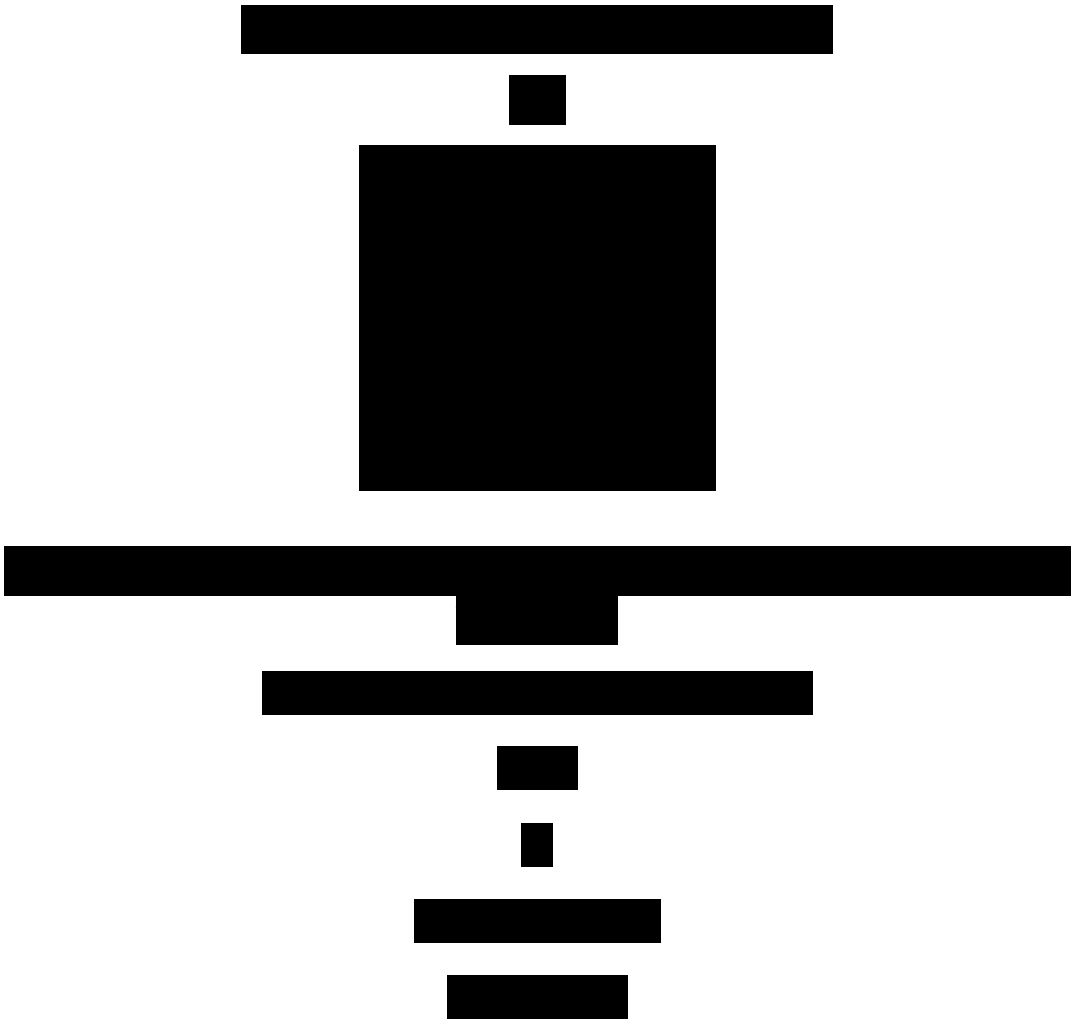
“CORRELATION OF COGNITIVE IMPAIRMENT WITH SOCIODEMOGRAPHIC FACTORS AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS AT A TERTIARY CARE HOSPITAL”



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[redacted]	[redacted]
[redacted]	[redacted]

<u>TITLE</u>:

"CORRELATION OF COGNITIVE IMPAIRMENT WITH SOCIODEMOGRAPHIC FACTORS AMONG PATIENTS WITH TYPE 2 DIABETES MELLITUS AT A TERTIARY CARE HOSPITAL"

ABSTRACT

Background: Type 2 Diabetes Mellitus (T2DM) is a major global health concern and is increasingly recognized as an important risk factor for cognitive decline. Chronic hyperglycemia, insulin resistance, vascular dysfunction and metabolic abnormalities associated with T2DM may adversely affect multiple cognitive domains, including attention, memory, language, fluency and visuospatial abilities. Sociodemographic factors may further influence cognitive performance among diabetic patients. Early identification of cognitive deficits is essential for improving disease management, treatment adherence and quality of life.

Aim: [redacted].

Objectives: [redacted]

Materials and Methods: [redacted]

Results: [redacted]

Conclusion: [redacted]

Keywords: Type 2 Diabetes Mellitus; Cognitive Deficit; ACE-III; Cognitive Function; Attention; Memory; Language, Visuospatial Ability, Sociodemographic Factors; Cognitive Impairment.

LIST OF ABBREVIATION

Abbreviation	Full Form
ACE-III	Addenbrooke's Cognitive Examination–III
T2DM	Type 2 Diabetes Mellitus
MMSE	Mini-Mental State Examination
3MS	Modified Mini-Mental State Examination
CI	Confidence Interval
SD	Standard Deviation
N	Number of Participants
p	Probability Value

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INTRODUCTION

INTRODUCTION

According to the World Health Organization (WHO), diabetes mellitus is a chronic metabolic disorder characterized by elevated levels of blood glucose (hyperglycaemia) resulting from defects in insulin secretion, insulin action, or both (1). [redacted]

The global burden of diabetes is increasing at an alarming rate. According to epidemiological estimates, the number of individuals living with diabetes has risen dramatically over recent decades and is projected to continue increasing in the coming years (1). [redacted]

[redacted] Emerging evidence suggests that sustained hyperglycaemia, insulin resistance, microvascular disease, oxidative stress, and chronic inflammation contribute to structural and functional changes in the brain, leading to impairment in cognitive functions (6).

[redacted]

Several studies have demonstrated that individuals with Type 2 diabetes mellitus have a higher risk of developing cognitive decline and dementia compared to non-diabetic individuals (9). [redacted]

[redacted]

Therefore, the present study aims to assess the correlation between cognitive deficit and sociodemographic factors in patients with Type 2 diabetes mellitus attending a tertiary care hospital, with a focus on multiple cognitive domains including attention, memory, language, and visuospatial abilities.

Global Epidemiology of Type 2 Diabetes Mellitus

Type 2 diabetes mellitus is a major global public health problem and constitutes the vast majority of diabetes cases worldwide. [redacted]

Epidemiology of Type 2 Diabetes Mellitus in India

[redacted]

Factors such as genetic predisposition, sedentary lifestyle, dietary transitions, obesity, and socioeconomic changes have played a critical role in the rising prevalence of Type 2 diabetes mellitus in the Indian population (16).

AIMS AND OBJECTIVES

AIMS AND OBJECTIVES

AIM:

[redacted]

OBJECTIVES:

[redacted]

REVIEW OF LITERATURE

REVIEW OF LITERATURE

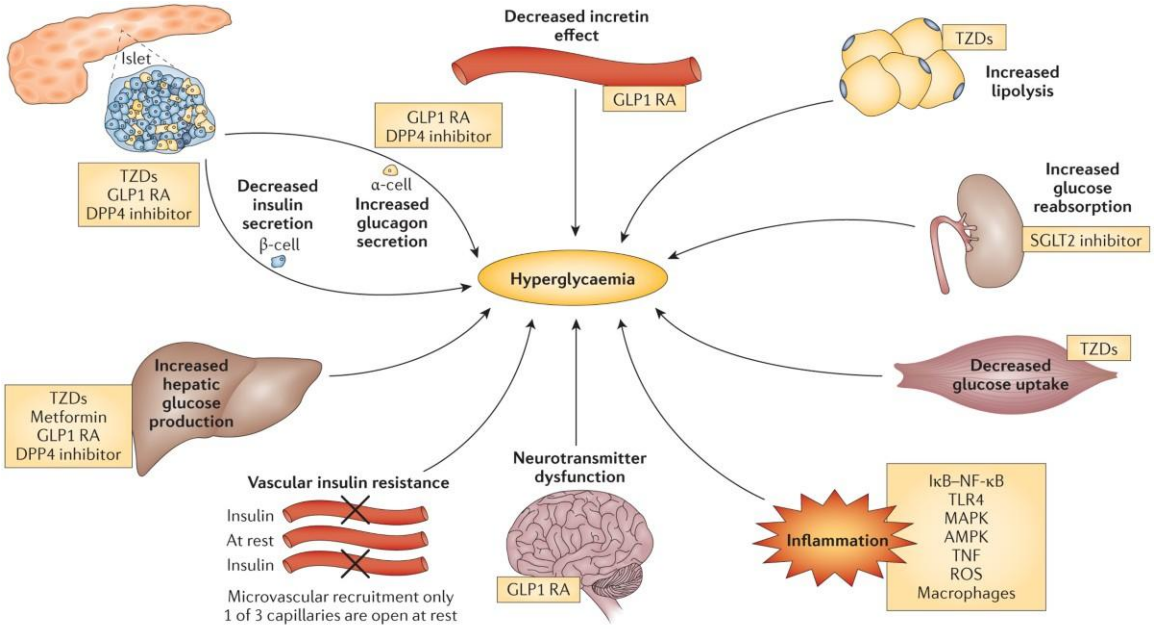


Figure 1: Diabetes Mellitus (5)

Diabetes mellitus is a chronic metabolic disorder characterized by persistent hyperglycaemia resulting from defects in insulin secretion, insulin action, or both. [redacted] Dysregulation of glucose metabolism may impair

cognitive processes such as attention, memory, and executive functioning, which are central to the core topic of cognitive deficit in diabetes (19).

Classification

Diabetes mellitus is classified based on etiological and pathophysiological mechanisms leading to hyperglycaemia. [redacted]

Understanding the classification provides a foundation for exploring how Type 2 diabetes interacts with cognitive domains and sociodemographic factors (20).

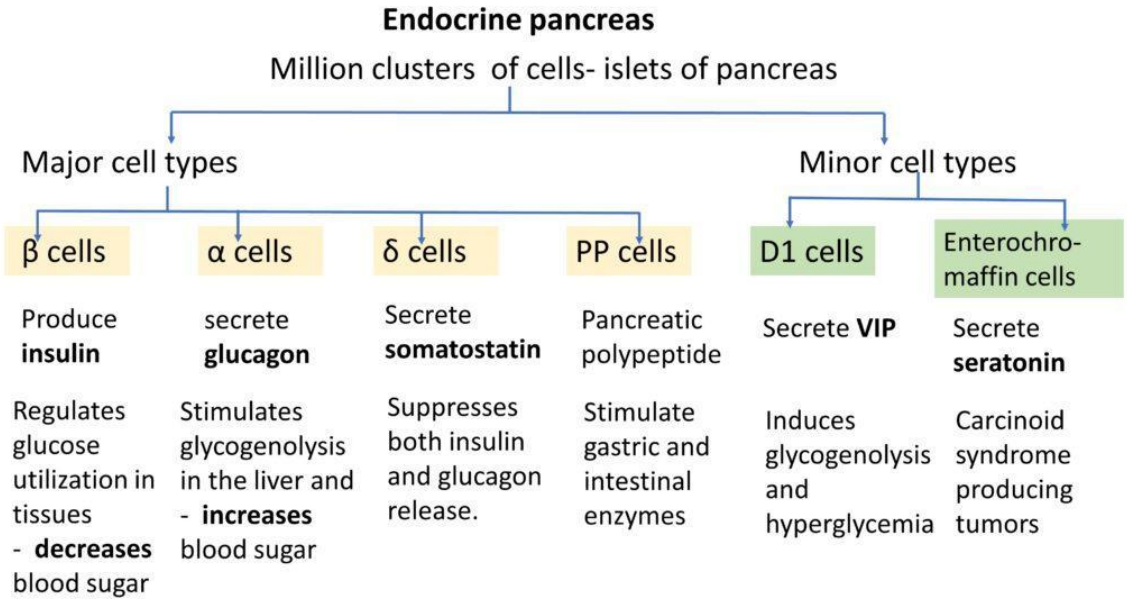


Figure 2: Endocrine functions of the pancreas related to diabetes mellitus

Type 2 Diabetes Mellitus

Pathophysiology

Type 2 diabetes mellitus is a chronic metabolic disorder characterized by insulin resistance and a relative deficiency of insulin secretion. [redacted] These metabolic disturbances also affect cerebral insulin signaling and glucose utilization in the brain, contributing to neuronal dysfunction (22).

