



RESEARCH PAPER

Self-Esteem and Vigilant Decision-Making in University Students: A Moderated Mediation Model of Peer Influence and Extraversion

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ABSTRACT

University students face complex academic, personal, and social decisions that have a significant impact on their future. These decisions are not only shaped by cognitive abilities but are also influenced by social and psychological factors including self-esteem, peer influence, and personality traits. This study examined the relationship between self-esteem and vigilant decision-making, with a focus on the mediating role of resistance to peer influence and the moderating role of extraversion. A correlational, cross-sectional design was employed on a sample of 300 undergraduate students, recruited through a purposive sampling technique. Data was collected using the Rosenberg Self-Esteem Scale, Melbourne Decision-Making Questionnaire, Resistance to Peer Influence Scale, and the HEXACO personality inventory. The results of the study indicated that self-esteem was positively associated with vigilant decision-making style and resistance to peer influence mediated the relationship between self-esteem and vigilant decision-making. This indirect relationship was significantly moderated by extraversion trait. The findings emphasize the collective role of psychological and social factors in shaping students' decision-making processes, highlighting that these contextual factors should be critically considered when designing student development programs to enhance adaptive and autonomous decision-making.

Keywords: Vigilant Decision-making, Resistance to Peer Influence, Self-esteem, Extraversion

Introduction

Increased autonomy and complex social relationships are characteristics of university life. Students are required to make constant choices regarding academics, career paths, relationships and personal growth, under uncertain circumstances and social influence. Students often engage in specific styles or patterns when making choices, reflecting the process of gathering and evaluating information to make meaningful choices. Established upon the conflict model of decision-making by Janis and Mann (1977) the Melbourne Decision-Making Questionnaire (Mann et al., 1997) differentiates between adaptive and maladaptive decision-making styles.

According to the MDMQ, vigilance, being the adaptive decision-making style, involves organized problem-solving, searching for all necessary information to make meaningful decisions, evaluating the alternate choices, and logically resolving the conflict before coming to a decision. Individuals with a vigilant decision-making style actively clarify their objectives and continue processing relevant information until a suitable decision is made. Contrarily, the maladaptive styles represent individuals' incompetence in decision-making. Empirical studies have linked adaptive or rational decision-making with better coping strategies and lower stress levels and avoidant, maladaptive patterns are related to higher stress levels and poor outcomes (Flores-Buils & Mateu-Pérez, 2025).

Self-esteem is defined as one's perceived self-worth (Rosenberg, 1965). It determines how individuals perceive risks and make choices (Josephs et al., 1992). Students with high self-esteem are observed to make more confident judgements and trust their own opinions (Baumeister et al., 2003; Josephs et al., 1992). Higher levels of self-esteem have also been associated with more independent and responsible decision-making and high self-esteem individuals are more resilient and can handle tough decisions better. (Mann et al., 1997). Self-esteem also regulates emotional responses to decision-making.

Peer influence can have both positive and negative effects, encouraging adaptive coping strategies, and conformity and risky behaviours respectively (Steinberg & Monahan, 2007). Resistance to peer influence is the extent to which students resist or conform to peer pressure, involving critical evaluation of peer information to determine if it should be integrated in their decisions (Steinberg & Monahan, 2007). Students who can resist peer influence can benefit from peer information and at the same time can maintain their own opinion. Self-esteem being an internal factor can impact resistance to peer influence shaping how students respond to peer pressure. So, examining resistance to peer influence as a mediating variable provides a better understanding of how a student's perceived self-worth interacts with social pressure and influences vigilant decision-making.

These dynamics might be moderated by individual personality traits, extraversion in particular, which reflects patterns of social engagement and responsiveness to external input. Functioning as moderator in the self-esteem, resistance to peer influence, and vigilant decision-making relationship, extraversion personality trait determines under which conditions this relationship is strengthened or weakened. Similar levels of self-esteem and resistance to peer influence may lead to different outcomes depending on individual's level of extraversion.

Building on Bandura's Social Cognitive Theory (Bandura, 1986) decision-making is viewed as the product of personal (self-esteem) and social or environmental (peer influence) factors and is influenced by individual differences (extraversion trait). Sociometer theory (Leary et al., 2005) proposes that self-esteem acts as an intrinsic measure of social acceptance and connection. Peer relations are of significance during university life and to maintain social inclusion students with lower degrees of self-esteem may be more conforming to peer influence or group norms. This viewpoint supports the incorporation of resistance to peer influence as a mediating variable in this study.

