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A Study of Defense Mechanisms Among Patients with Type 2 Diabetes Mellitus and Hypertension

Manish Kumar[1], Dr. Ranjan Kumar[2]

[1]Research Scholar, Department of Psychology, Patliputra University, Patna
[2]Assistant Professor, Department of Psychology, R.K.D. College, Patliputra University, Patna

Abstract

Background: Chronic illnesses like Type 2 Diabetes Mellitus (T2DM) and Hypertension are not only physiological but also psychological in nature, influencing how individuals cope with ongoing stress. Psychological defense mechanisms serve as unconscious strategies that mediate emotional responses, and their organization reflects one's overall adaptive functioning.

Aim: The present study aims to explore and compare the use of defense mechanisms—categorized as mature, neurotic, and immature—and overall defensive functioning (ODF) among patients with T2DM, Hypertension, and healthy individuals.

Method: A sample of 150 participants aged 18 to 45 years was selected and divided into three equal groups: T2DM patients, Hypertensive patients, and Healthy Individuals. The Defense Mechanism Rating Scale–Self Report–30 (DMRS-SR-30) was used to assess defense mechanisms and ODF. Statistical analyses including ANOVA and Pearson's correlation were performed to examine group differences and associations with illness duration.

Results: Significant differences were observed across groups. Healthy individuals reported higher usage of mature defenses and higher ODF scores. Patients with T2DM and Hypertension showed significantly greater use of immature and neurotic defenses and lower ODF. Duration of illness was negatively correlated with mature defenses and ODF, and positively correlated with immature defenses.

Conclusion: The findings highlight compromised psychological adaptability in individuals with chronic illnesses, underlining the need for integrated mental health care. Assessing and addressing defense patterns can enhance treatment outcomes and overall well-being.

Keywords: Defense Mechanisms, Type 2 Diabetes Mellitus, Hypertension, Immature Defenses, Neurotic Defenses, Mature Defenses, Overall Defensive Functioning (ODF), DMRS-SR-30

INTRODUCTION

Background of the Study: Chronic illnesses such as Type 2 Diabetes Mellitus (T2DM) and Hypertension are not only widespread but also significantly impact a person's mental and emotional well-being. These illnesses demand ongoing medical attention, lifestyle modifications, and continuous psychological adjustment. When T2DM and hypertension occur together (comorbidity), the burden becomes even more severe, leading to higher levels of stress, anxiety, and emotional dysregulation (Ali et al., 2006; Shrivastava et al., 2013).

In response to such psychological stress, individuals unconsciously engage in defense mechanisms—automatic mental processes that protect the ego by reducing anxiety and maintaining self-image (Vaillant,

1992). These mechanisms can be adaptive or maladaptive, depending on their level of maturity.

Types of Defense Mechanisms: Defense mechanisms are categorized into three broad types (Vaillant, 1977; Cramer, 2000):

- Mature Defenses: These include sublimation, humor, suppression, and anticipation. They are adaptive and promote emotional health.
- Neurotic Defenses: Examples include repression, reaction formation, and displacement. These are moderately adaptive.
- Immature Defenses: These include projection, denial, passive-aggression, and acting out. They are typically associated with poorer coping and adjustment.

Overall Defensive Functioning (ODF): Overall Defensive Functioning (ODF) is a composite score reflecting the maturity level of a person's defenses. It ranges from 1 (lowest maturity) to 7 (highest maturity) (Perry, 1990; Di Giuseppe et al., 2020). A higher ODF score reflects greater reliance on mature defenses and better psychological adjustment, while a lower ODF score indicates dominance of immature defenses and poor psychological health.

In this study, ODF and individual defense categories are assessed using the Defense Mechanism Rating Scales – Self Report – 30 (DMRS-SR-30).