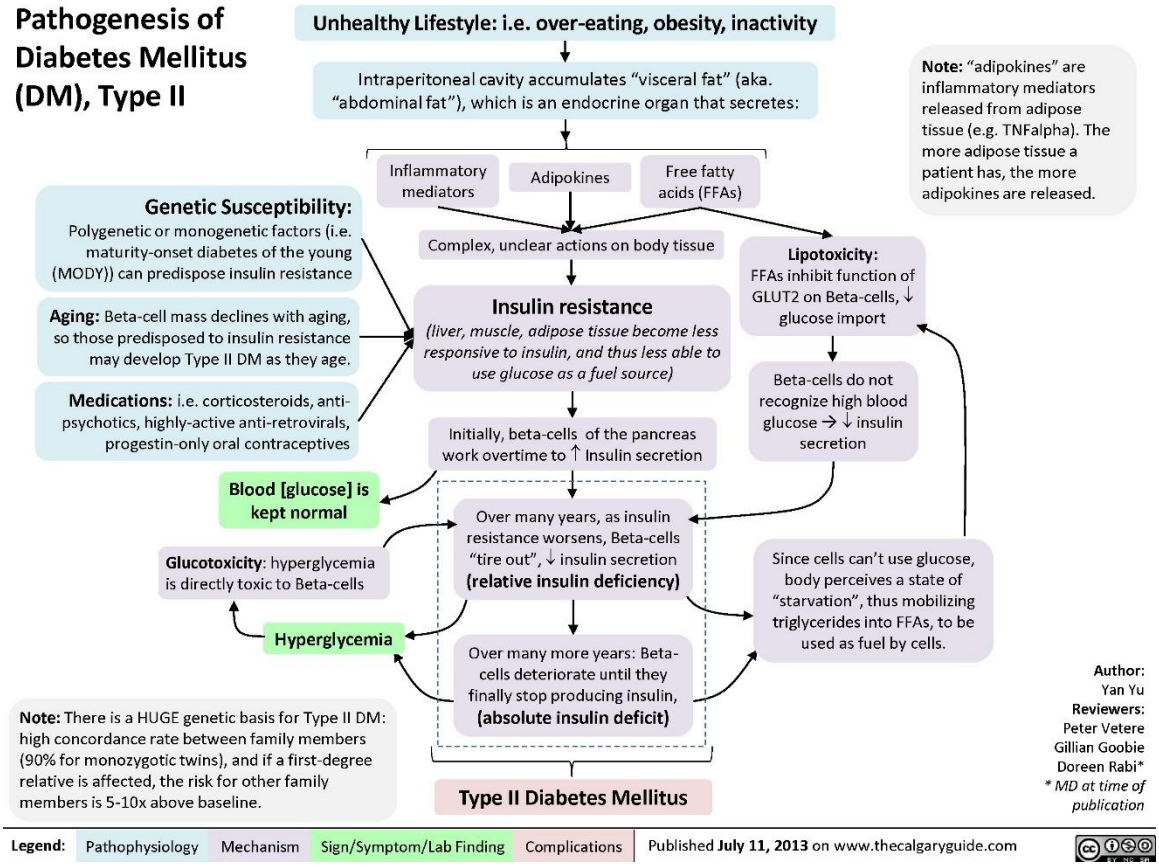


Figure 3: Pathophysiology of Diabetes Mellitus

Risk Factors and Determinants

Type 2 diabetes mellitus develops as a result of a complex interaction between genetic predisposition and environmental factors.

[redacted]

Lower educational attainment and socioeconomic status may reduce cognitive reserve, increasing vulnerability to cognitive deficits in individuals with Type 2 diabetes mellitus (26).

Duration of Illness and Disease Progression

With increasing duration of diabetes, chronic exposure to hyperglycaemia leads to cumulative vascular and neuronal damage. [redacted]

Longer disease duration increases the likelihood of impairments in attention, memory, and executive functioning (29).

Chronic Complications of Type 2 Diabetes Mellitus

Microvascular Complications

Microvascular complications of Type 2 diabetes mellitus arise due to long-standing hyperglycaemia leading to damage of small blood vessels. [redacted]

[redacted]

The presence of microvascular complications reflects systemic vascular injury and is often associated with higher risk of cognitive impairment due to shared pathogenic mechanisms involving oxidative stress and chronic inflammation (33).

Macrovascular Complications

Macrovascular complications result from accelerated atherosclerosis affecting large and medium-sized blood vessels in individuals with Type 2 diabetes mellitus. [redacted] These vascular changes may exacerbate cognitive decline in diabetic patients, especially in those with long disease duration (35).

Neurological Complications

Neurological complications of Type 2 diabetes mellitus involve both the central and peripheral nervous systems. [redacted]

[redacted]

These neurological changes manifest as deficits in attention, memory, executive function, and visuospatial abilities (37).

Effect of Chronic Hyperglycaemia on Brain Structure and Function

Chronic hyperglycaemia has a detrimental effect on brain structure and function through multiple metabolic and vascular mechanisms. [redacted]

These changes establish a direct link between poor glycaemic control and cognitive deficit, emphasizing the importance of metabolic regulation in preserving brain health.

Role of Insulin Resistance in Brain Metabolism

Insulin plays an important role in brain metabolism by regulating neuronal glucose uptake, synaptic plasticity, and neurotransmitter modulation. [redacted]

[redacted]

Insulin normally enhances learning and memory by modulating hippocampal function; resistance to insulin impairs these processes (42).

Neuroinflammation and Oxidative Stress

Neuroinflammation and oxidative stress are key pathological mechanisms linking Type 2 diabetes mellitus to central nervous system dysfunction. [redacted]

Oxidative injury further aggravates inflammation and contributes to neuronal apoptosis and synaptic loss (44).

Cognition

Definition and Concept of Cognition

Cognition refers to the set of higher mental processes through which an individual acquires, processes, stores, retrieves, and uses information. [redacted]

[redacted]

In chronic metabolic disorders like Type 2 diabetes mellitus, disturbances in glucose metabolism, vascular integrity, and insulin signaling can adversely affect cognitive performance (19).

Cognitive Domains

Cognition is composed of several distinct but interrelated domains, each responsible for specific mental functions. [redacted]

Attention

Attention is the cognitive ability to selectively concentrate on relevant stimuli while ignoring irrelevant information. [redacted]

Memory

Memory refers to the ability to encode, store, and retrieve information. [redacted]

Language

Language is the cognitive domain responsible for comprehension and expression of spoken and written communication. [redacted]

Fluency

Fluency refers to the ability to generate words rapidly and efficiently under specific constraints. [redacted]

Visuospatial Abilities

Visuospatial abilities involve the capacity to perceive, analyze, and manipulate visual and spatial information. [redacted]

Executive Functions

Executive functions are higher-order cognitive processes that regulate goal-directed behavior. [redacted]

Cognitive Impairment

Cognitive impairment refers to a decline in one or more cognitive domains that is greater than expected for an individual's age and educational level, while not necessarily interfering completely with independence in daily activities (52). [redacted]

[redacted]

[redacted]

[redacted]The condition may be transient or progressive depending on the underlying cause (54).

Spectrum of Cognitive Impairment

Cognitive impairment exists along a continuum ranging from normal cognitive aging to severe cognitive decline. [redacted]

[redacted]

[redacted]Identifying individuals at earlier stages provides an opportunity to slow progression and optimize cognitive and functional outcomes (56).

Mild Cognitive Impairment and Dementia

Mild cognitive impairment represents an intermediate stage between normal cognitive aging and dementia. [redacted]

Cognitive Deficit in Type 2 Diabetes Mellitus

Nature and Pattern of Cognitive Deficits

Cognitive deficits in Type 2 diabetes mellitus develop gradually and are often subtle in the early stages. [redacted] These changes frequently reflect involvement of frontal-subcortical circuits and hippocampal structures, which are particularly vulnerable to metabolic and vascular injury (29).

Domain-Specific Cognitive Impairment in Type 2 Diabetes Mellitus

Cognitive impairment in Type 2 diabetes mellitus does not affect all cognitive domains uniformly. [redacted]

[redacted]

[redacted]These impairments can compromise complex tasks such as planning meals, medication management, and glucose monitoring, which are essential for diabetes care (8).

Clinical Relevance of Cognitive Deficits in Diabetes

Cognitive deficits in Type 2 diabetes mellitus have significant clinical implications that extend beyond cognitive performance alone. [redacted]

[redacted]Early identification allows healthcare providers to adapt management strategies, simplify treatment regimens, and provide additional support to improve outcomes (8).

Sociodemographic Factors

Age

Age is one of the most important sociodemographic factors influencing both the development of T2DM and cognitive function. [redacted]

[redacted]

Gender

Gender differences influence the prevalence, presentation, and outcomes of Type 2 diabetes mellitus as well as cognitive functioning. [redacted]

Educational Status

Educational status plays a crucial role in shaping cognitive reserve, which refers to the brain's ability to cope with pathological changes. [redacted]

Occupational Status

Occupational status reflects an individual's level of mental stimulation, physical activity, and social engagement. [redacted]

[redacted]

Socioeconomic Status

Socioeconomic status encompasses income, education, and occupation, and strongly influences health outcomes. [redacted]

Marital Status

Marital status influences emotional support, health behaviours , and psychological well-being. [redacted]

Family Type

Family structure influences caregiving support, emotional well-being, and lifestyle patterns. [redacted]

[redacted]

Area of Residence (Rural/Urban)

Area of residence influences lifestyle, healthcare access, and environmental exposures. [redacted]

Relationship Between Sociodemographic Factors and Cognitive Deficit

Age-Related Cognitive Changes in Type 2 Diabetes Mellitus

Age-related cognitive changes are a significant determinant of cognitive deficit in individuals with Type 2 diabetes mellitus. [redacted] When aging coexists with diabetes, these changes are accelerated due to chronic hyperglycaemia, insulin resistance, and cumulative microvascular damage affecting cerebral circulation (71).

Education and Cognitive Reserve

Education plays a critical role in shaping cognitive reserve, which refers to the brain's resilience to pathological damage. [redacted]

[redacted]

Socioeconomic Status and Access to Healthcare

Socioeconomic status significantly influences both diabetes outcomes and cognitive health. [redacted]

Gender Differences in Cognitive Performance

Gender differences in cognitive performance are influenced by biological, hormonal, and psychosocial factors. [redacted]

[redacted]

Occupational and Lifestyle Influences

Occupational engagement and lifestyle patterns significantly influence cognitive health in individuals with Type 2 diabetes mellitus. [redacted]

Diabetes-Related Clinical Factors Influencing Cognition

Duration of Type 2 Diabetes Mellitus

The duration of Type 2 diabetes mellitus is a critical clinical factor influencing cognitive function. [redacted]

Glycemic Control

Glycaemic control plays a central role in determining cognitive outcomes in individuals with Type 2 diabetes mellitus. [redacted]

[redacted]

Presence of Comorbidities

Multiple comorbidities increase the overall disease burden and reduce physiological resilience. [redacted]

Hypoglycaemic Episodes

Hypoglycaemic episodes are an important clinical factor affecting cognitive function in patients with Type 2 diabetes mellitus. [redacted] Recurrent or severe hypoglycaemic episodes may result in neuronal injury and long-term cognitive consequences (80).

Impact of Cognitive Deficit on Diabetes Management

Treatment Adherence

Cognitive deficit has a significant impact on treatment adherence in individuals with Type 2 diabetes mellitus. [redacted]

[redacted]

Self-Care Behaviours

Self-care behaviours are central to effective diabetes management and include blood glucose monitoring, dietary regulation, physical activity, and recognition of symptoms. [redacted]As a result, patients with cognitive impairment may demonstrate poor self-care practices and increased risk of acute and chronic complications (82).

Functional Independence and Quality of Life

Cognitive deficits significantly affect functional independence and overall quality of life in individuals with Type 2 diabetes mellitus. [redacted]

[redacted]

Assessment of Cognitive Function in Type 2 Diabetes Mellitus

Overview of Cognitive Assessment Methods

Assessment of cognitive function in individuals with Type 2 diabetes mellitus is essential for early identification of cognitive deficits and appropriate clinical management. [redacted] In Type 2 diabetes mellitus, regular cognitive assessment is important due to the progressive nature of cognitive decline associated with metabolic and vascular factors (84).