Literature Review

University students (18–25 years of age) highly rely on peer relations, making peer influence a crucial factor in decision-making during university life (Arnett, 2000). Multiple studies have linked high self-esteem with adaptive career decision-making and decision-making self-efficacy (Colakkadioglu & Celik, 2016; Abdullah & Roslan, 2021; Choveaux & Leng, 2024). Literature consistently demonstrates that peer influence plays a key role in shaping students' decision-making with students often being unaware of it (Kaur, 2016; Mtemeri, 2020; Yu et al., 2021; Offando & Sukma, 2024; Nicolas et al., 2025). Moreover, peer pressure has been frequently reported to be negatively correlated with self-esteem (Kasim et al., 2025). Personality traits have been linked to self-esteem suggesting that individual differences may condition how self-worth translates into behavioural outcomes (Niazi & Mehmood, 2017; Javed et al., 2022).

Existing literature examined self-esteem, peer influence, adaptive decision-making and extraversion personality separately but there is limited empirical research that explores how these variables interact altogether resulting in an incomplete understanding of the factors that determine adaptive decision-making behaviour in university students. By examining resistance to peer influence as a mediating variable and extraversion as moderator in self-esteem and vigilant decision-making relationship, this study offers a

better understanding of how these social and psychological components interact to determine vigilant decision-making in emerging adulthood and offers implications for interventions to enhance students' decision-making competence in university life.

Hypotheses

- H1. Self-esteem will be significantly positively related to vigilant decision-making style in university students.
- H2. Self-esteem will be significantly positively related to resistance to peer influence in university students.
- H3. Resistance to peer influence will significantly mediate the relationship between self-esteem and vigilant decision-making.
- H4. Extraversion will significantly moderate the indirect relationship between self-esteem, vigilant decision-making and resistance to peer influence.

Material and Methods

A correlational, cross-sectional research design was applied for rigorous statistical testing of self-esteem, resistance to peer influence, vigilant decision-making and extraversion.

Sample

Data was collected through non-probability sampling technique by a sample of 300 students. Sample size was estimated using G*Power software version 3.1.9.7.

Inclusion and Exclusion Criteria

Undergraduate students (18-25 years) from public and private universities were included in the study. Students included had completed at least one semester to ensure that they had sufficient exposure to academic and peer-related experiences. Invalid and incomplete responses were discarded and students who engaged in part-time jobs during the semester were excluded from the study.

Assessment Measures

Demographic Questionnaire

A brief questionnaire was developed to collect demographic information including age, gender, academic field of study, academic year, type of university, monthly household income and current living arrangement.

Rosenberg Self-Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) having 10-item rated on a 4-point Likert scale, scores ranging 10 to 40 and higher scores indicating higher self-esteem, was used in the current study with internal consistency ($\alpha = .77-.88$).

Resistance to Peer Influence Scale (RPI)

The Resistance to Peer Influence Scale (Steinberg & Monahan, 2007) consists of 10 paired statements rated on a 4-point scale assessing resistance versus conformity to peer pressure, with higher scores reflecting greater resistance ($\alpha = .70-.78$).

Melbourne Decision-Making Questionnaire (MDMQ)

The Melbourne Decision-Making Questionnaire (Mann et al., 1997) is a 22-item instrument rated on a 3-point Likert scale measuring vigilance, hyper-vigilance, buck-passing, and procrastination, with subscale reliabilities ranging from .74 to .87.

HEXACO-PI-R

The HEXACO Personality Inventory Revised (Lee & Ashton, 2007) 60-item version assesses six personality domains on a 5-point Likert scale and demonstrates strong cross-cultural reliability with alpha values above .80.

Procedure

Institutional permission was obtained prior to data collection, and permission for using the Melbourne Decision-Making Questionnaire and Resistance to Peer Influence Scale was obtained from the authors. Participants were recruited through convenience sampling in campus areas and via online questionnaires (Google Forms) and were screened for the inclusion criteria. Informed consent form and the assessment measures were provided in a fixed order, and the average completion time was 15-20 minutes. Data was screened for invalid responses and analysed using IBM SPSS Statistics (V.27) and Hayes' PROCESS macro.

Statistical Analysis

Descriptive statistics and Pearson correlations were computed for the demographic and study variables. Only vigilance subscale scores and extraversion scores were used for primary analyses. Regression analysis was run to test the relationship between self-esteem and vigilant decision-making style, self-esteem and resistance to peer influence, and resistance to peer influence and vigilant decision-making. PROCESS model 4 was used for simple mediation and model 7 for moderated mediation to assess whether self-esteem predicts vigilant decision-making via resistance to peer influence, moderated by extraversion. A significance level of $p < .05$ was used for all analyses, and 95% bootstrap confidence interval was used to determine the significance of indirect effects.

