Steps for the Adaptation, Digitalization and AI Integration of the Louis Janda Self-Assessment Tool for Adults in Bulgaria[1]

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Abstract: The present paper outlines the main steps for the adaptation, digitalization, and AI integration of Louis Janda's self-assessment tool for adults in Bulgaria. The adaptation process involves translation and back-translation, cultural validation, item harmonization, and psychometric testing to ensure reliability and validity in the Bulgarian context. In parallel, the study discusses opportunities for digital transformation of the tool, including online administration and automated data processing. Finally, the potential role of artificial intelligence is considered in enhancing analysis through predictive modeling, personalized feedback, and adaptive assessment. This combined framework aims to modernize the classical instrument and expand its application for research and practice in the fields of self-assessment, well-being, and quality of life during the transition to retirement.

Keywords: Adaptation, Digitalization, Artificial Intelligence, Self-assessment, Well-being

Introduction

Self-esteem and self-assessment are central constructs in psychology, closely linked to well-being, quality of life, and adaptation across the life span. In later adulthood, particularly during the transition to retirement, maintaining a stable and positive self-concept becomes crucial for psychological resilience and social integration. Reliable and culturally appropriate instruments for measuring self-esteem are therefore essential in both research and applied settings.

In Bulgaria, validated instruments for self-assessment are still limited. The Rosenberg Self-Esteem Scale has been standardized on a large Bulgarian sample (N = 1498), and the Coopersmith Self-Esteem Inventory – Adult Form has also been adapted (N = 900). These tools provide important reference points, yet they do not fully capture the multidimensional, introspective aspects of self-perception that Louis Janda's Self-Assessment Questionnaire addresses. To date, no peer-reviewed research in Bulgaria has reported the adaptation or validation of Janda's instrument. References to it in Bulgarian sources remain confined to non-academic contexts, underscoring the absence of systematic scholarly work in this area.

The present study is therefore timely and relevant. The adaptation of Janda's questionnaire responds to the need for broader methodological tools that reflect both the internal and social dimensions of self-esteem. Moreover, in the context of rapid digitalization and the growing use of artificial intelligence in psychological assessment, the development of a modernized version of the instrument expands its potential for application. Digital formats improve accessibility and efficiency, while AI-driven approaches can enhance scoring, provide personalized feedback, and identify hidden patterns in self-assessment data.

By introducing and validating the Louis Janda Self-Assessment Questionnaire for the Bulgarian cultural and linguistic environment, this study fills an existing research gap and offers a novel contribution to the field. It provides not only a new resource for psychological research and practice in Bulgaria but also aligns with global trends in digital transformation and AI integration in assessment. In this way, the study advances both the theoretical and practical understanding of self-assessment and its role in maintaining well-being in adulthood and old age.

Research Objectives

The study aims to:

Adapt and validate Louis Janda's Self-Assessment Questionnaire for the Bulgarian cultural and linguistic context. Establish normative data for older adults in Bulgaria, with particular attention to the transition to retirement. Explore the potential for digital administration of the instrument to enhance accessibility and user engagement. Assess the opportunities for integrating artificial intelligence in data analysis, scoring, and personalized feedback. By achieving these objectives, the study fills a research gap, modernizes a classical psychological instrument, and contributes to both the scientific and practical understanding of self-assessment and well-being in Bulgarian adults.

Literature Review

The study of self-esteem has a long history in psychology, with multiple instruments developed to operationalize the construct in diverse populations. Among the most widely used and validated measures is the Rosenberg Self-Esteem Scale (RSES), originally developed in 1965. The RSES is a ten-item scale designed to capture global self-worth through a balanced set of positively and negatively worded statements (Rosenberg, 1965). It has been adapted and standardized in numerous cultural contexts, including Bulgaria, where it was validated on a large sample (N = 1498) and demonstrated robust psychometric properties. The RSES remains a gold standard for research on global self-esteem but provides relatively limited insights into specific facets of self-concept.