Rationale of the Study: While much research has examined depression, anxiety, and quality of life in chronic illness, few studies have investigated unconscious defense patterns in such patients. Even fewer have explored defense mechanisms in patients with comorbid T2DM and hypertension, or compared them with those having only one illness or no illness at all.

This study aims to:

- Explore the psychological defense profiles of patients with T2DM, hypertension, and both.
- Compare them with a healthy control group.
- Identify how chronic illness and comorbidity impact defense maturity and overall psychological functioning.

This can help inform intervention strategies like psychological counseling, coping skills training, and emotion regulation programs tailored to the defense style of patients.

Statement of the Problem: Chronic illnesses like diabetes and hypertension affect not just physical health but also psychological defense mechanisms, which can either facilitate or hinder adjustment. The nature and maturity of these defenses in chronic illness patients remain underexplored, particularly in those with dual diagnoses.

Significance of the Study: This study is significant because it:

- Enhances understanding of the psychological coping patterns in chronic illness.
- Provides empirical evidence to support psychological screening and intervention.
- Identifies at-risk individuals based on their defensive functioning profile.
- Fills the gap in comparative defense mechanism research across comorbid, non-comorbid, and healthy populations.

Objectives of the Study

1. To assess the use of mature, neurotic, and immature defense mechanisms in four groups:

- T2DM
- Hypertension

- Comorbid (T2DM + Hypertension)
- Healthy Individuals

2. To evaluate Overall Defensive Functioning (ODF) across these groups.
3. To compare defense patterns and ODF scores between the groups.
4. To examine correlations between duration of illness and defense mechanisms/ODF.

Hypotheses of the Study:

Null Hypotheses (H_0):

- No significant group differences in defense types or ODF.
- No correlation between illness duration and defense use/ODF.

Alternative Hypotheses (H_1):

- Significant group differences in mature, neurotic, and immature defenses, and ODF.
- Significant correlations between illness duration and defensive functioning.

Operational Definitions:

- Type 2 Diabetes Mellitus (T2DM): A metabolic disorder diagnosed as per ADA guidelines, characterized by insulin resistance and elevated blood glucose.
- Hypertension: Persistent high blood pressure as diagnosed by a physician.
- Comorbid Group: Individuals diagnosed with both T2DM and Hypertension.
- Defense Mechanisms: Unconscious psychological strategies assessed using DMRS-SR-30.
- ODF Score: A composite numerical index ranging from 1 to 7, indicating the maturity level of defense use.

Delimitations of the Study:

- The study is limited to participants aged 18 to 45 years.
- Sample size is restricted to 150 participants divided into four groups.
- Only urban outpatient settings are included.
- The study uses self-report measures which may have subjective biases.
- Only T2DM and hypertension are studied; other chronic conditions are excluded.

Review of Literature

Chronic Illness and Psychological Impact: Chronic illnesses such as Type 2 Diabetes Mellitus (T2DM) and Hypertension are not only physiological conditions but also significant psychological stressors. Research has consistently shown that individuals suffering from chronic diseases are more vulnerable to depression, anxiety, and poor coping strategies (Ali et al., 2006; Gonzalez et al., 2008). When comorbid, these conditions further exacerbate the emotional burden (Baumeister et al., 2007).

Defense Mechanisms and Illness: Defense mechanisms are unconscious processes employed by individuals to manage internal conflict and external stress (Vaillant, 1992; Cramer, 2000). Studies have found that chronic illness often disrupts psychological equilibrium, leading patients to use less adaptive defense styles, especially when illness is prolonged or comorbid (Hyphantis et al., 2005).

Vaillant (1977) classified defenses into three categories:

- Mature (e.g., humor, suppression),
- Neurotic (e.g., repression, reaction formation),
- Immature (e.g., denial, projection).

In clinical populations, immature defenses have been associated with greater psychiatric symptoms and lower treatment adherence (Bond, 2004).

