—
46	59	—	.344	—	—	—	—	—
47	53	—	.329	—	—	—	—	—
48	102	—	.312	—	—	—	—	—
49	171	—	—	.629	—	—	—	—
50	144	—	—	.569	—	—	—	—
51	136	—	—	.535	—	—	—	—
52	147	—	—	.519	—	—	—	—
53	168	—	—	.512	—	—	—	—
54	133	—	—	.509	—	—	—	—
55	165	—	—	.480	—	—	—	—
56	127	—	—	.479	—	—	—	—
57	142	—	—	.472	—	—	—	—
58	143	—	—	.452	—	—	—	—
59	128	—	—	.405	—	—	—	—
60	125	—	—	.402	—	—	—	—
61	149	—	—	.400	—	—	—	—
62	130	—	—	.392	—	—	—	—
63	146	—	—	.374	—	—	—	—
64	141	—	—	.333	—	—	—	—
65	175	—	—	—	.665	—	—	—

66	158	—	—	—	.652	—	—	—
67	131	—	—	—	.599	—	—	—
68	160	—	—	—	.566	—	—	—
69	134	—	—	—	.550	—	—	—
70	174	—	—	—	.498	—	—	—
71	176	—	—	—	.498	—	—	—
72	126	—	—	—	.481	—	—	—
73	135	—	—	—	.477	—	—	—
74	129	—	—	—	.474	—	—	—
75	162	—	—	—	.429	—	—	—
76	177	—	—	—	.413	—	—	—
77	167	—	—	—	.394	—	—	—
78	159	—	—	—	.391	—	—	—
79	139	—	—	—	.391	—	—	—
80	161	—	—	—	.374	—	—	—
81	163	—	—	—	.370	—	—	—
82	166	—	—	—	.347	—	—	—
83	138	—	—	—	.344	—	—	—
84	172	—	—	—	.309	—	—	—
85	151	—	—	—	—	.544	—	—
86	1	—	—	—	—	.541	—	—
87	18	—	—	—	—	.519	—	—
88	39	—	—	—	—	.503	—	—
89	40	—	—	—	—	.487	—	—
90	107	—	—	—	—	.472	—	—
91	4	—	—	—	—	.468	—	—
92	153	—	—	—	—	.449	—	—
93	19	—	—	—	—	.446	—	—
94	37	—	—	—	—	.442	—	—
95	36	—	—	—	—	.441	—	—
96	38	—	—	—	—	.438	—	—
97	33	—	—	—	—	.436	—	—
98	105	—	—	—	—	.432	—	—
99	12	—	—	—	—	.430	—	—
100	106	—	—	—	—	.422	—	—
101	35	—	—	—	—	.395	—	—
102	48	—	—	—	—	.386	—	—
103	17	—	—	—	—	.369	—	—
104	30	—	—	—	—	.348	—	—
105	5	—	—	—	—	.338	—	—
106	173	—	—	—	—	.325	—	—
107	60	—	—	—	—	.305	—	—
108	121	—	—	—	—	—	-.674	—
109	123	—	—	—	—	—	-.666	—
110	124	—	—	—	—	—	-.640	—
111	120	—	—	—	—	—	-.635	—
112	54	—	—	—	—	—	-.568	—
113	115	—	—	—	—	—	-.565	—
114	116	—	—	—	—	—	-.554	—
115	122	—	—	—	—	—	-.448	—
116	119	—	—	—	—	—	-.442	—
117	117	—	—	—	—	—	-.391	—
118	118	—	—	—	—	—	-.349	—
119	148	—	—	—	—	—	—	.477
120	15	—	—	—	—	—	—	.458
121	13	—	—	—	—	—	—	.450
122	150	—	—	—	—	—	—	.428
123	156	—	—	—	—	—	—	.427
124	157	—	—	—	—	—	—	.425

125	170	—	—	—	—	—	—	.422
126	2	—	—	—	—	—	—	.398
127	155	—	—	—	—	—	—	.355
128	14	—	—	—	—	—	—	.326
129	57	—	—	—	—	—	—	.320
130	169	—	—	—	—	—	—	.320
131	154	—	—	—	—	—	—	.315