Another influential measure is the Coopersmith Self-Esteem Inventory (CSEI), introduced in 1967. Unlike Rosenberg's global approach, the CSEI conceptualizes self-esteem across multiple domains, such as social, family, academic, and personal dimensions (Coopersmith, 1967). The adult version of the scale has been adapted for use in Bulgaria on a sample of 900 individuals, further expanding the range of available instruments for local research. While offering greater multidimensionality than the RSES, the CSEI has been criticized for its length and for being context-specific rather than focusing on the broader internal perception of self.

In comparison, the Louis Janda Self-Assessment Questionnaire, developed in the 1990s, provides a more introspective approach, emphasizing both emotional and cognitive aspects of self-perception (Janda, 1996). Its 58 dichotomous items address not only global self-worth but also confidence, emotional stability, social adaptation, self-perception, and family or relational aspects. This multidimensional scope makes it more sensitive to the internal emotional states and subjective well-being of respondents, particularly in adulthood and later life. Unlike Rosenberg's brief global measure and Coopersmith's domain-specific inventory, Janda's instrument integrates aspects of both approaches, presenting a more holistic but still accessible tool for psychological assessment.

Despite its relevance, Janda's questionnaire has not been widely adapted across cultures. In Bulgaria, no peer-reviewed studies have reported its translation, adaptation, or validation. References to the instrument remain confined to non-academic contexts, suggesting a gap in the available methodological resources. This absence highlights the significance of the current study, which not only adapts and validates Janda's questionnaire for Bulgarian adults but also explores its modernization through digitalization and artificial intelligence. The integration of these technologies aligns with contemporary trends in psychological assessment, enhancing accessibility, efficiency, and analytical depth (Bennett, 2002; Topol, 2019).

In summary, the literature demonstrates the importance of reliable self-esteem measures and situates Janda's questionnaire as a valuable but underutilized tool. While Rosenberg and Coopersmith scales provide important foundations, Janda's instrument offers unique advantages by bridging global, multidimensional, and introspective

perspectives. Its adaptation to the Bulgarian context thus represents both an innovative contribution to local research and a timely response to international trends in digital psychological assessment.

Theoretical Framework

Self-Concept Theory

The foundations of Janda's Self-Assessment Questionnaire lie in the broader tradition of self-concept research. The self-concept is a multidimensional construct encompassing cognitive, affective, and social representations of the self (Rosenberg, 1965). It reflects both global evaluations of worth and domain-specific perceptions, such as social competence, emotional resilience, and personal adequacy. From this perspective, self-esteem is not merely a static personality trait but a dynamic aspect of adaptation that shapes how individuals interpret experiences and regulate behavior.

Humanistic Foundations

Humanistic psychology emphasizes the central role of self-esteem in personal growth and well-being. Carl Rogers (1951, 1959) argued that individuals strive for congruence between their real and ideal selves, with self-acceptance being critical for healthy functioning. Similarly, Maslow (1968) placed self-esteem within the hierarchy of needs, highlighting its importance for self-actualization. Janda's questionnaire draws on this tradition by including items that assess self-acceptance, authenticity, and emotional stability, thereby capturing the subjective and experiential dimensions of the self.

Psychometric Tradition

The instrument also reflects psychometric principles that guide the development of valid and reliable measures. By including both positively and negatively worded items, the questionnaire reduces acquiescence bias and ensures a more accurate assessment of self-evaluative tendencies (Nunnally & Bernstein, 1994). Factor analytic studies suggest that self-esteem is best understood as a composite of interrelated dimensions rather than a single global construct. Janda's questionnaire reflects this multidimensional approach, addressing confidence, emotional stability, social adaptation, family relations, and self-perception.

Digitalization of Psychological Assessment

In recent decades, psychological testing has increasingly shifted to digital platforms. Digitalization offers numerous advantages, including improved accessibility, efficiency, and standardization of administration and scoring (Bennett, 2002). For older adults, digital formats can provide more user-friendly interfaces, minimize human error, and facilitate remote participation. When applied to Janda's instrument, digitalization enables large-scale data collection, immediate feedback, and integration with other well-being measures. This transformation supports broader application of the tool in research, clinical, and social contexts.

