Assessing College Students' Self-Esteem: A Quantitative Approach and Psychometric Evaluation

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This study investigates and evaluates the self-esteem attributes prevalent among college students through a quantitative analysis employing psychometric evaluation techniques. The research aims to discern specific factors influencing self-esteem within the college demographic, utilizing a rigorous approach to measurement and assessment. This quantitative study aims to assess the self-esteem attributes among 150 university students enrolled in Literature and social sciences programs, utilizing a comprehensive methodology that incorporates data collection, instrument validation, and structural equation modeling. Participants, aged 18 to 22, responded mid and end of the 2022 academic year through validated surveys encompassing the Rosenberg Self-Esteem Scale, Motivated Strategies for Learning Questionnaire, and Student Engagement and Disaffection in School. The study employed reliability analyses, convergent and discriminant validity assessments, and structural equation modeling using Partial Least Squares to discern causal relationships. Notably, the research identified five distinct factors influencing socioeconomic status and evaluated the dependability and accuracy of the Self-Esteem Scale via Cronbach's alpha and split-half reliability methods. The findings contribute to a deeper understanding of self-esteem dynamics among university students, crucial for tailored counseling strategies and early identification of potential self-esteem challenges within this demographic. The findings indicate that self-esteem correlates with emotional and behavioral disengagement. Meanwhile, motivation significantly influences academic engagement, especially with metacognitive engagement predicting students' academic success. Thus, fostering metacognitive strategies aiding students in planning, monitoring, and self-regulating their learning processes will positively impact their overall performance.

Keywords: Psychometric Evaluation, Student Engagement, Metacognitive Engagement, Behavioral Disengagement.

Introduction:

The success or failure in a student's learning journey involves numerous factors, among which self-esteem, motivation, and academic engagement are pivotal. According to system theory, the mind operates within three distinct systems: motivational, affective, and cognitive. The motivational system encompasses fundamental components like awareness of survival needs such as hunger, thirst, and reproductive instincts. The affective system deals with emotions, spanning from cheerful states to enthusiasm. Meanwhile, the cognitive system encompasses processes like reasoning, memory, and judgment, forming the foundation for understanding global events [1]. Within the educational realm, academic motivation acts as the driving force initiating action and is acknowledged as a context-influenced variable. Academic engagement, synonymous with commitment in this research, propels students to actively participate in educational activities. Its significance lies not only in ensuring the successful

completion of the learning process but also in shielding students against inherent risks [2]. This engagement is dissected into emotional, behavioral, and cognitive elements for comprehensive analysis [3]. Understanding how motivation shapes a student's engagement becomes critical, impacting their level of involvement in the learning process, and ultimately reflecting academic advantage. Motivation's influence on academic engagement subsequently contributes to academic achievement. Another influential factor is self-esteem, intricately linked to both motivation and academic achievement [4]. It represents a student's perception of their self-worth and significantly influences their ability to complete educational tasks. Given its positive correlation with task completion, it becomes crucial to consider self-esteem as a contributing factor. Traditionally, academic performance is gauged solely by a student's grades, perceived as the ultimate metric of educational success. However, the psychosocial aspect of self-esteem has shown an impact on grades and is closely entwined with academic performance through emotional states and motivation. Therefore, analyzing self-esteem's effect on academic involvement offers empirical evidence to devise strategies that foster appropriate motivation levels, positively influencing educational performance [5][6][7][8].

Substance dependence:

In their university years, students undergo a challenging phase of both intellectual and emotional growth as they transition into adulthood. Research highlights that maintaining healthy self-esteem becomes progressively challenging amidst this transformative process. Transition points such as attaining economic independence, assuming responsibility for oneself and others, forming intimate relationships or starting a family, and entering the workforce contribute to these difficulties. The uncertainties students encounter during this phase render them more vulnerable to mental health issues and diminished self-assurance [9]. Despite a growing body of research, numerous conceptual uncertainties persist concerning self-esteem. Extensive studies since the mid-1800s have aimed to define and elucidate the essence of this concept, yet it remains frequently misconstrued. Initially coined as a state of emotional well-being, the term "self-esteem" has elicited diverse interpretations across various theoretical frameworks. Psychologically, self-esteem is perceived as a socio-cultural phenomenon contextualized within specific settings, representing an individual's evaluation of their value and its impact on behavior. From a psychological perspective, self-esteem reflects an individual's subjective appraisal of their importance and worth, viewed as an innate quality that can be cultivated and enhanced. It involves aligning actions with personal beliefs while honoring individuality. Current scholarly debates revolve around categorizing self-esteem as a condition or trait and determining whether it constitutes a singular element or encompasses multiple dimensions [10][11][12][13].