The rotated factor matrix showed a markedly clearer structure than the unrotated solution. Factor 1 contained 27 items, Factor 2 contained 21 items, Factor 3 contained 16 items, Factor 4 contained 20 items, Factor 5 contained 23 items, Factor 6 contained 11 items, and Factor 7 contained 13 items. The absolute factor loadings ranged from .305 to .721. The strongest loading in the total matrix was .721 for final Item 1 on Factor 1. The strongest loading on Factor 2 was .647, on Factor 3 was .629, on Factor 4 was .665, on Factor 5 was .544, on Factor 6 was $-.674$, and on Factor 7 was .477. The negative loadings on the sixth factor reflected the directional wording of the anxiety items and were addressed through the specified scoring procedure.

The seven factors were named by examining the theoretical meaning and shared content of their constituent items. The naming process was not based solely on statistical proximity; it also considered the original conceptual domains from which the items had been generated. The final factor labels, item counts, explained variance, and internal-consistency coefficients are summarized in Table 6.

Table 6. Final Factors, Item Distributions, Explained Variance, and Reliability Coefficients

Factor	Final designation	Final item numbers	Number of items	Variance explained (%)	Cronbach's α
1	Defense mechanisms and emotion regulation	1–27	27	18.234	.902
2	Mindfulness and motivation for change	28–48	21	6.258	.848
3	Resistance and lack of attachment	49–64	16	3.819	.845
4	Ego differentiation and quality of object relations	65–84	20	2.982	.893
5	Adaptive capacity and ego strength	85–107	23	2.584	.830
6	Anxiety	108–118	11	2.086	.792
7	Ego functions	119–131	13	2.026	.798
Total	Integrated Ego Questionnaire	1–131	131	37.988	.928

The first factor was designated defense mechanisms and emotion regulation. It consisted of 27 items and accounted for 18.234% of the total variance, representing the largest and most influential dimension of the final instrument. Its items reflected the ways in which individuals manage emotionally threatening experiences, use defensive operations, tolerate affect, and regulate emotional activation. The internal-consistency coefficient for this factor was .902, indicating excellent reliability.

The second factor was designated mindfulness and motivation for change. It contained 21 items and accounted for 6.258% of the total variance. The factor combined present-centered awareness, observation of internal experience, openness to psychological self-examination, and willingness to modify maladaptive patterns. Its Cronbach's alpha coefficient was .848.

The third factor was designated resistance and lack of attachment. It contained 16 items and accounted for 3.819% of the total variance. Its item content represented defensive opposition to emotional engagement, avoidance of psychological closeness, restricted attachment, and patterns that obstruct emotional experience or change. The factor had a Cronbach's alpha coefficient of .845. Conceptually, this dimension can also be

understood as resistance accompanied by maladaptive detachment or dysfunctional dependency patterns, depending on the direction of scoring and the substantive meaning of individual items.

The fourth factor was designated ego differentiation and quality of object relations. It consisted of 20 items and accounted for 2.982% of the total variance. This factor represented the capacity to preserve a coherent and differentiated sense of self while establishing stable, reciprocal, and emotionally meaningful relationships. Its internal-consistency coefficient was .893.

The fifth factor was designated adaptive capacity and ego strength. It contained 23 items and explained 2.584% of the total variance. Its items assessed psychological flexibility, coping capacity, resilience, tolerance of internal and external pressure, and the ability to maintain organized functioning during stress. The factor had a Cronbach's alpha coefficient of .830.

The sixth factor was designated anxiety. It included 11 items and explained 2.086% of the total variance. The factor reflected manifestations of anxiety associated with internal conflict, emotional activation, defensive mobilization, and psychodynamic tension. Its internal-consistency coefficient was .792. Although the retained items loaded negatively on the factor, their absolute loadings were satisfactory, and their scoring direction was corrected through reverse scoring where required.

The seventh factor was designated ego functions. It consisted of 13 items and explained 2.026% of the total variance. This dimension represented basic ego capacities such as reality testing, judgment, impulse regulation, integration of emotional experience, behavioral control, and adaptive psychological functioning. Its Cronbach's alpha coefficient was .798.