Domain-Wise Assessment of Cognition

Domain-wise assessment of cognition provides a detailed evaluation of specific cognitive functions rather than relying solely on global cognitive scores. [redacted]

[redacted]

Addenbrooke's Cognitive Examination (ACE-III)

Addenbrooke's Cognitive Examination (ACE-III) is a comprehensive cognitive assessment tool designed to evaluate multiple cognitive domains within a single structured instrument. [redacted]

Conceptual Framework for Correlation Between Cognitive Deficit and Sociodemographic Factors

The conceptual framework for the correlation between cognitive deficit and sociodemographic factors in Type 2 diabetes mellitus is based on the interaction between biological, clinical, and social determinants of health (26).

[redacted]

Rationale and Need for the Study

Type 2 diabetes mellitus is a chronic metabolic disorder with well-established systemic complications; however, cognitive deficit remains an under-recognized and under-assessed complication (90). [redacted] Despite this, there is limited focused research examining the correlation between cognitive deficit and sociodemographic factors among patients with Type 2 diabetes mellitus, particularly in the Indian tertiary care setting (94).

Research Studies

Kan W, (2025) examines the association between type 2 diabetes mellitus and cognitive impairment, emphasizing epidemiology, mechanisms, and clinical implications. [redacted]

[redacted]

Overall, the article provides a strong conceptual framework linking metabolic dysregulation in type 2 diabetes with cognitive deterioration and underscores the importance of integrating cognitive assessment into routine diabetes care (14).

Yu X, (2025) provides an updated overview of diabetes-related cognitive impairment with a focus on underlying mechanisms, clinical manifestations, and emerging therapeutic strategies. [redacted]

The review reinforces the need for a multidisciplinary approach to address cognitive impairment in diabetes, integrating metabolic control with neurocognitive health (8).

Satapathy P, (2025) explores the relationship between microvascular complications of type 2 diabetes mellitus and cognitive impairment. [redacted]

[redacted]Overall, the article strengthens the evidence that cognitive impairment in type 2 diabetes is closely linked to vascular pathology rather than neurodegeneration alone (33).

Ramzan MA, (2025) outlines the spectrum of neurological complications associated with type 2 diabetes mellitus, with a dedicated focus on cognitive dysfunction. [redacted]The article underscores the need for clinicians to recognize cognitive impairment as an integral component of diabetes-related neurological complications (36).

García-García D, (2025) examines the relationship between sociodemographic variables, lifestyle factors, and health outcomes in adult populations, with implications for chronic diseases such as type 2 diabetes mellitus. [redacted]

[redacted]Addressing social inequalities is emphasized as a key strategy for improving long-term health outcomes (88).

Srikantha S, (2024) examines the association between type 2 diabetes and cognitive function in adults from India and China, offering valuable insights from low- and middle-income settings. [redacted]The authors conclude that addressing social determinants such as education and healthcare accessibility is essential for reducing cognitive impairment associated with diabetes (70).

Mirkovic A, (2024) evaluates the influence of sociodemographic and health-related factors on cognitive performance among older adults, providing relevant insights applicable to chronic disease populations such as type 2 diabetes mellitus. [redacted]

[redacted]

The study reinforces the importance of education, social participation, and health equity in preserving cognitive function in aging populations (11).

Ranjan S, (2024) examines the relationship between socioeconomic status, psychological factors, and diabetes-related outcomes, offering important context for cognitive health in type 2 diabetes mellitus. [redacted]

These results are particularly relevant for understanding how socioeconomic factors may exacerbate cognitive deficits in individuals with type 2 diabetes in low- and middle-income settings (4).

Kautzky-Willer A, (2023) analyzes sex-related differences in type 2 diabetes mellitus and explains how biological and gender-related factors influence disease progression and complications. [redacted]

[redacted]These findings highlight the importance of including sex and gender as essential sociodemographic variables when evaluating cognitive deficits in individuals with type 2 diabetes mellitus (60).

Sebastian MJ, (2023) discusses the relationship between diabetes mellitus and cognitive function, focusing on clinical relevance and mechanistic pathways. [redacted]The review supports the integration of cognitive assessment into routine diabetes care to improve long-term outcomes and quality of life in individuals with type 2 diabetes mellitus (81).

Zhang S, (2023) focuses on cognitive dysfunction in diabetes with particular emphasis on abnormal glucose metabolism within the brain. [redacted] These findings provide important insights into the metabolic–neurological mechanisms linking type 2 diabetes mellitus with cognitive deficits (19).

Aderinto N, (2023) provides a comprehensive overview of the relationship between diabetes mellitus and cognitive impairment, with particular emphasis on type 2 diabetes mellitus. [redacted] This article reinforces the close interplay between

metabolic dysregulation, sociodemographic factors, and cognitive health in individuals with type 2 diabetes mellitus (89).

Zhu W, (2021) investigates the protective role of education on brain structure and cognitive resilience, particularly in the context of neurodegenerative conditions. [redacted]

These findings highlight education as an important sociodemographic factor influencing cognitive outcomes in chronic diseases such as type 2 diabetes mellitus (62).

Świątoniowska-Lonc N, (2021) explores how cognitive impairment influences treatment adherence and self-care behaviours among individuals with type 2 diabetes mellitus. [redacted]

[redacted]These findings underscore the clinical relevance of cognitive impairment and sociodemographic factors in the management of type 2 diabetes mellitus (10).

Park JH, (2020) discusses the health consequences of sedentary lifestyle and its role in the development and progression of chronic diseases such as type 2 diabetes mellitus. [redacted]These findings support the

inclusion of lifestyle-related sociodemographic variables when evaluating cognitive deficits in individuals with type 2 diabetes mellitus (76).

Hill-Briggs F, (2020) provides a comprehensive overview of social determinants of health and their influence on diabetes outcomes. [redacted] These findings support the importance of incorporating sociodemographic variables into assessments of cognitive deficits among individuals with type 2 diabetes mellitus (26).

Kyrou I, (2020) examines sociodemographic and lifestyle-related risk factors associated with type 2 diabetes mellitus. [redacted] The authors conclude that effective diabetes prevention and management strategies must address both biological and social risk factors to reduce long-term complications (25).

Albai O, (2019) examines factors associated with the progression of cognitive impairment among individuals with type 2 diabetes mellitus who already exhibit mild cognitive impairment. [redacted] These observations reinforce the role of sociodemographic and clinical variables in shaping cognitive outcomes in type 2 diabetes mellitus (9).

Parfenov VA, (2019) provides a comprehensive overview of vascular cognitive impairment and its relevance to metabolic disorders such as type 2 diabetes mellitus. [redacted] These findings support the inclusion of vascular health and sociodemographic variables in the evaluation of cognitive impairment (35).

Hardigan T, (2016) focuses on cerebrovascular complications associated with diabetes mellitus and explains their contribution to cognitive impairment. [redacted]

[redacted]

The article strengthens the evidence linking vascular pathology with cognitive impairment in diabetes and supports the relevance of cerebrovascular health in preserving cognitive function (27).

Muriach M, (2014) explores the effects of diabetes on brain structure and function, focusing on oxidative stress, inflammation, and impaired cellular maintenance mechanisms. [redacted]

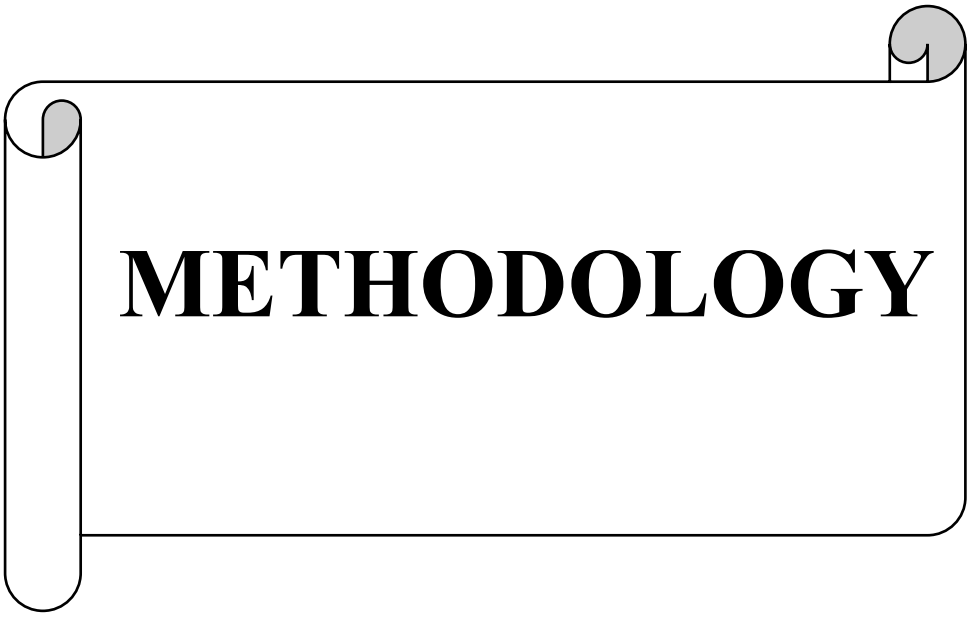
The article strengthens the mechanistic link between diabetes and

cognitive decline, supporting the relevance of metabolic control in preventing neurological complications (6).

Shuba N, (2012) assesses cognitive status in individuals with diabetes mellitus using standardized cognitive assessment tools. [redacted]The article provides foundational evidence supporting the association between diabetes and cognitive deficits and highlights the need for increased awareness of cognitive complications in diabetes mellitus (84).

Kumar R, (2009) discusses the relationship between type 2 diabetes mellitus, cognition, and brain aging. [redacted]The article supports the view that cognitive impairment is a significant yet underappreciated complication of type 2 diabetes mellitus, shaped by both biological aging and sociodemographic factors (71).

Kodl CT, (2008) examines cognitive dysfunction associated with diabetes mellitus and synthesizes evidence from clinical and experimental studies. Insulin resistance within the brain disrupts neurotransmission and synaptic plasticity. [redacted]The article provides strong foundational evidence supporting the association between diabetes and cognitive impairment and highlights the need for routine cognitive assessment as part of comprehensive diabetes care (29).



METHODOLOGY

METHODOLOGY

Study design: [redacted]

Study settings: [redacted]

Study population: [redacted]

Study period: [redacted]

Sample size calculation:

[redacted]

Formula for sample size calculation:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

On substituting in the formula:

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

Inclusion criteria:

[redacted]

[redacted]

[redacted]

[redacted]

Exclusion criteria:

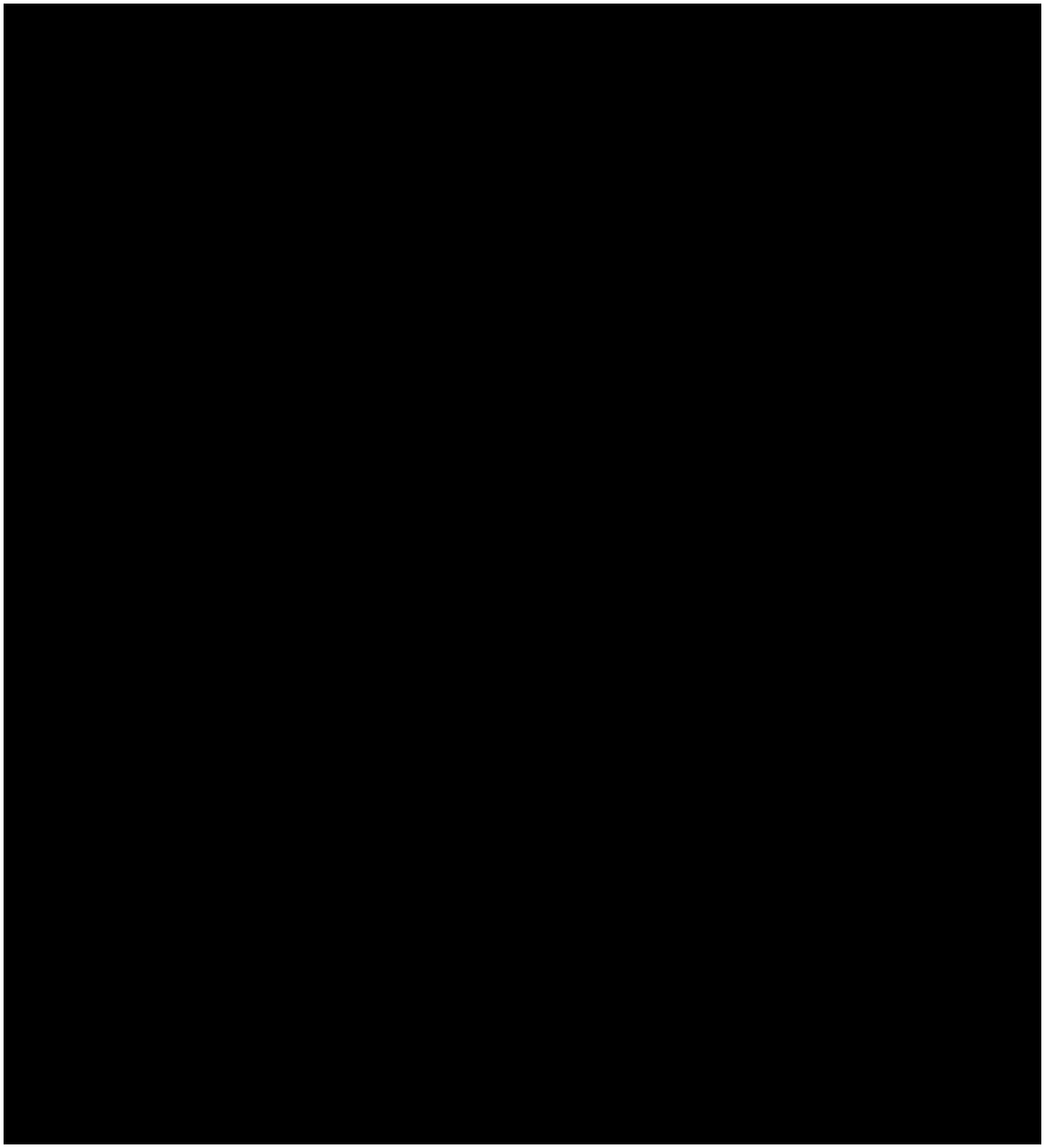
[redacted]

[redacted]

[redacted]

Study procedure:

[redacted]



Data collection & statistical analysis:

[redacted]

[redacted]

Ethical Considerations

[redacted]

RESULTS

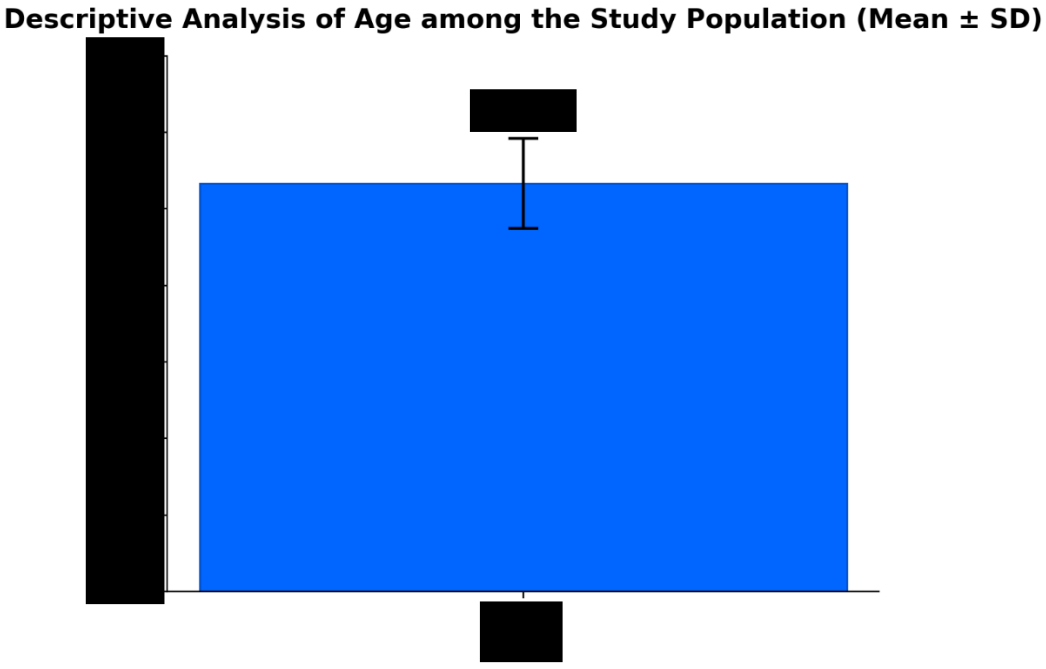
RESULTS

The present cross-sectional study was conducted at the Diabetic OPD of a tertiary care hospital over an [redacted]-month study period. [redacted] The findings are presented in the form of tables with accompanying narrative descriptions.

Table 1: **Descriptive Analysis of Age among the Study Population (N = 110)**

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C. I	
					Lower	Upper
Age (years)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Graph 1: **Descriptive Analysis of Age among the Study Population (N = 110)**

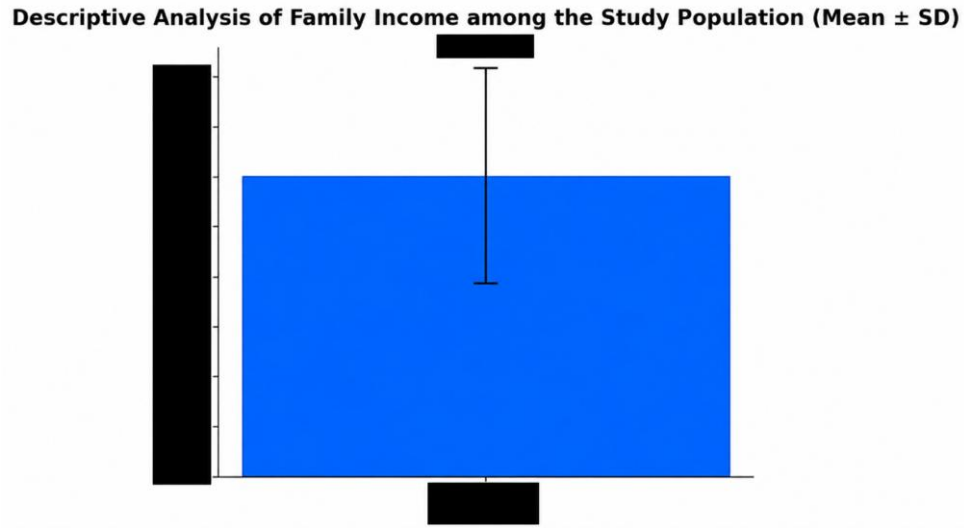


In the present study, the mean age of the study population was [redacted] years. [redacted] The [redacted] confidence interval for the mean age ranged from [redacted] years to [redacted] years.

Table 2: Descriptive Analysis of Family Income among the Study Population (N = 110)

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C.I	
					Lower	Upper
Family Income (₹)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Graph 2: Descriptive Analysis of Family Income among the Study Population (N = 110)

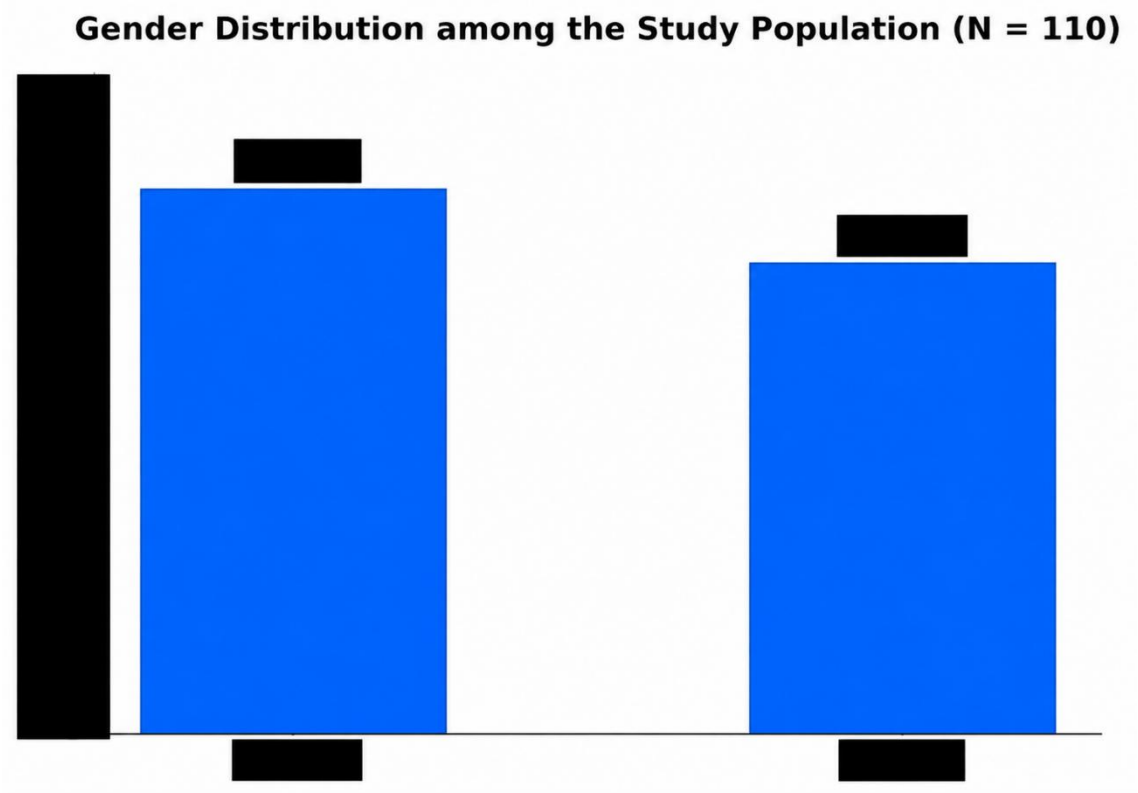


In the present study, the mean family income of the study population was [redacted]. [redacted] The [redacted] confidence interval for the mean family income ranged from [redacted].

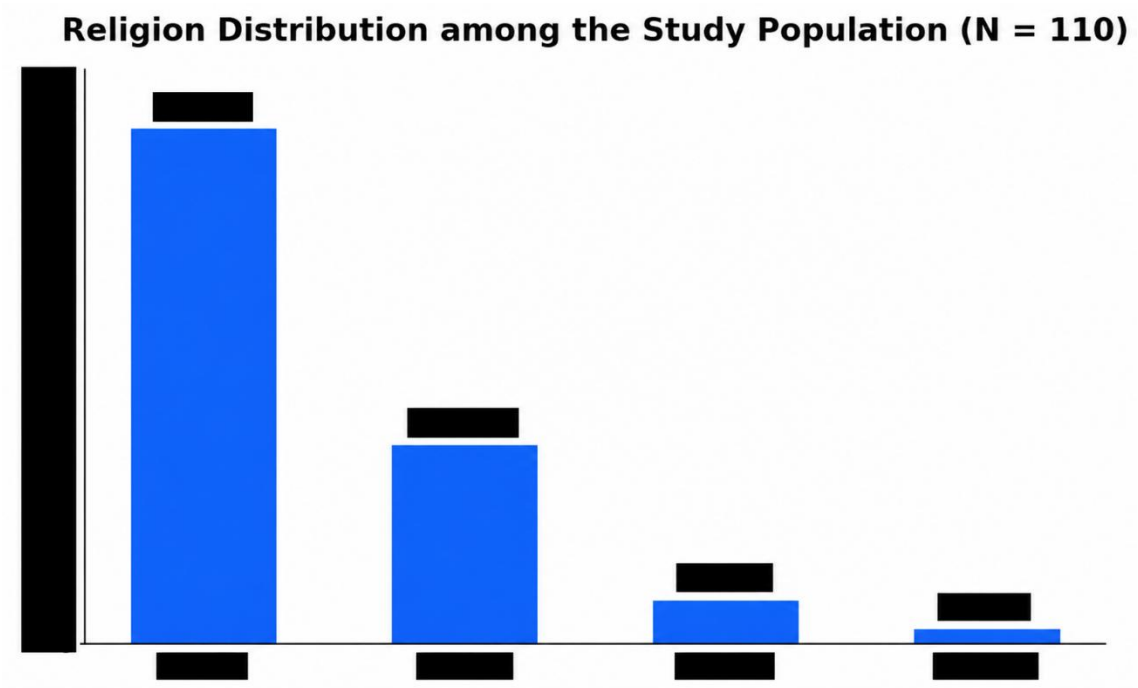
Table 3: Descriptive analysis of Socio-demographic parameter in the study population (N=110)