A phenomenological study conducted by the researcher delved into self-esteem, focusing specifically on the relationship between competence and worthiness as its primary constituents. Mruk defines worthiness as an individual's subjective evaluation of their talents, while competence pertains to the practical aspect tied to one's capabilities. Competence is seen as the measurable part linked to goals and achievements, whereas worthiness represents an internal, personal sentiment influenced by the significance assigned to personal attributes. The study underscored the pivotal role of parental influence, societal values, and cultural contexts in shaping and sustaining an individual's self-esteem [14]. The research proposes that self-esteem is dynamic, with an individual's competence and worthiness interacting, resulting in continual fluctuations in response to varied circumstances. To illustrate the spectrum of self-esteem levels, the researcher introduced a continuum matrix comprising four categories: High Self-Esteem, featuring strong belief in abilities and worth; Defensive Self-Esteem Type I (Narcissistic Self-Esteem), marked by low belief in abilities but high belief in worth; Defensive Self-Esteem Type II (Pseudo Self-Esteem), characterized by high belief in abilities but low belief in worth; and Low Self-Esteem, characterized by low belief in abilities and worth [15][16].

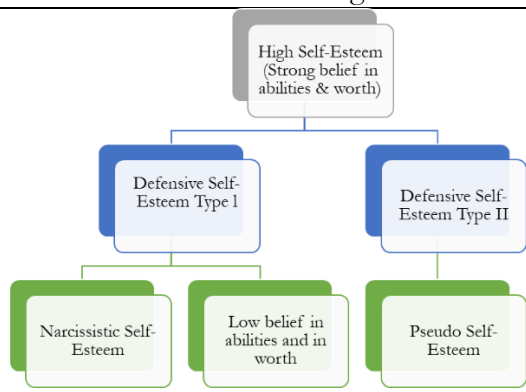

Figure 1: Continuum Matrix of Self-Esteem Levels

Exploring the impact of societal norms and cultural variations on an individual's self-esteem offers valuable insights into this complex subject. Self-esteem has been scrutinized within the contexts of both individualistic and collectivistic societies, shedding light on divergent perspectives. Western cultures prioritize autonomy, uniqueness, and personal freedom, while Eastern cultures emphasize cooperation, interdependence, and adherence to societal norms. These differing cultural ideologies significantly influence the perception of self. In individualistic societies, self-concept often revolves around personal accomplishments, aspirations, and exceptional abilities. Conversely, collectivist cultures perceive the self as fulfilling societal expectations by adapting behaviors to suit specific contexts and the needs of others [17][18]. This comparison highlights the distinct viewpoints and interpretations of the self in individualistic versus collectivistic cultures. The cultural backdrop significantly shapes individuals' perceptions and understanding of fundamental concepts like self-esteem. The variance in cultural perspectives on self-esteem prompts inquiries regarding the applicability of scales developed in diverse cultural milieus. The focus lies on the substantial differences in meaning, connotations, relevance, and significance of self-esteem across various cultural contexts. Cross-cultural research indicates that individuals from collectivist cultures often exhibit lower self-esteem due to their limited emphasis on individual self-awareness [19]. Standard scales commonly used in Western cultures prioritize individual distinctiveness and independence, potentially overlooking nuances in communities that prioritize collectivism and cooperation. Hence, it becomes essential to examine the concept of self-esteem within a cultural framework using an emic approach, highlighting its diverse manifestations within specific cultures. This study aims to investigate how college students perceive and manifest their self-worth by employing theoretical frameworks. The primary goal is to develop an assessment tool that demonstrates both validity and reliability, enabling the evaluation of multiple dimensions of self-esteem among college students within their cultural context [20].