Together, the seven factors explained 37.988% of the variance in questionnaire responses. The overall Cronbach's alpha coefficient for the final 131-item instrument was .928, and the coefficients for the seven factors ranged from .792 to .902. These values indicated satisfactory to excellent internal consistency. The combination of the high KMO value, significant Bartlett's test, interpretable rotated structure, satisfactory factor loadings, and strong reliability coefficients supported the construct validity and internal consistency of the Integrated Ego Questionnaire.

The final seven-factor model indicated that integrated ego functioning is not a unitary capacity but a multidimensional psychological organization. It incorporates the management of defenses and emotions, reflective awareness and readiness for change, the handling of resistance and attachment, differentiation of the self within object relations, adaptive capacity and ego strength, regulation of anxiety, and the effective performance of fundamental ego functions. Accordingly, the empirical findings supported a conceptual model of the integrated ego comprising defense mechanisms and emotion regulation, mindfulness and motivation for change, resistance and maladaptive detachment, ego differentiation and quality of object relations, adaptive capacity and ego strength, anxiety, and ego functions.

Discussion and Conclusion

The present study was conducted to design and validate a conceptual model of the integrated ego based on object relations approaches and Davanloo's psychodynamic theory. The findings supported a seven-factor structure consisting of defense mechanisms and emotion regulation, mindfulness and motivation for change, resistance and lack of attachment, ego differentiation and quality of object relations, adaptive capacity and ego strength, anxiety, and ego functions. The final questionnaire contained 131 items, and the seven

extracted factors jointly explained 37.988% of the total variance. The Kaiser–Meyer–Olkin coefficient of .901 and the statistically significant Bartlett’s test demonstrated that the correlation matrix and sample size were highly appropriate for factor analysis. Furthermore, the total scale showed excellent internal consistency, with a Cronbach’s alpha coefficient of .928, while the reliability coefficients for the seven factors ranged from .792 to .902. These results indicate that integrated ego functioning can be conceptualized as a multidimensional psychological organization in which emotional, defensive, relational, motivational, adaptive, and executive capacities operate in an interconnected manner.

The first and strongest factor was defense mechanisms and emotion regulation, which contained 27 items, explained 18.234% of the total variance, and demonstrated a Cronbach’s alpha coefficient of .902. The prominence of this factor suggests that the ability to regulate emotions and employ defenses adaptively represents a central aspect of ego integration. From a psychodynamic perspective, defense mechanisms are among the ego’s principal means of protecting psychological equilibrium when conflict, threatening affect, or anxiety is activated. However, defenses differ in their level of maturity and adaptiveness. Flexible defenses may permit the person to tolerate and process difficult emotional experiences, whereas rigid or primitive defenses can distort perception, obstruct awareness, and maintain psychological symptoms. Emotion regulation complements defensive functioning by enabling the person to recognize, tolerate, modulate, and express affect without becoming overwhelmed or relying exclusively on avoidance.

This finding is consistent with evidence indicating that ego strength, defense mechanisms, and object relations are closely interconnected. Individuals with depression have been found to differ from healthy individuals in ego strength, defensive functioning, and object relations, suggesting that psychological disturbance is associated with a broader disruption of ego organization rather than with a single isolated deficit (1). The result is also aligned with structural findings showing that defense styles and ego strength are associated with object relations in Cluster B personality disorders and that cognitive emotion regulation mediates these relationships (11). These findings support the inclusion of defense mechanisms and emotion regulation within one factor because both processes contribute to the management of internal conflict and affective arousal. The observed factor structure further agrees with research showing that object relations and defense mechanisms are involved in social anxiety, where relational insecurity may activate defensive avoidance and impair the adaptive processing of interpersonal emotions (8).

The strong loading of defense mechanisms and emotion regulation on the general construct of integrated ego functioning can also be interpreted through Davanloo’s psychodynamic model. In this framework, unconscious feelings associated with attachment experiences activate anxiety, which subsequently mobilizes defenses and resistance. When the ego has sufficient capacity, anxiety can be regulated and feelings can be experienced consciously without excessive defensive distortion. In contrast, when the ego is fragile, anxiety may become somatized, cognitively disruptive, or behaviorally dysregulating, and rigid defenses may block emotional processing. The effectiveness of intensive short-term dynamic psychotherapy in improving alexithymia, defense styles, and ego strength among patients with irritable bowel syndrome supports this dynamic relationship (16). The present findings therefore suggest that integrated ego functioning depends substantially on the capacity to move from automatic defensive avoidance toward conscious and regulated emotional experience.

