

**Defense mechanism as predictors of personality traits among adolescents – a mediating factor for sustainable health and wellbeing**

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**Abstract:**

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being, and not just the absence of disease or infirmity. Health and well-being are essential for a thriving society and can improve a person's life in many ways which help in addressing several global challenges. Defense mechanisms and personality traits expressively contribute to sustainable development by influencing how individuals and societies cope with challenges, make decisions, and foster long-term well-being. The defense mechanism is a concept from classical psychoanalytic theory developed by Sigmund Freud. It refers to an unconscious reaction that the ego triggers to protect an individual from anxiety caused by internal conflicts. Defense mechanisms significantly shape personality traits and influence how individuals perceive and interact with the world. The cross-sectional study aimed to explore adolescents' defense mechanisms and personality traits in Coimbatore City, Tamil Nadu, India. The participants consisted of 891 adolescents, out of which 459 were boys and 432 were girls in the age group of 17, 18, and 19 years who were selected through systematic random sampling. A scale to assess the use of the defense mechanism scale was developed and was tested for reliability (.61 Cronbach's Alpha). The Eysenck personality inventory was used to assess the personality traits of the adolescents. Stepwise regression (backward) was conducted to identify the predictors of the variable. The results revealed that projection and rationalization were significant predictors of extroversion. Sublimation, reaction formation, and rationalization were significant predictors of introversion; reaction formation was a significant predictor of neuroticism, and sublimation was a significant predictor of stability.

**Keywords:** *Personality traits, Adolescents, Defense mechanism*

**Introduction:**

The WHO defines mental health as a state of complete physical, mental, and social well-being where individuals realize their potential, can cope with challenges in life, can work productively and contribute to their community, which sums up the need to reach the SDGs by 2030

The role of mental health in the Sustainable Development Goals (SDGs) seems important to reduce mental health problems and suffering. A good mental health was related to the ability to reach the SDGs. The SDGs are universal and mental health concerns all, whether rich or poor. The effort to eradicate poverty, prevent conflict and disaster, and promote education could not be successful unless mental health is prioritized. Poverty, marginalization violence, complex emergencies, and violation of human rights threaten both human development and sustainable development and find an important context for global mental health. Mental health was included in universally agreed goals, providing an opportunity to enhance mental health and wellbeing across countries and professional wellbeing.

Mental health and psychological well-being were defined as an integral part of health by the WHO in 1978 and had been addressed in many UN resolutions. When world leaders adopted the Sustainable Development Goals (SDGs) in 2015 mental health was included on the unified global agenda and committed to prioritize “prevention and treatment of non-communicable diseases including behavioural development and neurological disorder, which constitute a major challenge to sustainable development.

The SDGs address the root cause of humanitarian emergencies as poverty, natural disasters, and conflict often represent critical threats to the health and safety of a community. Emergencies often occur in low and middle-income countries. There was substantial experience and evidence of mental health and psychological intervention in and after emergencies which is valuable in the effort to reach the SDGs. Both from a human rights perspective and an economic perspective mental health must be prioritized. To reach the SDGs human potential and resilience need to be more developed to contribute to the work. Resilience promotes mental health in communities, families, schools, and the workplace (Dybdahl B and L.Lars 2017)

Despite an increasing proportion of low and middle-income country populations, adolescents remain a neglected group. Adolescence is a crucial period for establishing healthy behaviour, and social responsibility. With increasing adolescent population size, the contributions that adolescents make to society represent a significant "demographic dividend" for countries. This requires extensive work within and across sectors to ensure effective change for adolescents (Clark, H., 2020). The World Health Organization (2000) defines the stage of adolescence as between the ages of 10-19 years. "The transition from a dependent child to an independent adult is a fascinating and intricate phase of human development (Singh, J.A et.al 2019). Adolescents often display childish behavior due to their mental immaturity, developmental imbalances, and difficulty controlling their inner conflicts. They use coping strategies established by the ego to isolate themselves and their unconscious mind is in constant conflict with the conscious part of their mind to solve their conflicts. (Gökdağ, R 2015).

The defense mechanism is a concept from classical psychoanalytic theory developed by Sigmund Freud. It refers to an unconscious response that the ego activates to protect an individual from anxiety arising from internal conflicts.

In Sigmund Freud's personality theory, the ego serves as a mediator between the conflicting demands of the id and the superego. The id desires immediate gratification without considering social norms, while the superego directs the ego towards moral behavior based on the internalized values learned from family and society. Freud also proposes that defense mechanisms help the ego manage the anxiety that arises from these conflicts (Waqas A. et al., 2015). Defense mechanisms can sometimes be unhealthy, but they also play an essential role in helping individuals function effectively. It is important to understand that problems arise when these mechanisms are overused as a way to avoid confronting significant issues (Di Giuseppe M, et al., 2021). Personality traits significantly influence the utilization of defense mechanisms. According to Eysenck, these traits are largely heritable. He identified two main traits: extraversion-introversion and neuroticism-stability (Mohammadlou, M., et al., 2016).