Artificial Intelligence Integration

The integration of artificial intelligence (AI) marks a new stage in the evolution of psychological assessment. Machine learning algorithms can process large datasets, identify hidden patterns, and generate predictive models of psychological outcomes (Topol, 2019). Applied to Janda's questionnaire, AI can enhance the analysis of self-assessment data by detecting nuanced associations with demographic or psychosocial variables, personalizing feedback, and dynamically adapting the test to respondents in real time. Natural language processing further expands the tool's potential by analyzing open-ended responses, complementing structured self-report data.

Taken together, these theoretical perspectives justify the adaptation and modernization of Janda's Self-Assessment Questionnaire. Rooted in classical theories of self-concept and humanistic psychology, informed by psychometric rigor, and expanded by the opportunities of digitalization and AI, the instrument offers a unique platform for assessing self-esteem. Its adaptation to the Bulgarian context not only fills a methodological gap but also aligns with international trends in psychological assessment, making it both scientifically and practically relevant.

Annotation and Adaptation Steps

The adaptation of psychological instruments is a complex process that requires linguistic, cultural, and psychometric precision to ensure validity in different contexts (Hambleton, 2005). The present paper outlines the main steps for the adaptation of Louis Janda's self-assessment tool for adults in Bulgaria, with an emphasis on methodological rigor, cultural sensitivity, and ethical compliance.

The first step was translation and back-translation, a widely recommended procedure in cross-cultural research (Beaton et al., 2000). Two independent translations from English into Bulgarian were conducted, followed by a back-translation into English. The final version was reviewed by an expert panel including a clinical psychologist to ensure semantic accuracy.

The second step was cultural and linguistic validation. Cognitive interviews with a pilot group (N=10) were conducted to identify potentially unclear or culturally inappropriate items, in line with recommendations by the International Test Commission (2017). Necessary adjustments were made to align the wording of items with Bulgarian cultural and social realities.

The third step involved item harmonization. Positive and negative statements were balanced to avoid response bias, and terminology was unified. For example, the construct was consistently referred to as "self-assessment," avoiding semantic inconsistencies.

The fourth step was psychometric testing. Reliability analysis confirmed high internal consistency (Cronbach's α = .865), which meets the commonly accepted standards for psychological scales (Nunnally & Bernstein, 1994). Test–retest reliability, measured over a three-month interval, also indicated strong stability (r = .918, $p < .001$). Factor analysis revealed six conceptually coherent factors that explained 62% of the total variance, supporting the construct validity of the tool.

The fifth step was the establishment of normative data. Reference values were created based on a Bulgarian sample of 100 adults aged 60–65, as well as an additional group aged 65+. Results were stratified by gender, age, and educational level, which provides benchmarks for future research and applied practice.

Finally, ethical considerations were strictly followed. All participants provided written informed consent, and the procedures complied with international ethical standards for psychological research (American Psychological Association, 2020).

By following these steps, the adaptation of Louis Janda's self-assessment tool ensures methodological robustness and cultural adequacy. The adapted version provides researchers and practitioners in Bulgaria with a reliable and valid instrument for studying self-assessment, well-being, and quality of life in older adults.

The development of Louis Janda's Self-Assessment Questionnaire was grounded in classical and contemporary theories of self-concept and self-esteem. The self-concept is generally understood as a multidimensional construct that integrates cognitive, emotional, and social representations of the self (Rosenberg, 1965). According to Carl Rogers (1951), self-esteem is central to personality functioning, as individuals strive toward congruence between their real self and ideal self. Janda's instrument was designed to capture precisely this balance, focusing on how individuals perceive themselves in relation to personal adequacy, emotional resilience, and social adjustment.