Socio-demographic	Frequency	Percentages
Gender		
Male		
Female		
Religion		
Hindu		
Muslim		
Christian		
Buddhist		
Domicile		
Urban		
Rural		
Working Status		
Homemaker		
Employed		
Self-employed		
Unemployed		
Marital Status		
Divorced		
Married		
Widowed		
Family Type		
Joint		
Nuclear		
Education		
Graduate		
Primary		
Secondary		
Uneducated		
Socioeconomic Class		
Upper (I)		
Upper Middle (II)		
Upper Lower (IV)		
Lower Middle (III)		
Lower (V)		

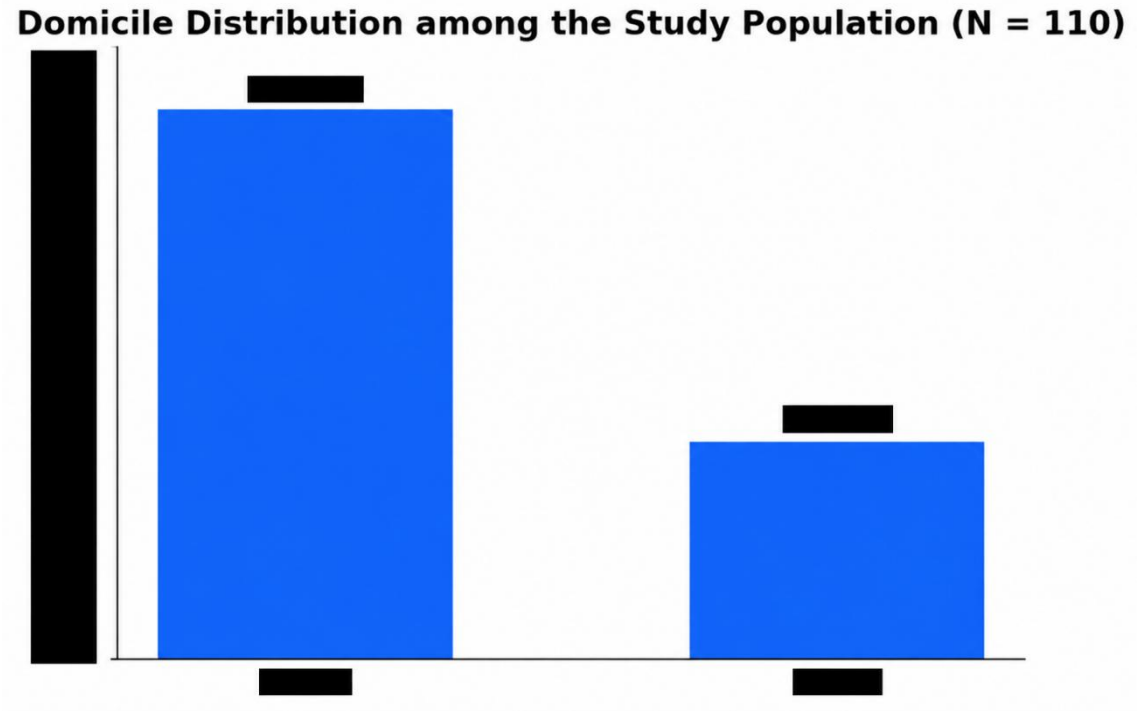
Graph 3 A: Gender Distribution Among the Study Population (N=110)



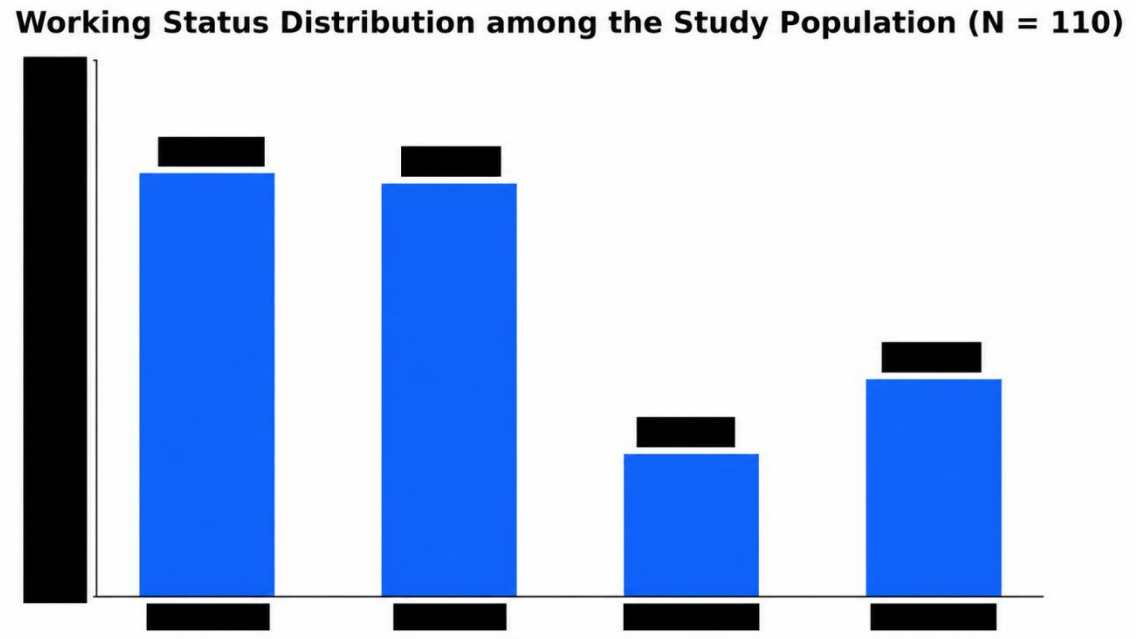
Graph 3 B Religion Distribution among the study population (N=110)



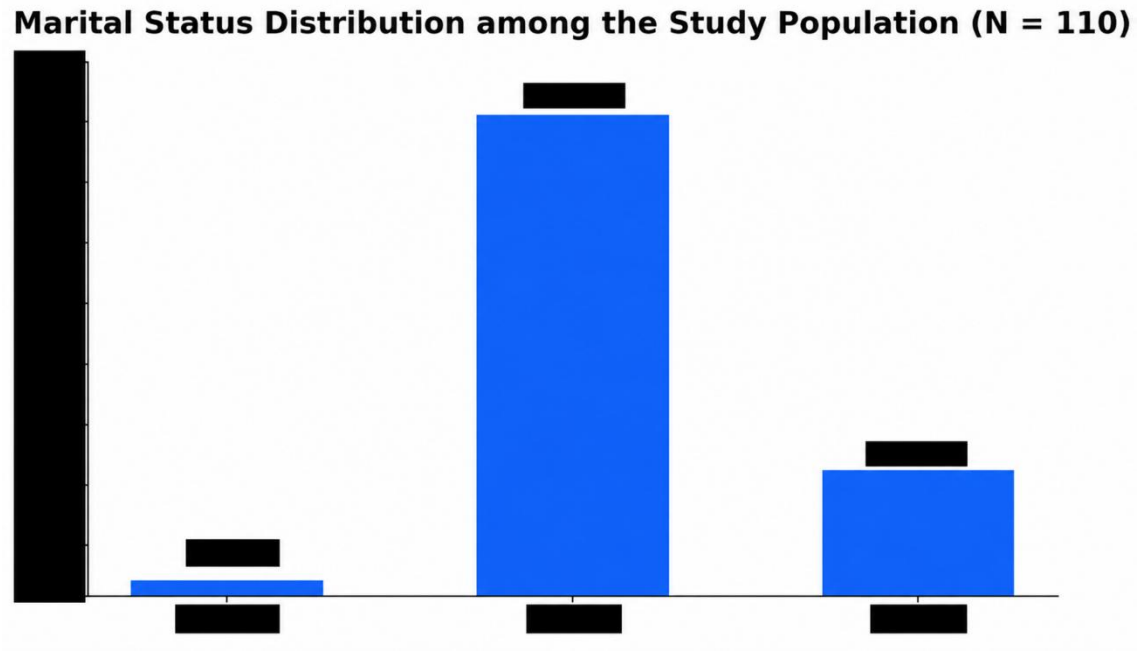
Graph 3 C: Domicile Distribution among the study population (N=110)



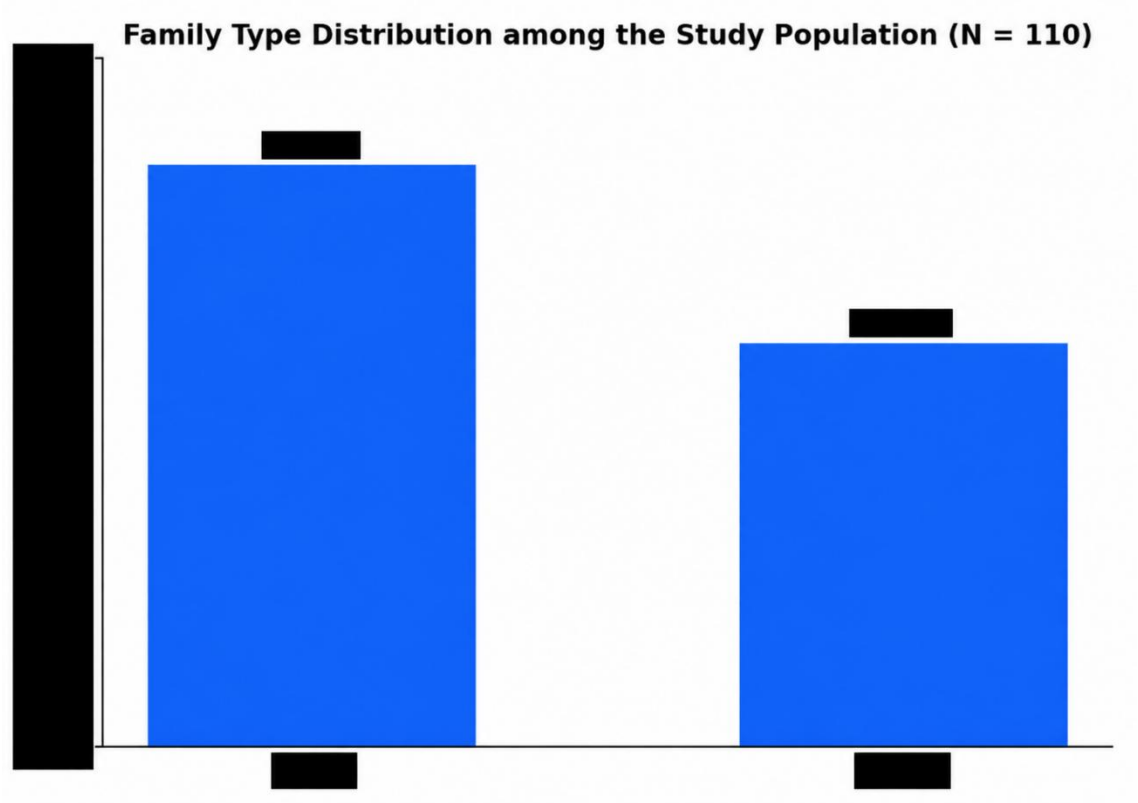
Graph 3 D: Working Status Distribution among the study population (N=110)