The second factor, mindfulness and motivation for change, contained 21 items, explained 6.258% of the variance, and had a reliability coefficient of .848. This factor indicates that ego integration requires not only stable psychological structures but also the ability to observe internal experiences and develop an active willingness to modify maladaptive patterns. Mindfulness promotes nonreactive awareness of emotions, thoughts, bodily sensations, and impulses, thereby creating psychological space between internal activation and behavioral response. Motivation for change complements this awareness by mobilizing the person's readiness to tolerate discomfort, relinquish familiar defenses, and engage with previously avoided emotional material.

The combination of mindfulness and motivation for change is particularly meaningful within a psychodynamic framework. Awareness alone does not necessarily lead to change if resistance remains dominant. Similarly, motivation without reflective awareness may produce superficial or unsustained behavioral modification. An integrated ego must therefore possess both self-observational capacity and the willingness to use that awareness constructively. Research showing that short-term object relations intervention improves self-awareness and alexithymia supports the role of reflective awareness in strengthening psychological organization (17). Likewise, improvements in cognitive emotion regulation following psychological intervention demonstrate that individuals can acquire more adaptive ways of interpreting and managing emotional experiences when awareness and active engagement are increased (12).

This factor is also consistent with mentalization-based findings. Mentalization requires awareness of one's own internal states and the capacity to interpret the mental states of others without collapsing into impulsive certainty or emotional confusion. Mentalization-based group therapy has been shown to improve object relations and emotion regulation difficulties in individuals with dependent personality disorder symptoms (13). In addition, mentalization among students has been associated with attachment style, ego strength, object relations, and patterns of anxiety manifestation (3). These findings suggest that mindfulness, reflective awareness, readiness for change, and mentalization represent related capacities through which the ego becomes more capable of understanding and integrating internal and interpersonal experience.

The third factor, resistance and lack of attachment, consisted of 16 items, explained 3.819% of the variance, and had a Cronbach's alpha coefficient of .845. The emergence of these two constructs within a single factor suggests that resistance is frequently organized around relational avoidance, emotional detachment, or maladaptive patterns of dependency and withdrawal. In Davanloo's model, resistance refers to the conscious and unconscious operations that prevent the individual from experiencing emotionally significant material. Because many of the most threatening emotions originate in attachment relationships, resistance often becomes visible through distancing, emotional disengagement, passivity, excessive compliance, defiance, intellectualization, or avoidance of intimacy.

The present finding is consistent with object relations theory, which proposes that early relational experiences become internalized as expectations about trust, closeness, abandonment, and psychological safety. When internal object relations are insecure or fragmented, emotional proximity may activate anxiety and defensive withdrawal. The relationship between attachment, object relations, ego strength, and anxiety manifestation identified among students supports this interpretation (3). Similarly, findings that psychodynamic intervention can improve attachment behavior and self-differentiation in marital

relationships suggest that resistance and maladaptive attachment patterns are modifiable through work on unconscious relational dynamics (15).

The third factor can also be understood in relation to dependent and unstable interpersonal patterns. Maladaptive attachment does not always appear as emotional distance; it may also manifest as excessive reliance on others, fear of separation, or difficulty maintaining psychological autonomy. Mentalization-based group therapy has been shown to improve object relations in individuals with dependent personality disorder symptoms, indicating that more stable representations of self and others can reduce dysregulated dependency and improve emotional functioning (13). Likewise, object relations have been associated with borderline personality symptoms among university students, where fear of abandonment, unstable identity, and polarized interpersonal perceptions may reflect poorly integrated attachment representations (7). Accordingly, the resistance and lack-of-attachment factor appears to represent a broader difficulty in tolerating emotionally meaningful closeness while maintaining psychological organization.

The fourth factor, ego differentiation and quality of object relations, included 20 items, explained 2.982 % of the variance, and demonstrated a reliability coefficient of .893. This factor indicates that an integrated ego requires the ability to preserve a coherent sense of self while participating in stable, reciprocal, and emotionally meaningful relationships. Ego differentiation enables individuals to distinguish their thoughts, feelings, values, and needs from those of others without relying on detachment or emotional fusion. Quality of object relations refers to the maturity and stability of internal representations of the self and significant others. Their combination within one factor supports the theoretical proposition that self-coherence is developed and maintained within a relational context.