Material and Method:

Data Collection:

The sample comprised 150 university students from a public university enrolled in sciences and social sciences, including industrial management, computer science, or industrial engineering courses. Participants voluntarily consented and provided answers, agreeing to their use in this study. The survey was conducted online during the second semester of the 2022 academic year. Participants, aged between 18 and 22, included 80 males and 72 females. Academic performance was measured using teachers reported final grades, ranging from 1 to 10 [21][22].

Instruments:

- **Rosenberg Self-Esteem Scale:** Assessed self-worth, containing positive and negative questions rated on a Likert scale from 1 to 5.
- **Motivated Strategies for Learning Questionnaire:** Evaluated motivational, cognitive, and metacognitive factors, employing a Likert scale from 1 to 5.

- **Student Engagement and Disaffection in School:** Measured emotional and behavioral engagement, using a 5-point Likert scale.

The instruments were validated in the Mexican context and applied mid-semester and end of the semester [23].

Data Analyses:

- **Reliability Analysis:** Items' reliability was evaluated using Cronbach's alpha, aiming for values higher than 0.62.
- **Convergent Validity:** Assessed using Composite Reliability (CR) and Average Variance Extracted (AVE) with acceptable thresholds of 0.6 and 0.4, respectively.
- **Discriminant Validity:** Verified by applying the [24][25] criterion, ensuring that the square root of the AVE values was greater than the inter-construct correlations.

Structural Equation Modeling (SEM):

- Utilized the Partial Least Squares method via Smart PLS version 3 to ascertain causal relations.
- The sample size (150 students) and indicator variables (20) met the criteria for model quality, following Wang and Wang's guidelines [26].

This comprehensive methodology incorporated online surveys, validated instruments, and stringent validity and reliability assessments, aiming to explore self-esteem and its related factors among university students in various academic disciplines [27].

Results and Discussion:

Sample Description:

This section outlines the demographic composition of 150 participants in the study. Table 1 demonstrates an almost equal split between male (53%) and female (47%) participants. Age categories, derived from average and standard deviation, revealed that precisely 42% of the group were 21 years old. Across each year of the BS course, distribution was relatively balanced, with a slightly higher percentage in the 1st year (24%) compared to the 4th year (20%), 3rd year (26%), and 2nd year (30%).

Evaluating Socioeconomic Status (SES) Measurement Properties:

An exploratory factor analysis with varimax rotation was conducted on a dataset comprising 34 questions to investigate SES factors. Varimax rotation maximizes interpretability and independence among components. The Kaiser-Guttman criterion affirmed a five-factor SES model, showing the clearest arrangement and minimal item overlap. A rigorous examination led to the selection of items with factor loadings ≥ 0.30, resulting in 32 included items and five criteria with varied item counts. These factors, named Diminished self-esteem, Mastery, Anxiety and isolation, Sociability, and Confidence in oneself, emerged from a five-factor SES solution.

Dependability and Accuracy Assessment of the Self-Esteem Scale (SES):

The SES evaluates opposing self-esteem aspects, preventing overall internal consistency calculation. The Alpha Coefficient via Cronbach Alpha assessed the 32 SES items' internal consistency. Pearson correlations established substantial associations among SES variables, notably resilience, sociability, and self-confidence ($p<0.001$). Negative factors, such as low self-esteem, correlated directly with anxious or withdrawn behavior. All SES components showed significant correlations with the Rosenberg Self-Esteem Scale (RSES) ($p<0.001$) and strong internal consistency.

Calculating Split-Half Reliability of SES:

To evaluate SES split-half reliability, items corresponding to each factor were randomly split into Forms A and B. These forms demonstrated a robust and statistically significant association ($r=0.72$, $p<0.001$), with Cronbach alpha coefficients of 0.76 for Form A and 0.79 for Form B. Test-retest reliability analysis with a one-week interval revealed a remarkably significant correlation ($r=0.92$, $p<0.001$), indicating high reliability.