Ethical Considerations

- Informed consent was taken from participants before data collection.
- Participants were given a brief description of the study, its voluntary nature, and their right to withdraw at any point.
- Confidentiality and anonymity were maintained.
- There was no foreseeable physical, psychological, or social harm.
- Data was securely stored and used solely for research purposes.

Results and Discussion

Table 1
Descriptive Statistics and Reliability Analysis

Variable	α	M	SD
Self-esteem	.75	27.27	4.42
Resistance to Peer Influence	.58	2.50	.47
MDMQ	.79	-	-
Vigilance	.64	8.27	2.45
HEXACO-PI-R	.66	-	-
Extraversion	.59	30.70	5.44

N=300, α = Cronbach's alpha, M = Mean, SD = Standard Deviation.

Table 2
Pearson Correlations among Self-Esteem, Resistance to Peer Influence, and Vigilant Decision-Making Style

	Variables	I	II	III
I.	Self-esteem	-	.20***	.22***
II.	RPI		-	.88***
III.	Vigilance			-

N= 300, RPI = Resistance to Peer Influence, ***p < .001.

There was a significant positive correlation between self-esteem and resistance to peer influence ($r = .20, p < .001$), and self-esteem and vigilance decision-making style ($r = .22, p < .001$). There was a strong positive correlation found between resistance to peer influence and vigilance ($r = .88, p < .001$).

Table 3
Simple Linear Regression Predicting Vigilant Decision-Making Styls from Self-esteem

Outcome Variable	B	95% CI	for B	SE B	β	R ²
		LL	UL			
Vigilance	.12	.06	.18	.03	.22***	.047

N=300, ***p < .001

Self-esteem positively predicted vigilant decision-making style ($\beta = .22, F_{(1, 298)} = 14.62, p < .001$) accounting for 4.7% variance in vigilance.

Table 4
Simple Linear Regression Predicting Vigilant Decision Making Style from Resistance to Peer Influence

Outcome Variable	B	95% CI	for B	SE B	β	R ²
		LL	UL			
Vigilance	4.58	4.30	4.87	.15	.88***	.77

N=300, ***p < .001

Resistance to peer influence was a significant positive predictor of vigilance ($\beta = .88, F_{(1, 298)} = 991.40, p < .001$) accounting for 77% variance in vigilance.

Table 5
Simple Linear Regression Predicting Resistance to Peer Influence from Self-Esteem

Outcome Variable	B	95% CI	for B	SE B	β	R ²
		LL	UL			
Resistance to Peer Influence	.02	.01	.03	.01	.20***	.039

N= 300, ***p < .001

Resistance to peer influence was positively predicted by self-esteem ($\beta = .20, F_{(1, 298)} = 12.12, p < .001$) explaining 3.9% variance in resistance to peer influence.

Table 6
Mediation of the Relationship between Self-Esteem and Vigilant Decision-Making by Resistance to Peer Influence

Outcome	Path	B	SE	t	p	LLCI	ULCI
Vigilance	a	.02	.01	3.48	.001	.009	.033
	b	4.54	.15	30.63	.000	4.24	4.83
	c'	.025	.02	1.58	.12	-.01	.06
	Indirect effect	.10	.03	-	-	.04	.15

N= 300, Bootstrap samples = 5000, a = Self-Esteem to Resistance to Peer Influence, b = Resistance to Peer Influence to Vigilance, c' = direct effect of Self-Esteem on Vigilance.

The relationship between self-esteem and vigilance (adaptive decision-making style) was significantly mediated by resistance to peer influence ($B = .02, p < .001$). The direct effect of self-esteem on vigilance became non-significant ($B = .03, p = .12$) as the result of the mediating function of resistance to peer influence, and the indirect effect was significant indicating full mediation.

Table 7
Moderated Mediation of Self-Esteem on Vigilance via Resistance to Peer Influence as a Function of Extraversion

Moderator	Index of Moderated Mediation	BootSE	95%	
			LL	UL
Extraversion	.01*	.001	.001	.02

$N = 300$, Bootstrap samples = 5000, * $p < .05$.

Moderated mediation was run to examine the conditional effects of self-esteem on vigilance via resistance to peer influence as a function of HEXACO personality traits. Only extraversion significantly moderated the relationship (Index = .01, 95% CI = .001, .02).