Defense Mechanisms in Diabetes: Patients with T2DM face ongoing challenges such as blood sugar regulation, dietary restrictions, and fear of complications. Studies suggest that diabetic patients use more neurotic and immature defenses, especially denial and rationalization, to manage disease-related stress (Kumar & Tiwari, 2014). Lower defense maturity in diabetic patients is linked with higher HbA1c levels and poor glycemic control (Kalra et al., 2012).

Defense Mechanisms in Hypertension: Hypertension, being mostly asymptomatic, often leads to denial and projection, particularly in the early stages. Hyphantis et al. (2005) found that hypertensive patients showed increased use of immature defenses such as displacement and passive-aggression. These styles may contribute to non-compliance with treatment and poor emotional regulation.

Comorbidity and Defensive Style: Very few studies have explored defense mechanisms in patients with both T2DM and hypertension. Comorbidity increases illness severity and emotional strain, likely resulting in a shift toward less adaptive defensive functioning (Gonzalez et al., 2008). These patients are at a higher risk of emotional dysregulation, and immature defenses may become dominant.

Overall Defensive Functioning (ODF) as a Measure: Overall Defensive Functioning (ODF) is a quantitative measure of defense maturity based on weighted scores of all defense mechanisms (Perry, 1990). The Defense Mechanism Rating Scale - Self Report - 30 (DMRS-SR-30) developed by Di Giuseppe et al. (2020) provides a validated self-report measure of defense categories and ODF. Higher ODF scores are predictive of better mental health outcomes, while lower ODF scores correlate with emotional instability and chronic stress (Di Giuseppe et al., 2020).

Gap in Literature: Although separate studies have addressed psychological functioning in diabetes or hypertension, few have assessed defense mechanisms, and even fewer have used ODF as a unifying index. Moreover, comparative studies across comorbid vs. non-comorbid vs. Healthy Individuals using standardized tools like DMRS-SR-30 are rare.

Conclusion: The literature highlights that chronic illness affects defense mechanisms, but more comparative, structured studies are needed to map defense profiles in comorbid populations. This study aims to fill this gap by assessing mature, neurotic, and immature defenses, as well as ODF, in patients with T2DM, hypertension, comorbidity, and in Healthy Individuals.

Methodology

Research Design: The study followed a comparative cross-sectional design to assess defense mechanisms and Overall Defensive Functioning (ODF) among three distinct groups.

Participants:

- Sample Size: 150 participants
- Age Range: 18 to 45 years
- Gender: Both male and female
- Sampling Method: Purposive sampling from outpatient departments of government and private hospitals

Group-wise Distribution:

Group	Sample Size
Type 2 Diabetes Mellitus	50

Hypertension	50
Healthy Individuals	50

Inclusion Criteria:

- Age between 18–45 years
- Diagnosed with Type 2 Diabetes Mellitus or Hypertension (duration ≥1 year)
- For control group: no chronic illness or psychiatric disorder
- Ability to read and understand the questionnaire language
- Willingness to participate with informed consent

Exclusion Criteria:

- Comorbid medical conditions (e.g., T2DM + Hypertension, heart disease)
- Past or current psychiatric illness or substance dependence
- Use of psychotropic medication
- Severe cognitive or neurological impairments

Tools Used:

- Demographic and Clinical Data Sheet
- Collected age, gender, education, marital status, illness duration, etc.
- Defense Mechanism Rating Scale – Self Report – 30 (DMRS-SR-30)
- Measures 30 defense mechanisms grouped into:
- Mature Defenses
- Neurotic Defenses
- Immature Defenses
- Provides a global Overall Defensive Functioning (ODF) score (1 = low, 7 = high)
- Reliable and validated (Di Giuseppe et al., 2020)

Procedure

- Ethical clearance was obtained from the Institutional Ethics Committee.
- Participants were recruited from OPDs and through referrals.
- After screening for eligibility and consent, participants filled the demographic form and DMRS-SR-30.
- Data were collected individually in a private and neutral setting.