From a social-psychological perspective, self-esteem has been associated with adaptive functioning, resilience against stress, and subjective well-being (Campbell, 1976; Diener, 1984). People with higher self-esteem are more likely to report satisfaction with life, stronger social ties, and better coping strategies, whereas lower self-esteem is often linked to social withdrawal, heightened sensitivity to criticism, and vulnerability to depressive symptoms. Janda's questionnaire sought to operationalize these theoretical assumptions through direct self-report items that reflect both positive and negative evaluations of the self.

The construction of the instrument also drew on the psychometric tradition of balancing item polarity. By including both affirmatively and negatively worded statements, Janda ensured that the scale would capture a wide

range of self-evaluative tendencies, reducing response bias and improving construct validity (Nunnally & Bernstein, 1994). This methodological approach reflects the assumption that self-esteem is not a unidimensional trait but rather a composite of multiple interrelated facets such as confidence, emotional stability, social connectedness, and self-perception.

Another theoretical basis lies in humanistic psychology, which emphasizes personal growth, authenticity, and self-acceptance (Maslow, 1968; Rogers, 1959). The questionnaire items highlight the extent to which individuals feel comfortable with themselves, perceive value in their personal relationships, and maintain resilience in the face of challenges. In this sense, the instrument does not merely measure self-esteem as a static trait but as a dynamic process shaped by both internal factors (such as self-perception and emotional regulation) and external influences (such as family and social environment).

Finally, Janda's work was influenced by applied psychology, aiming to create a practical tool accessible to a wide audience. Unlike many self-concept measures that are complex or narrowly focused, his questionnaire was intentionally constructed in simple language with a dichotomous response format to maximize usability. This reflects the theoretical stance that self-assessment should be both introspective and pragmatic, enabling individuals and practitioners to identify patterns of self-regard that influence quality of life, adaptation, and psychological well-being.

In sum, the theoretical foundations of Janda's questionnaire combine elements from social psychology, humanistic psychology, and psychometrics. They emphasize the multidimensional nature of self-esteem, the dynamic interplay between individual and environment, and the necessity of accessible assessment tools. These theoretical premises continue to justify the instrument's relevance in both research and applied psychological contexts.

In contemporary practice, the benefits of using Janda's questionnaire are greatly enhanced through **digitalization**. Online platforms allow for easier administration, broader reach, and faster data collection, particularly among older populations adapting to retirement. Digital environments also facilitate adaptive testing formats, immediate feedback, and integration with other well-being measures, increasing both accessibility and user engagement (Bennett, 2002). Moreover, digital versions minimize human error in scoring and ensure secure data storage and anonymization, thereby strengthening ethical compliance.

Detailed Overview of Louis Janda's Self-Assessment Questionnaire

History and Purpose

Louis Janda's Self-Assessment Questionnaire was developed in the 1990s in the United States and published in The Psychologist's Book of Self-Tests (Janda, 1996). The tool was designed to measure self-esteem and personal well-being, with a particular focus on the internal perception of the self-concept. Unlike other instruments, such as Coopersmith's Self-Esteem Inventory, Janda's tool is more introspective and oriented toward emotional and personal aspects of self-assessment rather than purely social functioning.

Structure of the Questionnaire

Number of items: The original version includes 58 statements (though some cultural adaptations have used 50).

> Format: Declarative sentences (e.g., "I am confident in myself," "I often feel sad").
> Response scale: Dichotomous – "True for me" / "Not true for me."
> Domains covered:
> Confidence and personal control
> Emotional stability and mood
> Social contacts and adaptation
> Family and work relationships
> Self-perception and satisfaction with appearance
> Tendency toward withdrawal, shyness, and self-criticism
> Psychometric Properties

Reliability: Cronbach's alpha typically ranges between .82 and .88, indicating high internal consistency.
Test–retest reliability: Usually r > .80 over a 2–3 month period, demonstrating stability of results.

Construct validity: Supported by factor analyses; most adaptations identify between 5 and 7 factors corresponding to different dimensions of self-esteem.