Correlations of Self-Esteem with Age, Gender, and Educational Attainment:

Statistical analyses exhibited significant variations in sociability among different age groups ($p<0.01$), with noticeable discrepancies in self-confidence. Gender differences were observed in sociability ($p<0.05$). Educational disparities emerged in competence scores among BS (Hons.) English Literature students across years, notably in second-year students' competence-based self-esteem.

Table 1: Sample Description and Socioeconomic Status (SES) Evaluation

Sample Description	SES Evaluation
Total Participants: 150	Number of Questions: 34
Gender Distribution:	Factor Analysis: Exploratory
Males: 53%	Rotation Technique: Varimax
Females: 47%	Components: Five
Age Distribution:	Factors: Five
21 years old: 42%	Selection Criteria: Factor Loading > 0.30
Distribution across BS course years:	Removed items: Three
1st year: 24%	Criteria Assignments: 11, 15, 10, 11, 12
2nd year: 30%	Eigenvalues > 1 for all factors
3rd year: 26%	Factor Loadings (≥0.30): Highlighted in bold
4th year: 20%	Factors Identified: Diminished self-esteem, Mastery

This tabular representation condenses the information from the sample description and the SES evaluation into a concise format for easier reference and comparison. This study's primary aim was to craft a specialized tool for evaluating university students' self-esteem. It also delved into exploring the link between individuals' self-esteem and mental health. Self-esteem significantly correlates with an individual's resilience against challenges and their overall mental well-being. It holds sway over an individual's performance across various life domains, either bolstering or undermining it. Its potential to influence human behavior, for better or worse, underscores its immense significance. Despite ongoing discussions seeking a deeper comprehension, aspects of self-esteem remain contentious, prompting scholars to contribute diverse perspectives. One scholar proposed a partnership and examined the factor theory, proposing a phenomenological definition centering on Competence and Worthiness. This multifaceted definition illuminates the dynamic nature of self-esteem in real-life contexts. Embracing this phenomenological framework was pivotal for this study, offering distinctive insights and reasoning.

Table 2: Reliability Metrics

Construct	AVE	Cronbach's Alpha
Self-esteem	1.000	1.000
Competence	0.741	0.893
Emotional Engagement	0.781	0.849
Anxiety	0.713	0.823
Sociability	0.699	0.713
Social Disengagement	0.691	0.744
Resilience	0.829	0.839
Cognitive Engagement	0.811	0.849
Low Confidence	0.792	0.783
Academic Performance	1.000	1.000

Contemporary scholarly literature has underscored culture's pivotal role in shaping human behavior independently and significantly. Many psychological concepts, constructions, and assessment methods prevalent in today's society stem from Western civilizations. However, their development within this cultural context limits their applicability and relevance when transposed into Eastern cultures. Utilizing culturally biased assessment tools within different cultural settings risks overlooking crucial information and presenting distorted profiles,

potentially leading to misguided interventions. Creating culturally sensitive assessment systems with a focus on ecological validity is crucial, especially when evaluating college students' self-esteem, as supported by abundant data. Embracing the emic technique proves more effective in comprehending a phenomenon within its cultural context, capturing its diverse expressions and complexities. In contrast to a prior study employing a similar two-component model of self-esteem among young individuals, this research identified a negative facet termed Low Self-Esteem.

Academics notably shape the self-perception and self-worth of young individuals, profoundly impacting their development. University students often grapple with concerns about their personal identity, self-perception, and external opinions. Those aged 18 to 22 might be particularly vulnerable to harsh criticism, affecting their self-esteem, which can be influenced by external circumstances. In our cultural context, the excessive emphasis on evaluating individuals rigorously without considering their emotional repercussions stands as a primary contributor to low self-esteem. Resilience, the second characteristic identified, relates to an individual's ability to perform well and adeptly navigate challenges, showcasing the impact of self-efficacy on overall self-perception. This aspect appears to counter the original component. The third element highlights tendencies toward introversion or withdrawal, while the fourth factor emphasizes sociability or extroversion, signifying their opposing nature. Self-confidence emerges as the primary determinant, encompassing the acknowledgment and valuation of one's capabilities. In our cultural context, students seem more sensitive to negative feedback than positive reinforcement concerning their abilities, significantly shaping their self-perception. Preference for solitude tends to hold more weight than engaging with others.