This finding aligns with research showing that ego strength mediates the relationship between object relations and marital commitment (5). Individuals with mature object relations and stronger ego functioning may be better able to tolerate intimacy, resolve relational conflict, and maintain commitment without losing autonomy. The mediating and moderating role of ego strength in the association between object relations and identity states also supports the close connection between relational representations and the consolidation of a differentiated identity (4). In addition, ego development and representations of object relations have been shown to contribute to migration decisions, a process that requires individuals to balance attachment, separation, autonomy, and identity continuity under conditions of uncertainty (9).

The fourth factor is further supported by evidence that family functioning affects students' mental health through object relations and ego functions (2). This suggests that the psychological effects of family relationships are mediated by the internal organization of self-and-other representations and by the person's capacity to regulate experience. The effectiveness of object relations therapy in improving sense of coherence and self-regulation among women with repeated divorces also indicates that modification of internal relational patterns can strengthen self-organization (18). Together, these studies support the interpretation that differentiation and mature object relations are indispensable components of an integrated ego.

The fifth factor, adaptive capacity and ego strength, comprised 23 items, explained 2.584% of the variance, and had a Cronbach's alpha coefficient of .830. This factor represents the ego's ability to maintain organized functioning under stress, adjust flexibly to internal and external demands, tolerate frustration, and employ effective coping responses. Ego strength is not equivalent to rigidity or emotional suppression; rather, it

involves maintaining psychological stability while remaining open to new experiences and responsive to environmental change.

This result is consistent with studies that position ego strength as a central mechanism connecting object relations with broader psychological and behavioral outcomes. Ego strength has been modeled on the basis of object relations and personality organization among applicants for cosmetic surgery, indicating that adaptive ego capacities emerge from deeper structural and relational processes (6). It has also been shown to mediate the relationship between object relations and marital commitment (5) and to contribute to the relationship between object relations and identity states (4). These findings support the present model by showing that ego strength is both an adaptive capacity and an organizing mechanism through which relational experiences influence identity, behavior, and interpersonal functioning.

The sixth factor, anxiety, contained 11 items, explained 2.086% of the variance, and demonstrated a reliability coefficient of .792. The identification of anxiety as an independent factor confirms its distinctive role in ego organization. Within psychodynamic theory, anxiety is both an affective state and a signal indicating the activation of internal conflict. The manner in which anxiety is experienced and regulated provides important information about ego capacity. An individual with stronger ego functioning may experience anxiety as tolerable psychological tension, whereas a person with limited capacity may experience cognitive disruption, somatic symptoms, panic, or severe defensive activation.

The separate status of anxiety within the final model is consistent with findings that anxiety manifestation is related to ego strength, attachment styles, object relations, and mentalization (3). It also aligns with evidence that accelerated short-term psychodynamic therapy improves ego functions in patients with generalized anxiety disorder (14). The latter finding implies that anxiety and ego functioning influence one another dynamically: poorly regulated anxiety disrupts ego functions, while strengthened ego functions increase the capacity to tolerate and process anxiety. The relationship between object relations, alexithymia, self-compassion, and fibromyalgia symptoms further suggests that unprocessed affective and relational distress may be expressed through psychological or somatic channels when ego-mediated emotional processing is insufficient (10).

The seventh factor, ego functions, contained 13 items, explained 2.026% of the variance, and had a Cronbach's alpha coefficient of .798. Ego functions include reality testing, judgment, impulse control, self-observation, affect integration, regulation of behavior, and the synthesis of psychological experience. The emergence of ego functions as a distinct factor suggests that these foundational capacities cannot be fully reduced to ego strength, emotional regulation, or object relations. They constitute the operational processes through which the ego evaluates reality and coordinates internal and external demands.

This result is consistent with evidence that object relations and ego functions mediate the relationship between family functioning and mental health (2). It is also supported by findings that short-term psychodynamic treatment can improve ego functions in patients with generalized anxiety disorder (14). These studies indicate that ego functions are shaped by relational experiences but are also susceptible to therapeutic improvement. Their inclusion in the final model therefore strengthens its clinical relevance, as assessment of ego functions may help identify the specific capacities that require therapeutic support.