Extraversion includes a wide range of characteristics such as sociability, activity, liveliness, assertiveness, sensation-seeking, carefreeness, enthusiasm, adventurousness, and dominance. Extraverts usually enjoy social gatherings, maintain a large circle of friends, and often seek constant interaction with others. In contrast, introverts prefer to spend more time alone and engage in quiet activities like reading. They might appear aloof and distant, but they often have a small circle of close friends with whom they share personal thoughts. Introverts are typically well-organized and favor a predictable, routine lifestyle.

Neuroticism encompasses a variety of specific traits, including feelings of depression, anxiety, irritability, guilt, low self-esteem, tension, shyness, and moodiness. While traits like anxiety and irritability may seem conceptually distinct, research shows that individuals who experience anxiety often also exhibit irritability (Larsen & Kasimatis, 1990).

In recent years, psychological studies have increasingly linked the use of defense mechanisms to broader personality traits, suggesting that these coping strategies may serve as early predictors of how adolescents develop personality and manage future life stressors. Research has shown that defense mechanisms are not just a transient reaction to stress, but are intricately connected to stable personality traits, which in turn influence overall well-being. For example, adolescents who frequently use adaptive defenses, such as sublimation or humor, tend to exhibit traits such as emotional stability, high levels of conscientiousness, and openness to experience (Kernberg, 2016). Conversely, reliance on maladaptive defenses like denial or repression is often correlated with negative personality traits such as neuroticism and low self-esteem, which can adversely affect mental and physical health (Cramer.P, 2006). As a result, mediating factors of mental health must be considered for sustainable health and well-being. Hence the present study was planned with the objective to explore the predictive capacity of defense mechanisms on personality traits among adolescents.

## **Method**

Human Ethical Committee clearance from the institute was obtained to conduct the study. The study used a cross-sectional design. A total of 891 undergraduate students from 8 colleges in Coimbatore, Tamil Nadu, India participated in the study out of which 459 were boys and 432 were girls from the age group of 17,18 and 19 years. Study tools used were the

Eysenck personality inventory and a self-constructed tool on defense mechanisms. The description of the study tools is as follows:

**Eysenck Personality Inventory:** The Eysenck Personality Inventory (EPI; Eysenck & Eysenck, 1963) was the briefest and most popular personality inventory. It measures the personality traits of extraversion, introversion, and neuroticism. The form consists of 57 items, each of the two dimensions is measured by 24 questions. In addition to the scales, Eysenck developed a third dimension in 1975 known as Psychoticism (P). This dimension measures traits such as aggressiveness, impulsivity, and a tendency toward antisocial behavior. However, Psychoticism is usually assessed using a separate tool called the Eysenck Personality Questionnaire (EPQ), rather than the Eysenck Personality Inventory (EPI).

**Defense mechanism** was a 30-item questionnaire designed for this study. The first section dealt with basic information about the participants, and the second section dealt with the defense mechanism. Face validity was ensured through 7 experts and was finalized after receiving feedback from the experts, the reliability of the Cronbach Alpha test showed .61 which was satisfactorily accepted. The principal component analysis (PCA) was conducted. The total number of the component was 11 and 30 statements were retained in the questionnaire. The Kaiser Meyer-Olkin Measure of Sampling (KMO) showed .716. Bartlett's test of Sphericity was 1871.516 and the cumulative percentage was 51.150. The student perception was measured on a 5-point scale, the positive statements were scored as 5,4,3,2,1 and negative statements were scored as 1,2,3,4,5 for the responses Always, Frequently, Sometimes, Rarely and Never the higher score indicated higher the use of defense mechanism. The data was collected through a survey method, and the collected data were consolidated and tabulated

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-----This output presents results from a stepwise (backward) regression analysis examining the predictive capacity of defense mechanism on personality traits. Table 1 shows the interpretation of the results based on the given models. The analysis consists of four models, each assessing different combinations of predictors (defense mechanisms) about the dependent variables (personality traits). The significance levels (Sig.) indicate the statistical importance of each predictor, while VIF (Variance Inflation Factor) and Tolerance (Tol.) assess multicollinearity. The psychological defenses are divided into mature, intermediate/neurotic, and immature (Bowins, B. 2004).

**Table 1: Models of Stepwise regression (backward)**

	Personality traits	Defense mechanism	B	$\beta$	t	Sig.	VIF	Tol.	F	R	R <sup>2</sup>	Adjusted R square	Sig.
	Dependent variable	Predictors											
Model 1	Extroversion	Rationalization	.128	.159	2.764	.006	1.000	1.000	5.461	.190	.036	.030	.005
		Projection	-.072	-.107	-1.859	.064	1.000	1.000					
Model 2	Introversion	Sublimation	-.118	-.225	-2.059	.043	1.040	.961	4.048	.373	.139	.105	.010
		Reaction formation	.130	.225	2.094	.040	1.005	.995					
		Rationalization	.163	.232	2.125	.037	1.036	.965					
Model 3	Neuroticism	Reaction formation	-.114	-.113	-2.478	.014	1.000	1.000	6.141	.113	.013	.011	.014
Model 4	Stability	Sublimation	.148	.378	2.446	.019	1.00	1.000	5.984	.378	.143	.119	.019

Note: Tol.= Tolerance, VIF= Variance Inflation factors

The stepwise regression (backward) elimination process contains only significant predictors, which were likely to have a meaningful relationship with the dependent variable personality traits.