University students, often seen as a privileged group, undergo persistent stress and adaptation during this phase of life, potentially rendering them vulnerable to specific challenges. The effect of these stressors depends on factors like their frequency, duration, and intensity, alongside an individual's ability to manage them. Self-esteem acts as a buffer against these pressures; higher levels of self-esteem correlate with more effective coping strategies and fewer mental health issues when facing daily stressors. The initial hypothesis regarding the relationship between age and self-esteem was confirmed for certain aspects—specifically, sociability and self-confidence. However, other facets of self-esteem appear to remain consistent across an individual's lifespan. This stability might stem from the correlation between aging, the development of maturity, and improved interpersonal skills, leading individuals to value their abilities more as they age. The study findings suggest that age does not significantly impact sensitivity to negative criticism, task performance, or cautious tendencies.

Women, in their pursuit of overcoming daily challenges, strive to cultivate self-assurance like men. They exhibit elevated levels of self-confidence, often backed by familial support, enabling them to rebound effectively from adversity. However, societal expectations impose particular demands on women, requiring them to exude confidence while maintaining reserved and less engaging behaviors toward others. Although granted access, limitations on their social interactions may explain why females tend to display lower scores in Sociability while scoring similarly to males in other categories. Moreover, the study indicates no significant correlation between students' academic achievements and their self-esteem or mental health issues. University students show a consistent focus on social relationships and self-image throughout their academic journey, prioritizing these over academic pursuits, resulting in no observable alterations over the academic year. This study significantly enhances our understanding of factors influencing college students' self-esteem within our cultural context. It has developed a reliable assessment tool reflecting real-life circumstances, delineating five distinct self-esteem characteristics among university students. Each element offers insight into a student's functional profile, aiding in tailored counseling strategies. This study benefits educators and parents by promptly identifying students experiencing self-esteem issues, potentially preventing other social

and personal challenges. A clear correlation exists between self-esteem and mental health among university students. Therefore, to address mental health concerns effectively, bolstering self-esteem is crucial. Educational institutions must establish comprehensive support systems prioritizing students' academic growth and positive self-perception. Counseling sessions should aim at enhancing resilience, sociability, and self-discipline while reducing low self-esteem and withdrawal. Additionally, the self-esteem assessment developed in this study can be instrumental in therapeutic interventions.

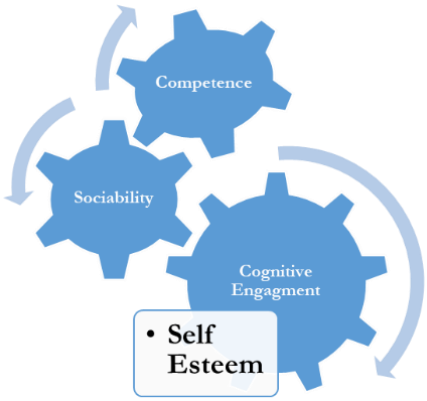

Figure 2: Conceptual Model of Self-Esteem Dynamics.

Discussion:

The main aim of this study was to develop a tool specifically designed to measure the self-esteem of college students. Subsequently, the study aimed to investigate the relationship between their self-esteem and mental health problems. An individual's level of self-esteem is strongly correlated with their resilience and mental well-being. Students with lower self-esteem levels tend to experience emotional disengagement, characterized by emotions like boredom, frustration, sadness, and anxiety. Concurrently, they exhibit behavioral disinterest, manifesting as distraction, mental detachment, and passivity. This aligns with previous research correlating unstable self-esteem with heightened academic disinterest. Contrary to expectations, this study found no direct correlation between self-esteem and academic performance. Positive self-evaluation, denoting high self-esteem, generally translates into increased engagement in school-related activities and a belief in one's ability to perform well. Yet, this study uncovered low self-esteem among students, suggesting an absence of a direct link with academic performance, consistent with prior research suggesting controversy regarding the impact of self-esteem on higher education academic outcomes. Additionally, motivation notably influences emotional, behavioral, cognitive, and metacognitive engagement, as well as emotional and behavioral disengagement. Motivated students displayed strong associations between motivation and emotional commitment, actively participated in classes, and employed complex cognitive strategies. However, motivation also influences emotional and behavioral disengagement, potentially leading to feelings of boredom, frustration, anxiety, and negative behaviors like distraction or passivity. Motivation's influence extended to learning strategies, mediating between motivation and academic performance.