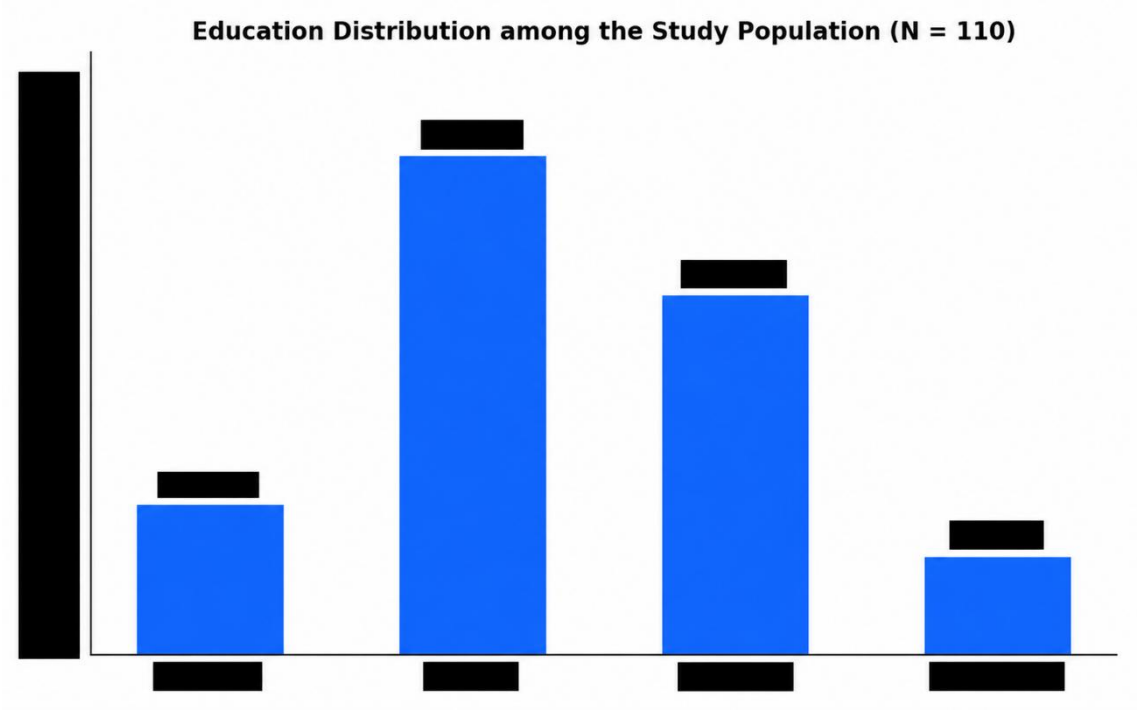
Graph 3 E: Marital Status Distribution among the study population (N=110)



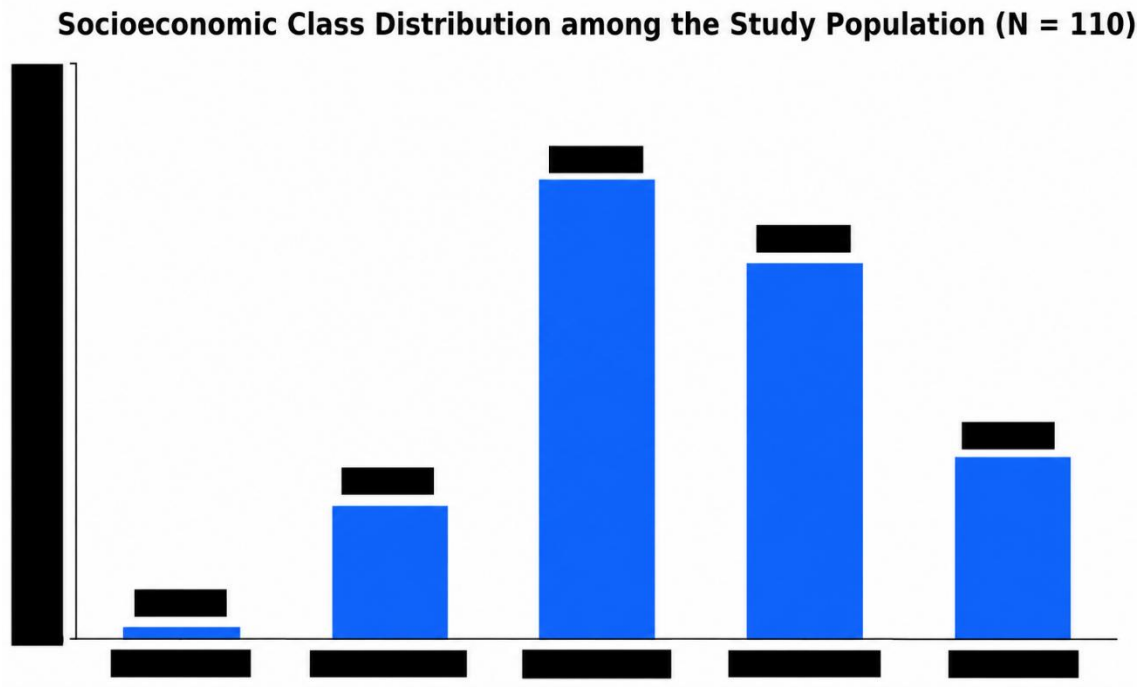
Graph 3 F: Family Type Distribution among the study population (N=110)



Graph 3 G: Education Distribution among the study population (N=110)



Graph 3 H: Socioeconomic Class Distribution among the study population (N=110)



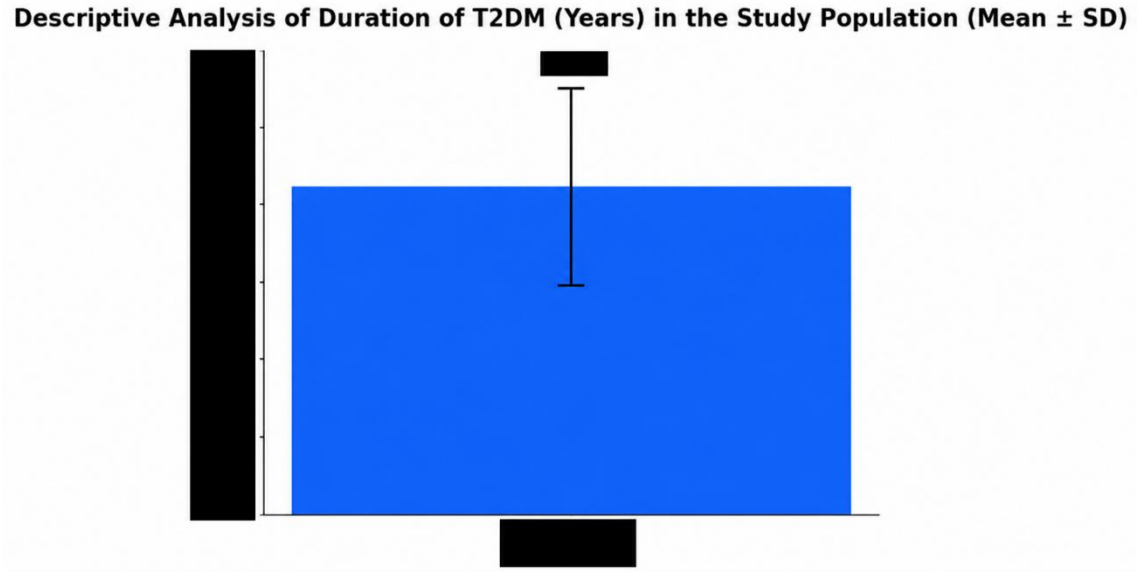
In the present study, out of [redacted] participants, [redacted]) were males and [redacted]) were females. [redacted]

[redacted]

Table 4: Descriptive analysis of Duration of T2Dm (Years) in the study population (N=110)

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C.I	
					Lower	Upper
Duration Of T2Dm (Years)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Graph 4: Descriptive analysis of Duration of T2Dm (Years) in the study population (N=110)

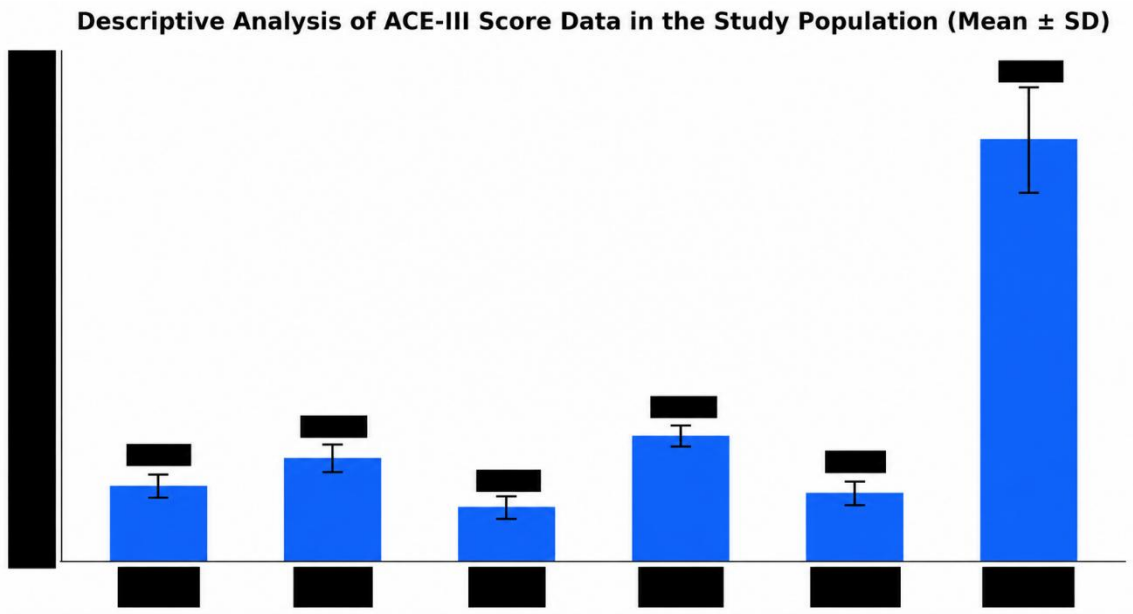


In the present study, the mean duration of Type 2 Diabetes Mellitus was [redacted] years. [redacted] The [redacted] confidence interval for the mean duration of Type 2 Diabetes Mellitus ranged from [redacted] years to [redacted] years.

Table 5: Descriptive analysis of ACE Score data in the study population (N=110)

Parameter	Mean ± SD	Median	Minimum	Maximum	95% C. I	
					Lower	Upper
Ace-III Attention	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Ace-III Memory	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Ace-III Fluency	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Ace-III Language	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Ace-III Visuospatial	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Total Ace-III Score	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

Graph 5: Descriptive analysis of ACE Score data in the study population (N=110)



In the present study, the mean ACE-III Attention score was [redacted], with a median score of [redacted], a minimum score of [redacted], and a maximum score of [redacted]. [redacted]

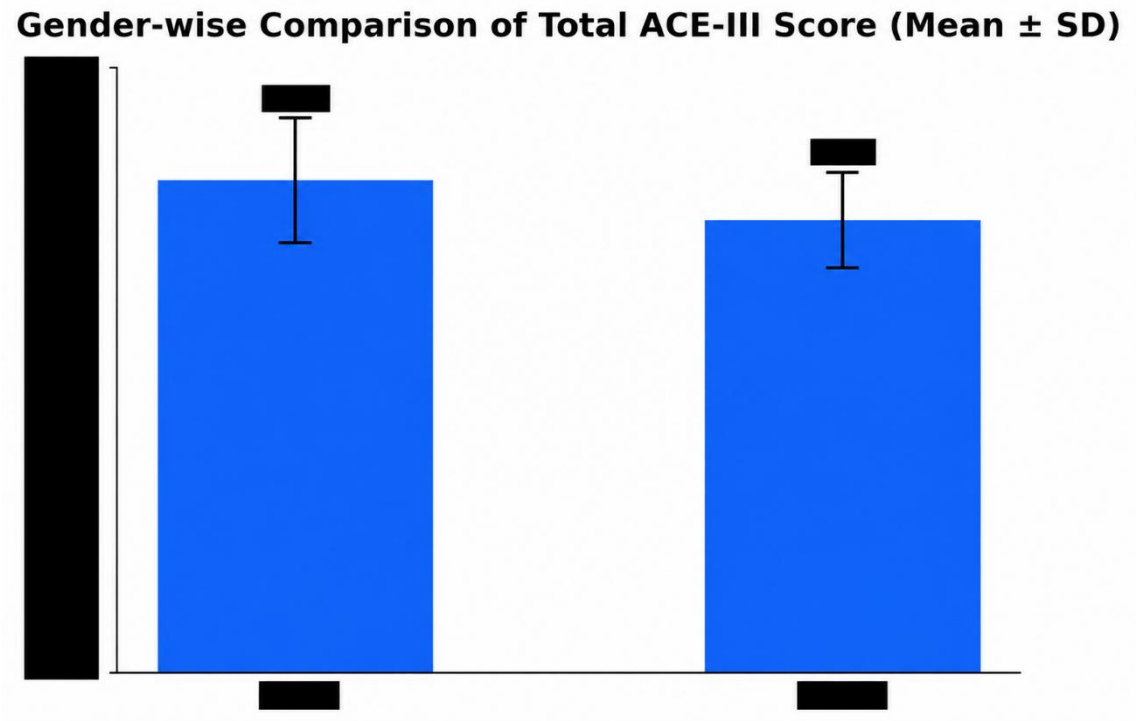
[redacted] The [redacted] confidence interval ranged from [redacted]