Model 1 depicted that rationalization and projection defense mechanisms were the predictors for extroversion personality traits with a 3.0% variance given the **adjusted R<sup>2</sup> of .030** (F=5.461, R<sup>2</sup>=.036, p=.005). A significant association was found between rationalization (t=2.764, p<0.006) and projection (t=-1.859, p>.064) with extroversion personality traits. A unit change in rationalization defense mechanism increases

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----- introversion personality trait. -----

The introversion personality traits showed sublimation, reaction formation, and rationalization defense mechanisms as predictors ( $F=4.048$ ,  $R^2=.139$ ,  $p=.010$ ) explaining 10.5% of the variance in introversion personality traits with the **adjusted  $R^2$  of .105** showing a significant association between sublimation( $t=-2.059$ ,  $p<.043$ ), reaction formation ( $t=2.094$ ,  $p<.040$ ), and rationalization ( $t=2.125$ ,  $p<.037$ ) with introversion personality trait. The result suggested that a unit change in the sublimation defense mechanism decreases -0.118 scores of introversion personality traits while a unit change in the reaction formation defense mechanism increases the introversion personality traits score by 0.130 and a unit change in the rationalization defense mechanism increases the 0.163 scores of introversion personality traits.

Reaction formation defense mechanism was found to be the significant predictor for neuroticism personality trait with the **adjusted  $R^2$  of .011** showing 1.1% variance ( $F=6.141$ ,  $R^2= 0.113$ ,  $p=.014$ ). This elucidated that a unit change in reaction formation defense mechanism decreases -0.114 scores of neuroticism personality trait. Similarly, it was observed that there was a significant association between reaction formation ( $t=-2.478$ ,  $p<.014$ ) with neuroticism personality trait.

*The last model depicts that the sublimation defense mechanism ( $F= 5.984$ ,  $R^2= 0.378$ ,  $p=.019$ ) was the significant predictor for the stability personality trait with the adjusted  $R^2= .119$ , explaining 11.9% variance. Further, it was noticed that the sublimation defense mechanism ( $t=2.446$ ,  $p<.019$ ) was significantly associated with stability personality traits, with a unit change in the sublimation defense mechanism, the 0.148 scores in the stability personality trait increased`.*

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~~The study aimed to predict the defense mechanism of adolescents in Coimbatore, Tamil Nadu, India, based on personality traits.~~

Model 1 indicated that rationalization and projection defense mechanisms were the predictors for extroversion personality traits. Individuals who relied on rationalization and projection defense mechanisms were extroverted and involved in community activities (Garusi Farshi, MT 2001). This finding suggested that individuals who used rationalization and projection were motivated to connect with others.

The results of model 2 showed that there was a significant association of sublimation, **reaction formation**, and **rationalization** defense mechanism with introversion personality traits. The result showed that individuals who employ these mechanisms withdraw socially. The current result was supported by the study of Berman, S. M. W., and McCann, J. T. (1995), which found a significant correlation between antisocial traits and rationalization defense mechanisms.

Subsequently, model 3 illustrated the **reaction formation** defense mechanism as a predictor for neuroticism personality trait. In the five-factor personality model, also known as the Big Five, emotional instability is characterized by a chronic tendency toward psychological distress (APA Dictionary 2018). The finding revealed that individuals who used reaction formation defense mechanisms experienced neurotic traits. Research showed that individual with high levels of neuroticism tend to hold irrational beliefs and struggle to control their impulses. Instead of problem-solving strategies to manage stress, they often sought excitement or avoided the source of stress and had difficulty coping with stress (Garusi Farshi, MT 2001).

The findings from model 4 indicated that **sublimation defense mechanisms** significantly predict stability personality traits which shows that individuals redirect unacceptable impulses into activities that are socially or culturally acceptable. This defense mechanism helps an individual to channel their aggression and energy into participating in sports (Ryan Bailey and Jose Pico 2023). The result highlighted that sublimation as a defense mechanism promotes resilience, as psychologically stable individuals were engaged in positive behaviors that support environmental and social sustainability.

**Limitations and Future Research:**

The limitations of the study were connected to other factors, such as cultural, situational, and economic influences, which affected personality development and community engagement. Future research should explore these aspects through longitudinal studies or diverse samples to strengthen findings.

**Conclusion:**

Defense mechanisms were often thought of as a negative reaction. An individual uses a defense mechanism daily to ease stress and protect self-esteem during critical times temporarily. It could be adaptive and maladaptive, allowing an individual to focus on what is necessary at the moment. In summary, the stepwise regression (backward) analysis highlighted how certain defense mechanisms predict specific personality traits and how they contribute to long-term developmental outcomes. Through a review of the literature understanding these dynamics was important to design interventions aimed at fostering healthy emotional regulation, promoting resilience, and supporting adolescents' overall well-being.

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