This aligns with observations highlighting how motivated students effectively plan, monitor, and self-regulate their learning processes, crucial in enhancing academic performance. Overall, these findings underscore the pivotal role of self-esteem and motivation in student engagement and academic outcomes. The assessment procedures mentioned have been developed and standardized inside the Western culture, resulting in limited ecological validity when applied in the Eastern culture. As a result, these assessment tools have limited usefulness and understanding when used in different cultures. Employing assessment processes that are culturally biased toward our target demographic may lead to the omission of vital information and the dissemination of a deceptive profile, potentially leading to misguided preventive and

intervention measures. There is ample evidence to justify the need for developing evaluation procedures that are culturally sensitive and appropriate, prioritizing ecological validity, to assess the self-esteem of university students. It is crucial to emphasize that the emic method is more efficient in comprehending any phenomenon within its cultural context. It includes all the various manifestations and intricacies of a certain phenomenon inside a distinct culture.

University students, aged between 18 and 22, often grapple with heightened concerns about their self-perception and external judgments. The prevailing cultural context tends to amplify the impact of criticism, especially the negative feedback that can significantly erode self-esteem. Low self-esteem tends to emerge from this environment, though resilience, referring to one's ability to navigate challenges plays a role in bolstering self-efficacy. Yet, students within this context exhibit an inclination toward introversion over sociability, highlighting a preference for solitude. Despite being perceived as a privileged group, university students undergo continual stress and adjustment. The extent of stressors and an individual's coping mechanisms shape the impact on their mental health. High self-esteem serves as a protective barrier against these pressures, equipping individuals with more effective coping strategies and fewer mental health issues. Interestingly, while age seems to positively influence factors like sociability and self-confidence due to maturation and enhanced interpersonal skills, it doesn't significantly impact sensitivity to criticism or task performance abilities. Contrary to some studies, our research found no gender-based self-esteem disparities among university students, except for sociability, attributed to our distinct cohort choice. In Pakistan, both genders receive comparable educational opportunities, empowering women to tackle life's challenges with confidence, albeit within certain cultural constraints. Despite this empowerment, societal norms tend to restrict women's social engagement, potentially reflecting lower sociability scores compared to men while exhibiting similar scores in other variables. Interestingly, educational attainment didn't significantly affect students' self-esteem or mental health concerns. Their focus remained consistently oriented toward social relationships and self-image throughout their academic journey, showing minimal interest in academic pursuits and no substantial fluctuations over the academic year.

Conclusion:

The current study represents a significant leap in understanding the factors influencing college students' self-esteem within our cultural context. It has forged a reliable and precise assessment tool that aptly mirrors real-life scenarios, delineating five specific attributes of self-esteem evident among university students in their cultural milieu. Each attribute provides a unique opportunity to gain comprehensive insights into a student's functional profile, aiding in tailored counseling strategies. Moreover, this study serves as a valuable resource for educators and parents, facilitating the early identification of adolescents grappling with self-esteem issues that could potentially manifest as broader social and personal challenges. The link between self-esteem and mental health problems among university students underscores the need to prioritize bolstering self-esteem to effectively address mental health concerns. Educational authorities should institute comprehensive supervision and training programs catering to students' academic development while nurturing a positive self-image. Counseling and guidance sessions should focus on providing psychological support to enhance resilience, sociability, and self-discipline while mitigating low self-esteem and social withdrawal. Additionally, the self-esteem assessment scale developed in this study holds promise for clinical applications with individuals.

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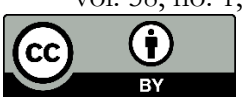
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