Discussion

The present research provided insight on the relationship of self-esteem and vigilant decision-making style by means of resistance to peer influence as conditioned by extraversion personality trait. Comprehensively, it turned out that self-esteem was positively linked with vigilant decision-making. The indirect relationship between self-esteem and vigilant decision-making as a function of resistance to peer influence was also significant and this effect was significantly moderated by extraversion trait.

Hypothesis 1 stating that self-esteem would be significantly positively associated with vigilant decision-making style was supported. The findings were consistent with previous research (Colakkadioglu & Celik, 2016) suggesting that higher self-esteem led to more vigilant decision-making. The results also supported the third hypothesis, demonstrating that higher levels of self-esteem were associated with greater resistance to peer influence among university students. This indicates that students with higher self-esteem may exhibit more autonomy in their decision and are less dependent on their peers.

Resistance to peer influence fully mediated the relationship between self-esteem and vigilant decision-making supporting the mediation hypothesis and suggesting that self-esteem affects adaptive decision-making mainly by regulating individual's susceptibility to conform to peer norms (Oostdam et al., 2019; Paez-Gallego et al., 2020). Finally, the moderation hypothesis was also supported as extraversion moderated the indirect relationship between self-esteem and vigilance through resistance to peer influence. This proposes that peer-related information may be handled differently by extraverted individuals, stabilizing the tension between social engagement and autonomous decision-making. The results of the study imply that while overall behavioral dispositions are affected by personality traits, peer-related decision-making may only be influenced by certain traits like extraversion.

The proposition that adaptive and maladaptive decision-making is influenced by different psychological factors, is a distinct finding that has not been empirically investigated in Pakistani samples. In a collectivist culture, where peer influence is usually meaningful and normative, this demarcation is particularly important. An essential novel contribution, locally and comparatively, is extraversion trait uniquely moderating the mediating role of peer influence. Even though extraversion has been linked with social engagement and susceptibility to social norms in international literature, very few studies have investigated its conditioning role in mediated decision-making processes. In the

Pakistani context, this finding proposes that students who are more inclined towards extraversion may face a particular tension between social conformity and independent decision-making, as social harmony and group belonging are culturally emphasized.

Conclusion

This study examined the relationship between self-esteem and vigilant decision-making among university students, with resistance to peer influence as a mediator. The findings indicated that higher self-esteem was associated with more vigilant decision-making, through increased resistance to peer influence. Extraversion significantly moderated this indirect relationship, highlighting the role of personality traits in determining how social influences affect students' decision-making. These results contribute to the literature by providing empirical evidence from a Pakistani university sample and emphasize the significance of considering social and contextual factors when assessing students' cognitive outcomes.

Implications

Together the findings of this study support Bandura's social cognitive theory (Bandura, 1986) by demonstrating personal (self-esteem), and social (peer influence) factors jointly shape cognitions (decision-making), while individual differences (personality traits) also play a role in regulating these mechanisms. Resistance to peer influence fully mediating the relationship between self-esteem and vigilant decision-making proposes that self-esteem regulates students' susceptibility to social norms which in turn influences adaptive decision-making, expanding sociometer theory (Leary et al., 2007) by including cognitive-behavioral processes (decision-making).

By understanding the relationship found between self-esteem and adaptive decision-making universities can integrate components that build self-esteem into students' character-building programs. Social and contextual factors such as peer influence should also be considered when designing such interventions, informing students' ability to critically evaluate normative and informational peer influence and resist social pressures especially when making personal and professional decisions. Peer mentoring programs can be modelled to encourage independent decision-making rather than passive conformity, particularly during transitional periods. The conditional relationship of self-esteem, resistance to peer influence and adaptive decision-making moderated by extraversion trait suggest that individual differences should also be considered when developing interventions. Tailoring these interventions according to individual personalities can enhance their effectiveness.

In conclusion, these results highlight the importance of a multi-contextual approach to decision-making for university students that collectively addresses personal and social factors and personality-based differences.

Suggestions

The ability of the study to draw causal inferences is restrained to an extent by its cross-sectional design. Future studies can implement longitudinal or experimental designs to investigate causal processes behind these relationships.

The data was collected only from universities in Lahore, Punjab province. Future research can include samples from different cities or provinces in Pakistan to increase generalizability. The presented model can be investigated in different cultural contexts to see if the findings hold true across cultures.

Even though the reliability of the overall assessment measures was acceptable, some subscales of the HEXACO personality inventory and the Resistance to Peer Influence Scale showed relatively lower internal consistency. This might have weakened the strength of some relationships that were measured. Future research can enhance measurement precision by using alternative tools or revised versions of these measures. Qualitative or mixed-method approaches can also be used to enhance depth of the current findings.

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