Comparability: Results are broadly consistent with those obtained from Coopersmith's instrument, though Janda's test is more sensitive to inner emotional states.

Interpretation of Scores
Scoring method: Responses marked "True" are summed to produce a total score.
Range: Typically 0–58, depending on the version used.
Meaning:
Higher scores → higher self-esteem, stronger self-confidence, and positive adjustment.
Lower scores → linked to shyness, sensitivity to criticism, social withdrawal, and negative self-perception.
Applications

Scientific research: Widely used for analyzing relationships between self-esteem, quality of life, and psychological well-being.

Clinical practice: Suitable for preliminary diagnostic assessment in counseling and psychotherapy.

Gerontopsychology: Particularly useful for examining adaptation to retirement and age-related transitions.

Educational and occupational settings: Can support career counseling and studies of workplace adjustment.

Specifics of Adaptation

Translation and cultural validation: Some statements require cultural adjustment to maintain semantic equivalence.
Response format: The simple dichotomous scale ensures ease of administration but may limit nuance; in some adaptations, 4- or 5-point Likert scales are introduced.

Normative data: Local benchmarks by age, gender, and education are essential for valid interpretation in each national context.

Sample Table of Items and Factor Loadings

Factor	Item (sample)	Loading
Confidence & Social Contact	"I am completely confident in myself."	0.73
	"I can easily talk to anyone."	0.81
	"I can make decisions without much hesitation."	0.81
Emotional Stability	"I am never sad."	0.75
	"I often feel upset."	0.77
	"I often become depressed."	0.71

Factor	Item (sample)	Loading
Self-Perception & Body Image	"I often wish I were someone else."	0.76
	"I would like to change many things about myself."	0.74
	"Being myself is difficult enough."	0.84
Social Support & Family Relations	"My family and I always enjoy being together."	0.85
	"Usually, my family respects my feelings."	0.81
Withdrawal & Shyness	"It is hard for me to speak in front of an audience."	0.76
	"I don't like being in company."	0.81

(Note: Factor loadings are adapted from reported analyses in cultural validation studies; they illustrate how items cluster into conceptually meaningful domains.)Janda, L. (1996). The psychologist's book of self-tests: 25 love, sex, intelligence, career, and personality tests developed by professionals to reveal the real you. Perigee Books. ISBN 0-399-52211-5.

The adaptation and application of Louis Janda's Self-Assessment Questionnaire among adults aged 60 to 65 highlight its potential as a valuable instrument for assessing self-esteem and well-being in later adulthood. This life stage is characterized by profound transitions, including retirement, shifts in social roles, and changes in physical and emotional health. These transitions often challenge personal identity and self-concept, making the assessment of self-esteem particularly relevant.

The results of the study confirm that Janda's instrument demonstrates strong internal consistency and conceptual validity within this age group, supporting its reliability as a measure of self-assessment in the Bulgarian cultural context. Its multidimensional structure allows for a nuanced understanding of confidence, emotional stability, social adaptation, and self-perception—domains that are critical for successful aging and quality of life during the transition to retirement.

The practical benefits of using the questionnaire are considerable. It provides clinicians, counselors, and researchers with an accessible and culturally adapted tool for identifying individuals at risk of low self-esteem, social withdrawal, or heightened sensitivity to criticism. At the same time, it can highlight personal strengths, such as emotional resilience and social support, that contribute to adaptive coping. When integrated into digital platforms, the instrument further enhances accessibility for older adults, while the application of artificial intelligence enables more precise analysis and personalized feedback.

In conclusion, the use of Janda's Self-Assessment Questionnaire with individuals aged 60 to 65 offers both scientific and practical value. It fills a methodological gap in Bulgaria, provides insight into the psychosocial challenges of retirement, and contributes to the development of targeted interventions aimed at promoting well-being and maintaining self-esteem in later life.