Statistical Analysis

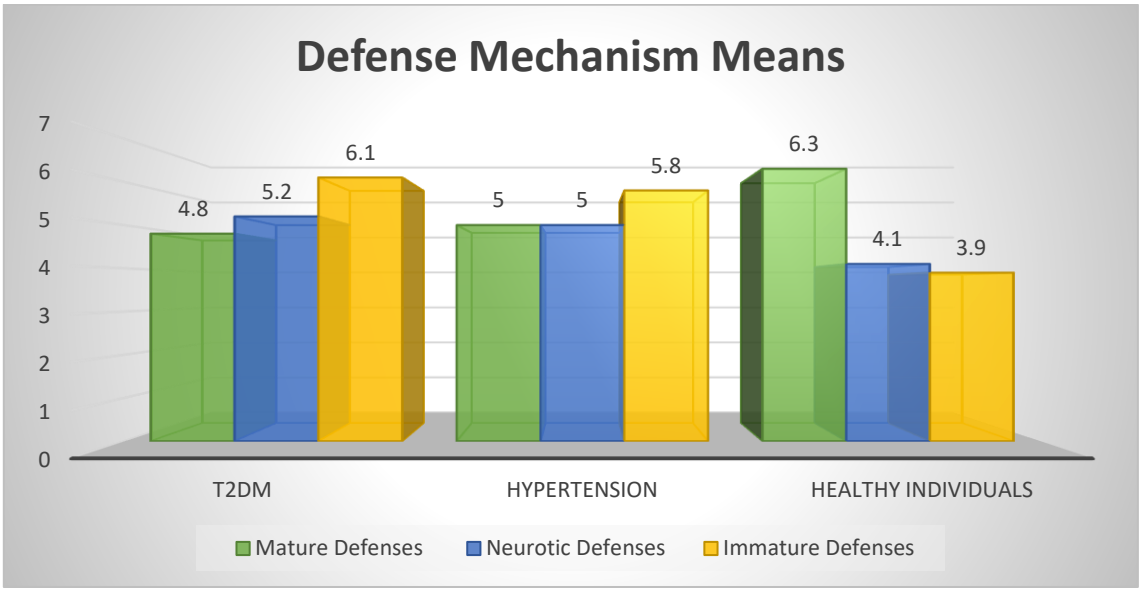
- Data analysis was conducted using SPSS version 25.0
- Descriptive statistics were calculated (mean, SD) for demographic and psychological variables.
- One-way ANOVA was used to compare the three groups on:
- Mature, Neurotic, and Immature defenses
- ODF scores
- Post-hoc Tukey tests identified intergroup differences.
- Pearson's correlation tested associations between duration of illness and defense styles/ODF.
- Significance level was set at $p < 0.05$.

Results

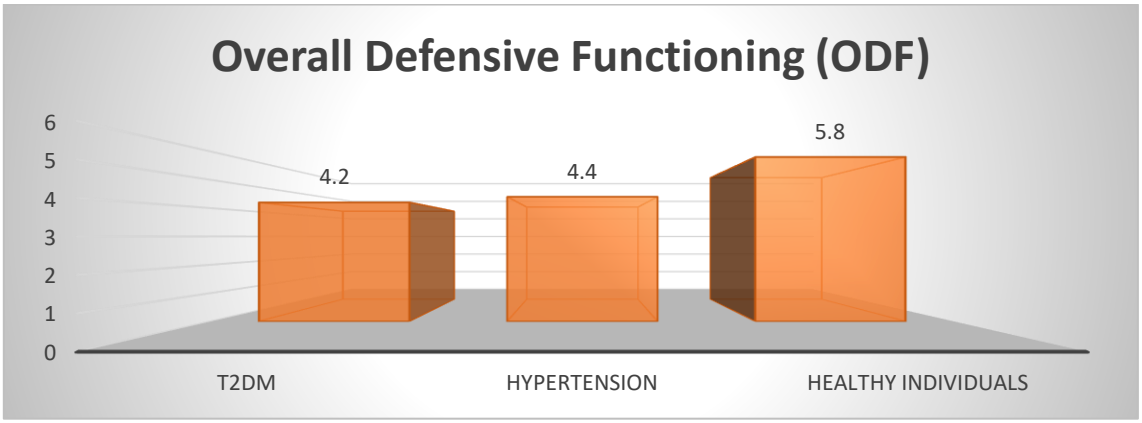
Descriptive Statistics:

Group	N	Mature Defenses (Mean ± SD)	Neurotic Defenses (Mean ± SD)	Immature Defenses (Mean ± SD)	ODF Score (Mean ± SD)
T2DM	50	4.8 ± 1.1	5.2 ± 0.9	6.1 ± 0.8	4.2 ± 0.7
Hypertension	50	5.0 ± 1.0	5.0 ± 1.1	5.8 ± 0.9	4.4 ± 0.6
Healthy Individuals	50	6.3 ± 0.7	4.1 ± 0.8	3.9 ± 0.9	5.8 ± 0.5

Bar Graph of Defense Mechanism Means Across Groups: Comparing mature, neurotic and immature defenses among Type 2 Diabetes Mellitus, Hypertension and Healthy Individuals Groups



ODF Comparison Chart: Showing Overall Defensive Functioning (ODF) among Type 2 Diabetes Mellitus, Hypertension and Healthy Individuals Groups



One-Way ANOVA Results:

(Comparing groups on defense styles and ODF)

Variable	F-value	p-value	Interpretation

Mature Defenses	19.74	<0.001 **	Significant difference between groups
Neurotic Defenses	10.91	<0.001 **	Significant difference between groups
Immature Defenses	34.85	<0.001 **	Highly significant difference between groups
ODF Score	58.32	<0.001 **	Highly significant difference between groups

Post-hoc Tukey's test:

- Healthy Individuals had significantly higher mature defenses and ODF, and lower neurotic and immature defenses than both T2DM and hypertension groups.
- No significant difference was observed between T2DM and hypertension groups in neurotic defenses, but both were worse than controls.

Correlation Analysis (Pearson's r):

(Between Duration of Illness and Defense Mechanisms among patients only, N = 100)

Variable	r-value	p-value	Interpretation
Mature Defenses	–0.33	0.001 **	Negative correlation (longer illness = lower mature defenses)
Neurotic Defenses	+0.28	0.004 **	Positive correlation (longer illness = higher neurotic defenses)
Immature Defenses	+0.42	0.0001 **	Positive correlation (strong)
ODF Score	–0.45	0.00001 **	Strong negative correlation

Discussion

The present study aimed to explore the pattern of defense mechanisms and overall defensive functioning (ODF) among patients with Type 2 Diabetes Mellitus (T2DM), Hypertension, and healthy individuals. The findings provide important psychological insights into how individuals cope with chronic illnesses like diabetes and hypertension through unconscious psychological strategies.

Comparison of Defense Mechanisms Across Groups: The results revealed significant differences among the three groups in the use of mature, neurotic, and immature defenses. Specifically, healthy individuals displayed significantly higher levels of mature defenses (e.g., sublimation, humor, anticipation) compared to both patient groups. This is consistent with previous findings (Bond, 2004; Di Giuseppe et al., 2020), suggesting that psychologically healthy individuals tend to employ adaptive mechanisms to deal with life stressors.

Patients with T2DM and hypertension, on the other hand, exhibited significantly higher usage of immature defenses (e.g., denial, projection, splitting). This supports existing literature which indicates that chronic illness often leads to increased use of maladaptive defenses due to persistent stress and emotional dysregulation (Vaillant, 1994; Martino et al., 2019). These immature defenses may serve as protective mechanisms in the short term but are maladaptive over time, potentially hindering emotional adjustment and adherence to medical treatment.