Taken together, the findings provide empirical support for an integrated conceptualization of the ego. The seven factors are distinguishable but theoretically interconnected. Object relations provide the relational

context in which self-organization develops; ego strength and adaptive capacity maintain psychological stability; ego functions coordinate perception, judgment, and behavior; anxiety signals conflict; defenses and resistance regulate access to emotional material; mindfulness and motivation for change facilitate self-observation; and emotion regulation permits adaptive processing of affect. The effectiveness of object relations, mentalization-based, and intensive short-term psychodynamic interventions in improving these domains supports the view that they belong to a coherent psychological system (13, 15-18). The final model therefore appears consistent with both contemporary object relations research and Davanloo's dynamic understanding of the interplay among attachment, unconscious feeling, anxiety, defenses, resistance, and ego capacity.

The present study had several limitations. The participants were selected through convenience sampling from four universities in Tehran, which may limit the generalizability of the findings to students in other regions, nonstudent populations, clinical groups, or individuals from different cultural and socioeconomic backgrounds. The sample also contained a higher proportion of women and younger participants, potentially affecting the observed factor structure. All data were collected through self-report items, making the findings vulnerable to social desirability, limited self-awareness, response fatigue, and common-method variance. The preliminary questionnaire was lengthy, and the final 131-item form may still require considerable time and concentration to complete. The study focused primarily on exploratory factor analysis and internal consistency; therefore, other forms of validity and reliability were not comprehensively assessed. In addition, the amount of variance explained by the seven factors, although acceptable for a broad personality construct, indicates that other dimensions of ego integration may not have been captured by the model.

Future studies should examine the seven-factor model through confirmatory factor analysis using independent and more diverse samples. The psychometric properties of the questionnaire should be assessed among clinical populations, adolescents, older adults, married couples, psychotherapy clients, and individuals from different cultural and linguistic backgrounds. Researchers should evaluate convergent, discriminant, criterion-related, and predictive validity by comparing the questionnaire with established measures of ego strength, defense styles, emotion regulation, attachment, object relations, mindfulness, anxiety, personality organization, and psychological symptoms. Test-retest reliability and sensitivity to therapeutic change should also be investigated. The development of a shorter form may improve usability while preserving adequate representation of all seven dimensions. Longitudinal studies could clarify whether integrated ego functioning predicts psychological adjustment, interpersonal stability, treatment response, and resilience over time. It would also be valuable to examine whether a higher-order integrated ego factor can be confirmed above the seven first-order dimensions.

The final instrument may be used as a comprehensive assessment aid in counseling, psychotherapy, university mental health services, and personality research. Clinicians may use the factor scores to identify whether a client's principal difficulties involve defensive functioning, emotional regulation, resistance, attachment, differentiation, adaptive capacity, anxiety tolerance, or basic ego functions. The profile produced by the questionnaire may support individualized psychodynamic case formulation and help therapists select appropriate intervention priorities. Training programs for psychotherapists may incorporate the seven-factor model to clarify the relationships among object relations, anxiety, defenses, resistance, and ego functioning. University counseling centers may also use the instrument for screening

and preventive interventions, provided that interpretation is conducted by qualified professionals and is not used as a stand-alone diagnostic procedure. The questionnaire may further be administered before and after psychodynamic, object relations, mentalization-based, or emotion-focused interventions to evaluate changes in specific dimensions of ego integration.

Acknowledgments

The authors express their deep gratitude to all participants who contributed to this study.

Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

References

1. Bahmaninia M, Sohrabi Shegefti N. Comparing Ego Strength, Defense Mechanisms, and Object Relations in Individuals with Depression and Healthy Individuals. *Clinical Psychology and Personality*. 2024;22(1):99-110.
2. Shafagh Doust M, Shahamat Deh Sorkh F. The mediating role of object relations and ego functions in the relationship between family functioning and students' mental health. *Psychological Sciences*. 2019;13(3):31-46.
3. Shojaei M, Dehghani A. Examining Mentalization Based on Attachment Styles, Ego Strength, Object Relations, and the Pattern of Anxiety Manifestation in Students. *Behavioral Sciences Research*. 2023;21(1):176-89.
4. Nikosafat Z, Qarebaghi F. The Mediating and Moderating Role of Ego Strength in the Relationship Between Object Relations and Identity States Among Students. *Clinical Psychology and Personality (Daneshvar Raftar)*. 2020;18(2):109-18.
5. Rajabi M, Hajebi MZ, Monirpour N. Explaining the Model of Marital Commitment Based on Object Relations With the Mediating Role of Ego Strength. *Hn*. 2024;2(4):59-66. doi: 10.61838/kman.hn.2.4.7.
6. Oveisi H, Monirpour N, Zargham Hajebi M. A Model of Ego Strength Based on Object Relations and the Mediating Role of Personality Organization in Applicants for Cosmetic Head and Face Surgery. *Rooyesh-e-Ravanshenasi*. 2023;12(1):145-54.

7. Chamani F, Najafi M. The relationship of object relations and early maladaptive schemas with borderline personality symptoms among medical sciences students. *Behavioral Sciences Research*. 2018;16(1):31-46.
8. Mesgarian F, Fallah PA, Farahani H, Ghorbani N. Object Relations and Defense Mechanisms in Social Anxiety. *Developmental Psychology*. 2017;14(53):3-14.
9. Hosseini MS, Zarani F, Heidari M, Azadfallah P, Safdar S. The role of ego development and representations of object relations in the decision to migrate. *Clinical Psychology and Personality*. 2024;22(42):1-16.
10. Omid Cheshmeh Kabood A, Sepahvandi M, Mirderikvand F. Examining the effect of object relations on fibromyalgia symptoms: the mediating role of alexithymia and self-compassion. *J Psychol Sci*. 2025;24(151):33-54.
11. Rastgoo F, Zarbakhsh Bahri MR, Rahmani MA. Structural Equation Modeling of the Relationship between Ego-Strength, Defense Styles and Object Relations in Cluster B Personality Disorders with the Mediating Role of Cognitive Emotion Regulation. *Islamic Life Style*. 2023;7(0):19-34.
12. Roghani F, Seadatee Shamir A, Abdollahpour A, Hashemi N. The effectiveness of the Maher fluid intelligence psychoeducational intervention package on cognitive emotion regulation in children with attention-deficit/hyperactivity disorder. *Psychological Dynamics in Mood Disorders*. 2024;3(2):189-202.
13. Maleki S, Lilabadi L, Koushki S. The Effectiveness of Mentalization-Based Group Therapy on Object Relations and Emotion Regulation Difficulties in Individuals with Dependent Personality Disorder Symptoms. *Journal of Applied Psychological Research*. 2025;16(2):233-50.
14. Mortazavi A, Abedini Moghadam H, Sharifi N. Examining the Effectiveness and Comparison of Accelerated Short-Term Psychodynamic Therapy and Cognitive Behavioral Therapy on Improving Ego Functions in Patients with Generalized Anxiety Disorder. *Clinical Psychology: Innovations in Research and Practice*. 2024;16(2):49-59.
15. Kashefi F, Azkhosh M, Khanjani M, Aghaei H. The Effect of Intensive Short-Term Dynamic Psychotherapy on Sensation Seeking, Self-Differentiation, and Attachment Behavior in Marital Relationships among Women with a Tendency toward Marital Infidelity: Islamic Azad University, Shahroud Branch, Faculty of Humanities; 2023.
16. Jafari S, Joharifard R. Effectiveness of Intensive Short-Term Dynamic Psychotherapy on Alexithymia, Defense Styles, and Ego Strength in Patients with Irritable Bowel Syndrome: A Quasi-Experimental Study. *Journal of Rafsanjan University of Medical Sciences*. 2023;22(3):243-58.
17. Sarlak N, Talebi G. Effectiveness of Short-Term Object Relations Group Intervention on Self-Awareness, Social Anxiety and Alexithymia in Patients with Asthma. *Research in Clinical Psychology and Counseling*. 2025;15(1):135-58.
18. Hazratzadeh M, Alizadeh Mousavi E, Mirzaei SH. Comparing the effectiveness of relationship imagery therapy and object relations therapy on sense of coherence and self-regulation in women with repeated divorces in Tehran. *Quarterly Journal of Health Promotion Management*. 2023.