Table 6: Socio-demographic wise Comparison of Total ACE-III Score

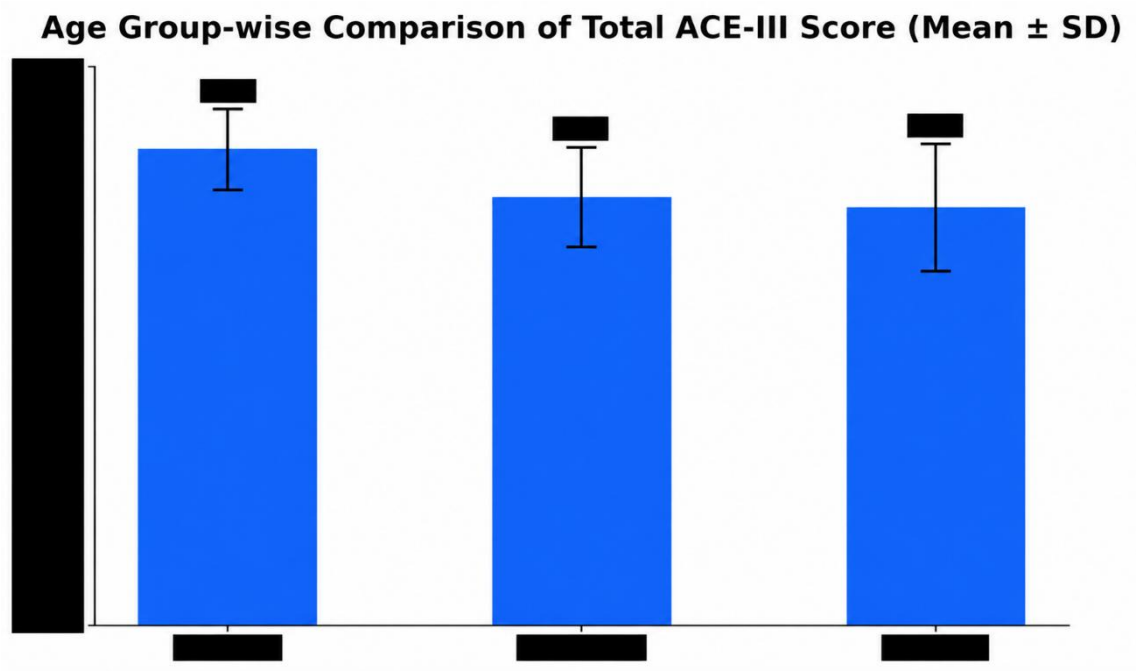
Socio-demographic	N	Total ACE-III Score (Mean ± SD)	p-value
Gender			
Male	[redacted]	[redacted]	
Female	[redacted]	[redacted]	[redacted]
Age Group (Years)			
<50 years	[redacted]	[redacted]	
50–59 years	[redacted]	[redacted]	[redacted]
≥60 years	[redacted]	[redacted]	
Marital Status			
Divorced	[redacted]	[redacted]	
Married	[redacted]	[redacted]	[redacted]
Widowed	[redacted]	[redacted]	
Education			
Uneducated	[redacted]	[redacted]	
Primary	[redacted]	[redacted]	[redacted]
Secondary	[redacted]	[redacted]	
Graduate	[redacted]	[redacted]	
Working Status			
Homemaker	[redacted]	[redacted]	
Employed	[redacted]	[redacted]	[redacted]
Self-employed	[redacted]	[redacted]	
Unemployed	[redacted]	[redacted]	
Socioeconomic Class			
Lower (V)	[redacted]	[redacted]	
Upper Lower (IV)	[redacted]	[redacted]	
Lower Middle (III)	[redacted]	[redacted]	[redacted]
Upper Middle (II)	[redacted]	[redacted]	
Upper (I)	[redacted]	[redacted]	
Address			
Urban	[redacted]	[redacted]	[redacted]
Rural	[redacted]	[redacted]	

[redacted]

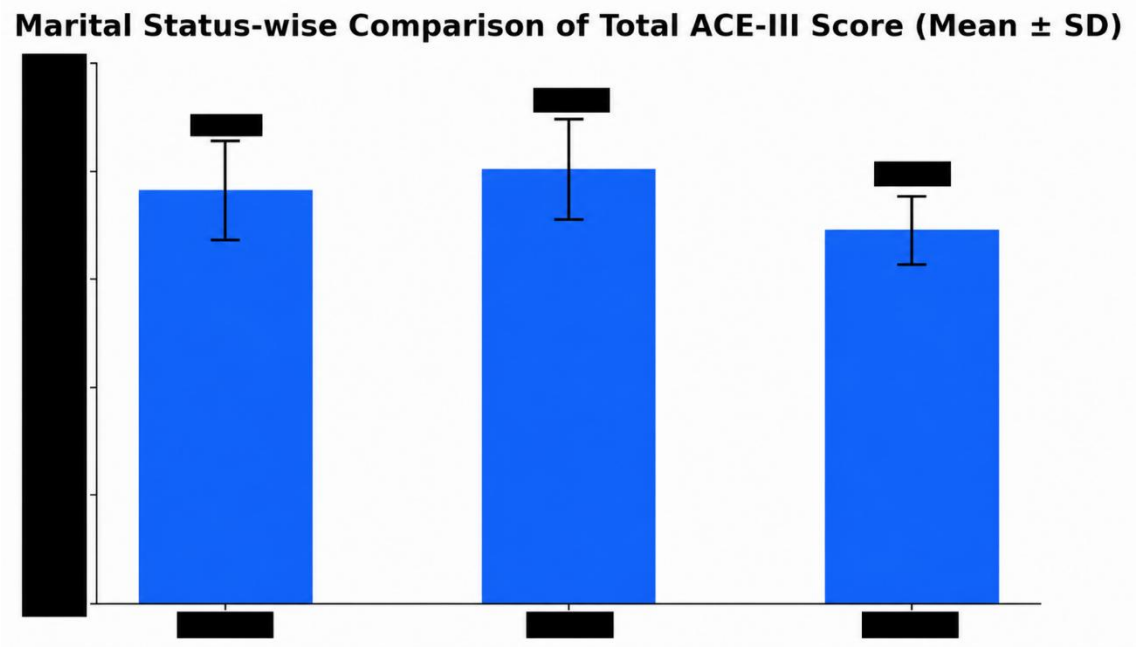
Graph 6 A: Gender-wise Comparison of Total ACE-III Score (Mean ± SD)



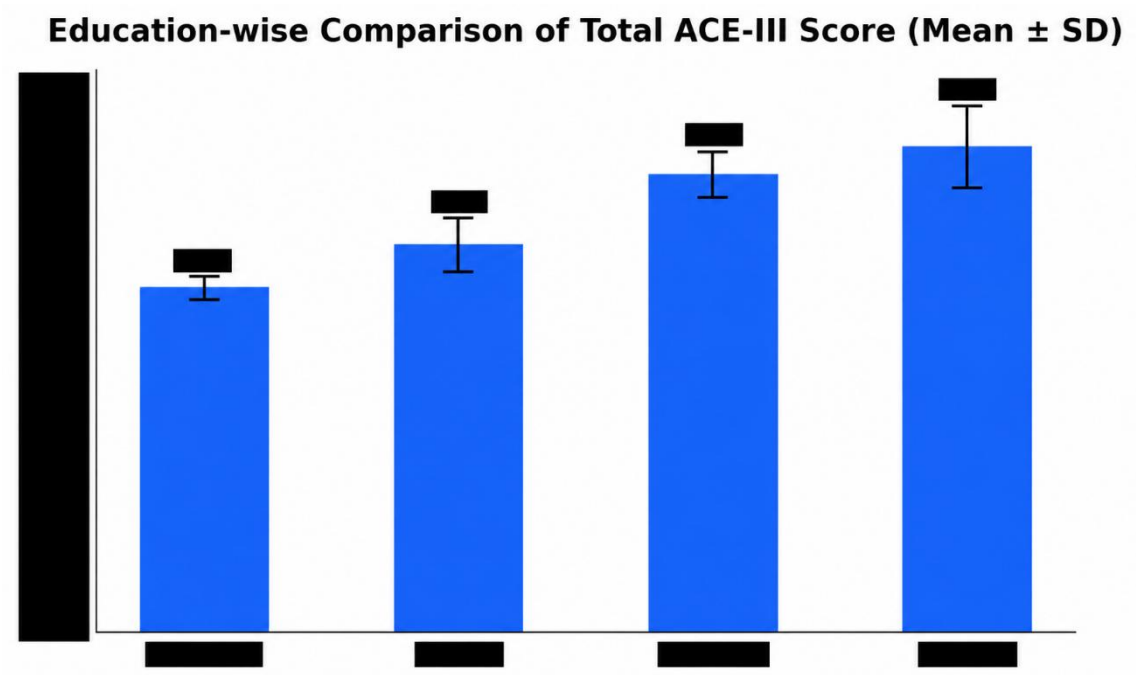
Graph 6 B: Age Group-wise Comparison of Total ACE-III Score (Mean ± SD)



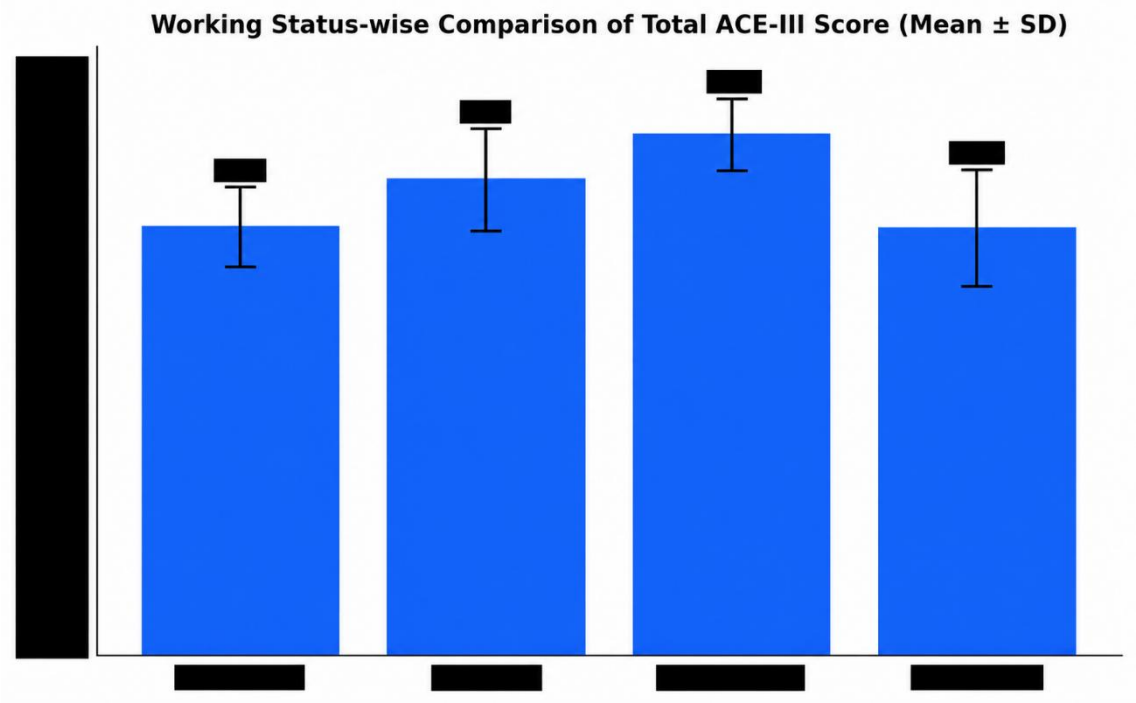
Graph 6 C: Marital Status-wise Comparison of Total ACE-III Score (Mean ± SD)