Interestingly, neurotic defenses such as repression and reaction formation were moderately elevated in both patient groups as compared to healthy individuals, though the differences were less pronounced. This suggests that neurotic defenses may act as a transitional style — less adaptive than mature defenses but

more controlled than immature ones — and may reflect internal conflict processing in chronic illness (Cramer, 2006).

Overall Defensive Functioning (ODF): ODF scores were significantly lower among both diabetic and hypertensive groups compared to Healthy Individuals. Healthy individuals had the highest ODF, reflecting greater psychological maturity and flexibility in coping. This is aligned with the psychodynamic view that chronic physical conditions can disrupt ego strength and compromise one's overall adaptive capacity (Perry & Henry, 2004).

Lower ODF among patients suggests difficulty in integrating stressful medical experiences into their psychological functioning, potentially leading to anxiety, depression, or somatic preoccupation. It reinforces the need for psychological interventions in chronic illness care, focusing not just on symptoms but also on underlying defense patterns.

Relationship Between Duration of Illness and Defenses: A significant positive correlation was found between duration of illness and immature/neurotic defenses, while a negative correlation was found with mature defenses and ODF. This supports the hypothesis that prolonged illness can increase emotional exhaustion, reduce coping efficiency, and reinforce maladaptive psychological defenses (Di Giuseppe et al., 2018).

This finding is crucial, as it indicates the potential deterioration of psychological resources with the chronicity of illness, highlighting the need for early psychosocial support and regular mental health evaluations.

Clinical Implications:

- Psychological screening for defense mechanisms may help identify patients at risk of maladaptive adjustment.
- Psychoeducation and therapeutic interventions (e.g., supportive psychotherapy, CBT, or psychodynamic therapy) could strengthen adaptive defenses and improve coping.
- Integrated care models should incorporate mental health professionals as part of chronic illness management to enhance overall well-being.

Limitations:

- Cross-sectional design limits causal interpretation.
- Self-report measures may introduce bias (e.g., underreporting undesirable defenses).
- The sample was purposively selected from hospitals, which may not generalize to community populations.
- Cultural factors in defense use were not examined.

Suggestions for Future Research:

- Longitudinal studies could track changes in defenses over time with disease progression.
- Comparative studies involving other chronic illnesses (e.g., asthma, arthritis) may provide broader insight.
- Qualitative methods may enrich understanding of lived psychological experiences and unconscious coping patterns.

Summary and Conclusion

Summary:

The present study was undertaken to explore and compare the use of defense mechanisms and overall defensive functioning (ODF) among patients with Type 2 Diabetes Mellitus (T2DM), patients with

Hypertension, and healthy individuals aged 18 to 45 years. Using the Defense Mechanism Rating Scale–Self Report–30 (DMRS-SR-30), the study categorized defenses into three levels: Mature, Neurotic, and Immature, along with an integrated measure of ODF.

The sample consisted of 150 participants divided equally among the three groups. Findings indicated that healthy individuals showed significantly higher use of mature defenses and better ODF scores. In contrast, both T2DM and hypertensive patients demonstrated a significantly greater reliance on immature defenses and lower ODF scores, indicating less adaptive psychological functioning.

Additionally, a negative correlation was found between the duration of illness and mature defenses/ODF, while a positive correlation emerged with neurotic and immature defenses. These results suggest that chronic illness duration may contribute to a psychological shift toward less adaptive defense mechanisms.

Conclusion:

This study highlights important psychological differences in how individuals with chronic physical illnesses unconsciously cope with stress. The increased use of neurotic and immature defenses among diabetic and hypertensive patients, along with reduced overall defensive functioning, emphasizes the need for psychological evaluation and support in medical care.

Incorporating psychological assessments and therapy interventions aimed at enhancing mature coping styles could improve emotional adjustment, treatment compliance, and quality of life among these patients. The findings support a biopsychosocial model of health, where emotional well-being plays a central role in the management of chronic diseases.