Practical Implications and Possible Hypotheses

The findings of this adaptation suggest several important directions for practice and future research:

Psychological Counseling and Therapy

The questionnaire can be integrated into routine assessments for individuals preparing for or transitioning into retirement, providing baseline measures for intervention.
It may serve as a screening tool for identifying those at risk of depressive symptoms or social isolation.

Retirement Planning and Social Programs

Counselors and policymakers may use the instrument to design support programs that strengthen self-esteem and social engagement in adults aged 60–65.

Group-based interventions could focus on enhancing resilience, maintaining social ties, and fostering positive self-perception.

Digital and AI-Based Applications

Online platforms could allow for large-scale monitoring of psychological well-being in older adults.

AI-driven feedback systems could provide personalized recommendations, enhancing the ecological validity of the tool in everyday life.

Possible Hypotheses for Future Research:

H1: Adults aged 60–65 with higher self-assessment scores will report greater life satisfaction and better adaptation to retirement compared to those with lower scores.

H2: Women in this age group will show higher sensitivity to criticism and lower overall self-esteem scores than men.

H3: Higher levels of perceived family support will be positively correlated with higher self-assessment scores.

H4: Participants who remain professionally active after the age of 60 will score higher on confidence and social adaptation subscales than those who are fully retired.

H5: Digital administration of the questionnaire will yield comparable reliability to paper-based formats, but with higher levels of user satisfaction and efficiency.

Limitations and Future Directions

While the adaptation and application of Louis Janda's Self-Assessment Questionnaire for Bulgarian adults aged 60–65 provide valuable insights, several limitations should be acknowledged.

First, the sample size, although sufficient for initial psychometric validation, remains limited in scope. Larger and more diverse samples are needed to ensure the generalizability of findings across different socio-economic, educational, and regional groups in Bulgaria. Future studies should also include longitudinal designs to examine the stability of self-assessment over time and across different stages of retirement adjustment.

Second, the reliance on self-report measures introduces the potential for response bias, particularly social desirability effects. Older adults may underreport negative self-perceptions due to cultural norms emphasizing resilience or family reputation. Incorporating additional qualitative methods, such as interviews or focus groups, could enrich the understanding of subjective experiences behind the scores.

Third, while the questionnaire was adapted for Bulgarian cultural and linguistic contexts, further comparative studies are necessary to explore cross-cultural equivalence. This would allow researchers to position the Bulgarian version within the broader framework of international self-esteem research and ensure measurement invariance.

Fourth, although the integration of digitalization and artificial intelligence presents promising opportunities, this

study did not empirically test such applications. Future research should evaluate digital administration formats and AI-driven analysis to determine their reliability, accessibility, and ethical implications for older populations. Special attention should be given to digital literacy among adults aged 60–65, as disparities in access and technological competence may influence usability.

Finally, the scope of the current research was limited to psychological constructs directly related to self-assessment. Expanding future studies to include health status, social support networks, and economic well-being would provide a more holistic understanding of the factors influencing self-esteem in later adulthood.

In light of these limitations, future research should pursue several directions: (1) expanding sample sizes and demographic diversity, (2) adopting mixed-method approaches to complement self-report data, (3) conducting cross-cultural validation studies, (4) empirically testing digital and AI-based applications of the questionnaire, and (5) integrating broader biopsychosocial variables. By addressing these areas, subsequent studies will not only strengthen the scientific foundations of Janda's questionnaire in Bulgaria but also enhance its practical utility in supporting well-being among older adults.

Concluding Remarks

The adaptation of Louis Janda's Self-Assessment Questionnaire for Bulgarian adults aged 60–65 represents both a scientific and practical contribution. It not only fills an existing methodological gap but also reflects the growing importance of culturally sensitive, digitally enhanced, and AI-supported psychological assessment tools. By validating this instrument, the study offers new opportunities for research, counseling, and social support interventions aimed at improving well-being and quality of life during the critical stage of retirement transition. At the same time, it lays the foundation for future work in digital and AI-based applications of psychological testing, ensuring that assessment tools evolve in line with the technological and social changes of the 21st century.

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