Final Remark:

Understanding and addressing psychological defenses is not just an academic concern-it is a clinical necessity in the holistic treatment of chronic illnesses like diabetes and hypertension. Future interventions should integrate psychological resilience-building strategies to strengthen adaptive functioning and promote better long-term health outcomes.

References

1. Ali, S., Stone, M. A., Peters, J. L., Davies, M. J., & Khunti, K. (2006). The prevalence of depression in people with type 2 diabetes: A systematic review and meta-analysis. Diabetic Medicine, 23(11), 1165–1173.
2. American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). American Psychiatric Publishing.
3. Baumeister, H., & Hutter, N. (2007). Mental and physical comorbidity. Psychotherapy and Psychosomatics, 76(2), 67–75.
4. Bond, M. (2004). Empirical studies of defense style: Relationships with psychopathology and change. Harvard Review of Psychiatry, 12(5), 263–278. https://doi.org/10.1080/10673220490910888
5. Cramer, P. (2000). Defense mechanisms in psychology today: Further processes for adaptation. American Psychologist, 55(6), 637–646.
6. Cramer, P. (2006). Protecting the self: Defense mechanisms in action. Guilford Press.
7. Di Giuseppe, M., et al. (2020). Development of DMRS-SR-30. Frontiers in Psychology, 11, 1683.
8. Di Giuseppe, M., et al. (2020). Development of the DMRS-SR-30: A self-report tool for clinical assessment of defense mechanisms. Frontiers in Psychology, 11, 1683.
9. Di Giuseppe, M., Perry, J. C., Petraglia, J., Janzen, J. I., & Fonagy, P. (2014). Development of a Q-sort version of the Defense Mechanisms Rating Scales (DMRS-Q): Initial validity and reliability.

Journal of Personality Assessment, 96(5), 456–462. https://doi.org/10.1080/00223891.2013.865195
10. Gonzalez, J. S., et al. (2008). Depression and diabetes treatment nonadherence. Journal of Psychosomatic Research, 65(6), 541–550.
11. Hyphantis, T. N., et al. (2005). Defense styles and ego strength in essential hypertension. Psychotherapy and Psychosomatics, 74(2), 107–115.
12. Kalra, S., Jena, B. N., & Yeravdekar, R. (2012). Emotional burden of diabetes. Indian Journal of Endocrinology and Metabolism, 16(4), 611–617.
13. Kumar, A., & Tiwari, A. (2014). Ego defenses in patients with diabetes mellitus. Journal of Psychology & Psychotherapy, 4(5), 167.
14. Martino, G., Caputo, A., Vicario, C. M., Catalano, A., Schwarz, P., & Quattropani, M. C. (2019). The relationship between alexithymia and type 2 diabetes: A systematic review. Frontiers in Psychology, 10, 274. https://doi.org/10.3389/fpsyg.2019.00274
15. Perry, J. C. (1990). Defense Mechanism Rating Scales (DMRS). Cambridge Hospital, Harvard Medical School.
16. Perry, J. C., & Henry, M. (2004). Studying defense mechanisms in psychotherapy using the Defense Mechanism Rating Scales (DMRS): Clinical applications and research findings. Harvard Review of Psychiatry, 12(5), 149–158. https://doi.org/10.1080/10673220490910818
17. Shrivastava, S. R., et al. (2013). Role of self-care in diabetes. Journal of Diabetes & Metabolic Disorders, 12(1), 14.
18. Vaillant, G. E. (1994). Ego mechanisms of defense and personality psychopathology. Journal of Abnormal Psychology, 103(1), 44–50. https://doi.org/10.1037/0021-843X.103.1.44
19. World Health Organization. (2023). Hypertension fact sheet. Retrieved from https://www.who.int/news-room/fact-sheets/detail/hypertension