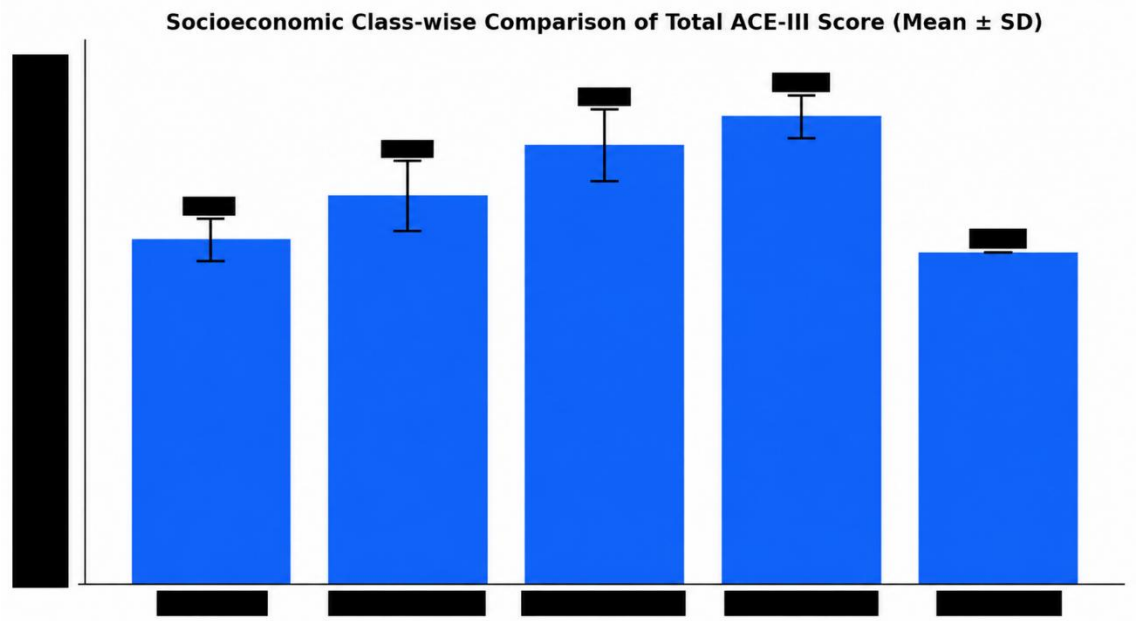
Graph 6 D: Education-wise Comparison of Total ACE-III Score (Mean ± SD)



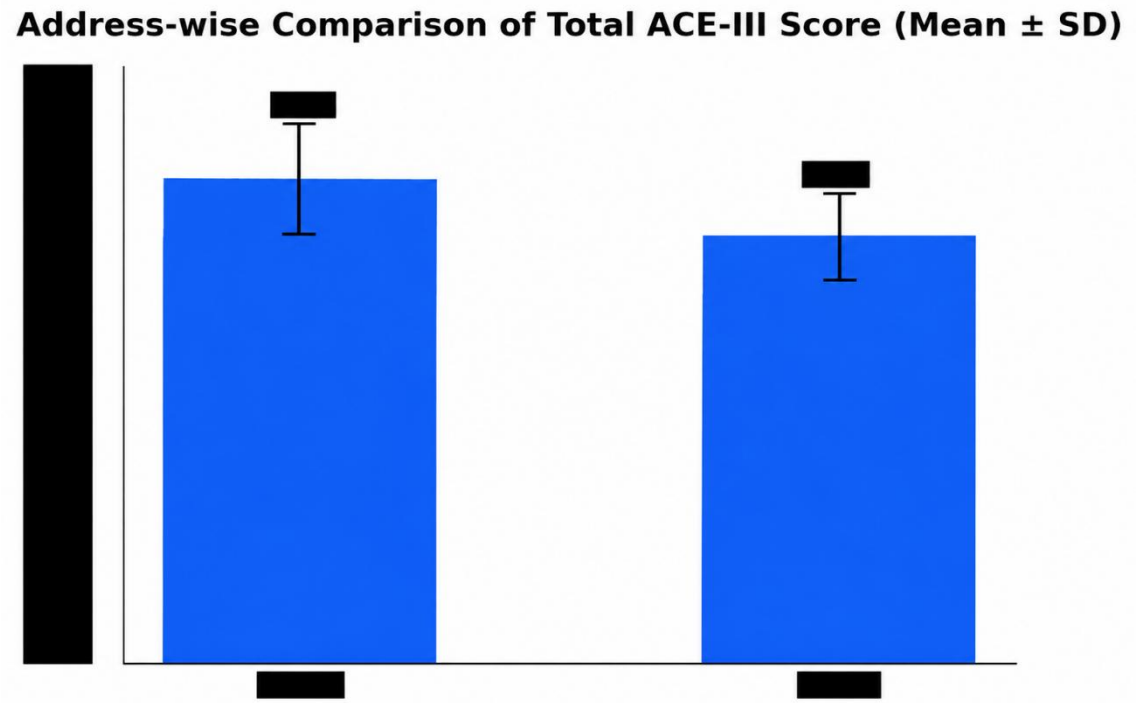
Graph 6 E: Working Status-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 6 F Socioeconomic Class-wise Comparison of Total ACE-III Score (Mean ± SD)c



Graph 6 G: Address-wise Comparison of Total ACE-III Score (Mean ± SD)



In the present study, the mean Total ACE-III score among males ([redacted]) was [redacted], whereas among females ([redacted]) it was [redacted]. [redacted]

[redacted]

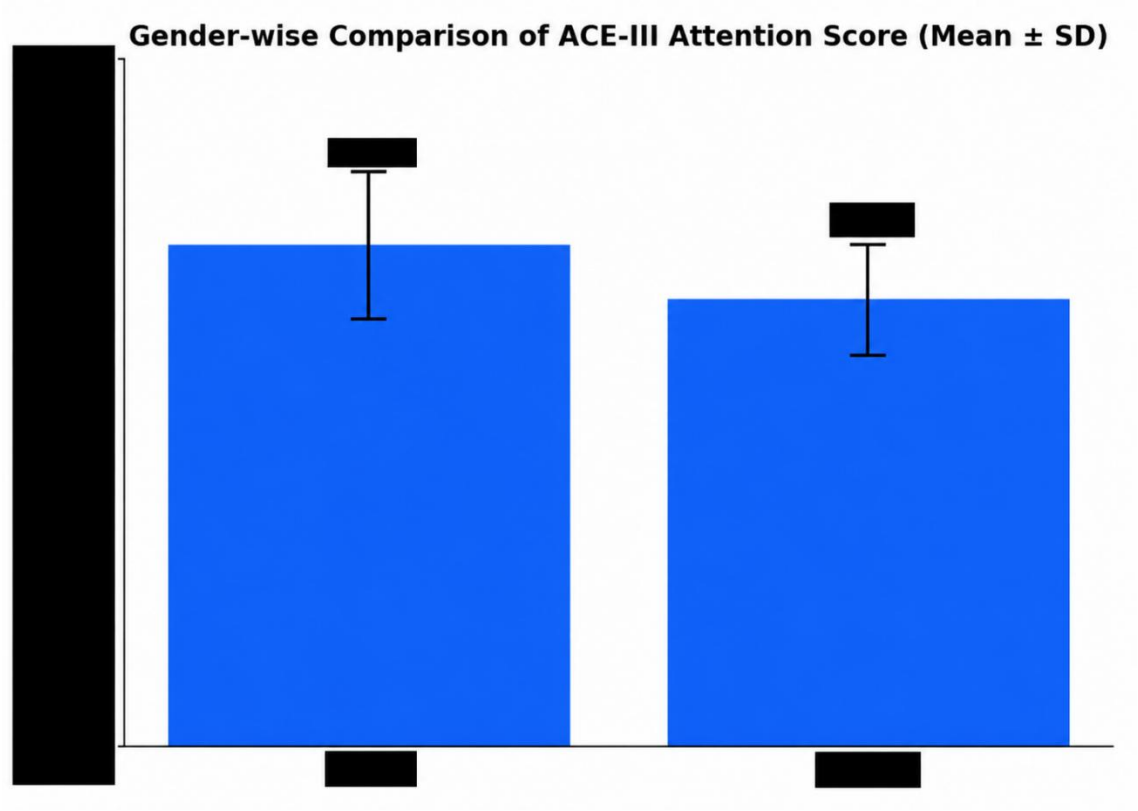
[redacted]The difference was not statistically significant ([redacted]).

Table 7: Socio-demographic wise Comparison of ACE-III Attention Score

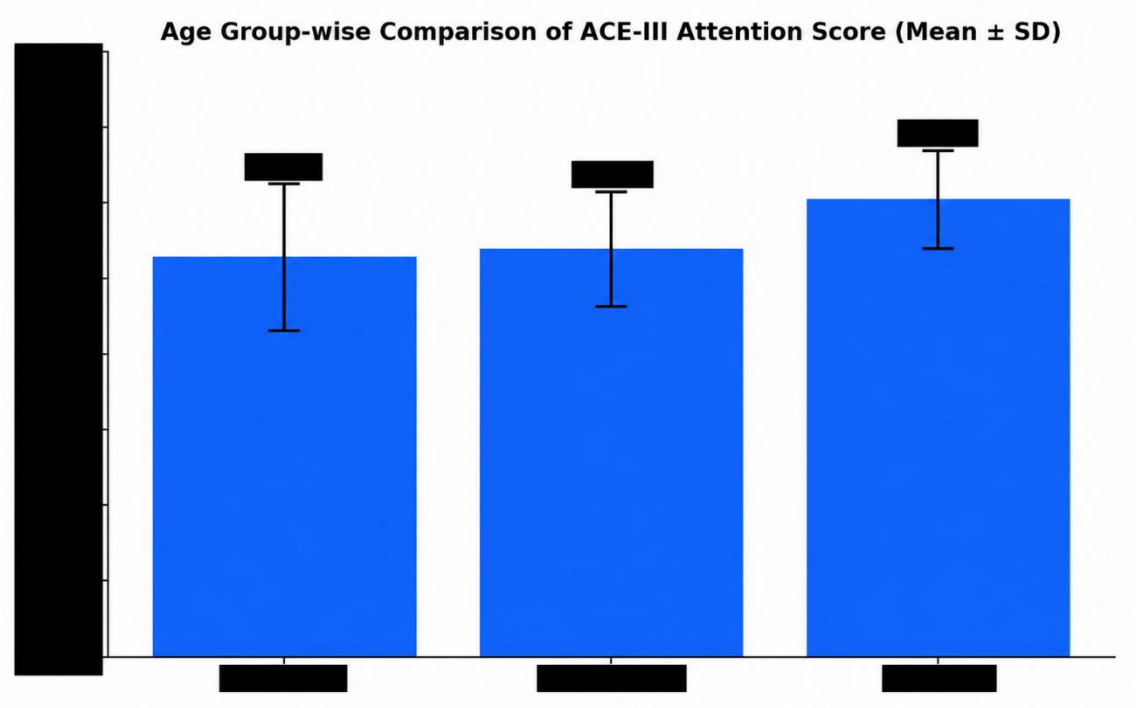
Socio-demographic	N	Attention Score (Mean ± SD)	p-value
Gender			
Male	[redacted]	[redacted]	[redacted]
Female	[redacted]	[redacted]	
Age Group			
≥60 years	[redacted]	[redacted]	[redacted]
50-59 years	[redacted]	[redacted]	
<50 years	[redacted]	[redacted]	
Marital Status			
Divorced	[redacted]	[redacted]	[redacted]
Married	[redacted]	[redacted]	
Widowed	[redacted]	[redacted]	
Working Status			
Unemployed	[redacted]	[redacted]	[redacted]
Employed	[redacted]	[redacted]	
Self-employed	[redacted]	[redacted]	
Homemaker	[redacted]	[redacted]	
Education			
Primary	[redacted]	[redacted]	[redacted]
Secondary	[redacted]	[redacted]	
Graduate	[redacted]	[redacted]	
Uneducated	[redacted]	[redacted]	
Socioeconomic Class			
Upper Lower (IV)	[redacted]	[redacted]	[redacted]
Lower Middle (III)	[redacted]	[redacted]	
Lower (V)	[redacted]	[redacted]	
Upper Middle (II)	[redacted]	[redacted]	
Upper (I)	[redacted]	[redacted]	
Address			
Urban	[redacted]	[redacted]	[redacted]
Rural	[redacted]	[redacted]	

**Independent t-test p-value*

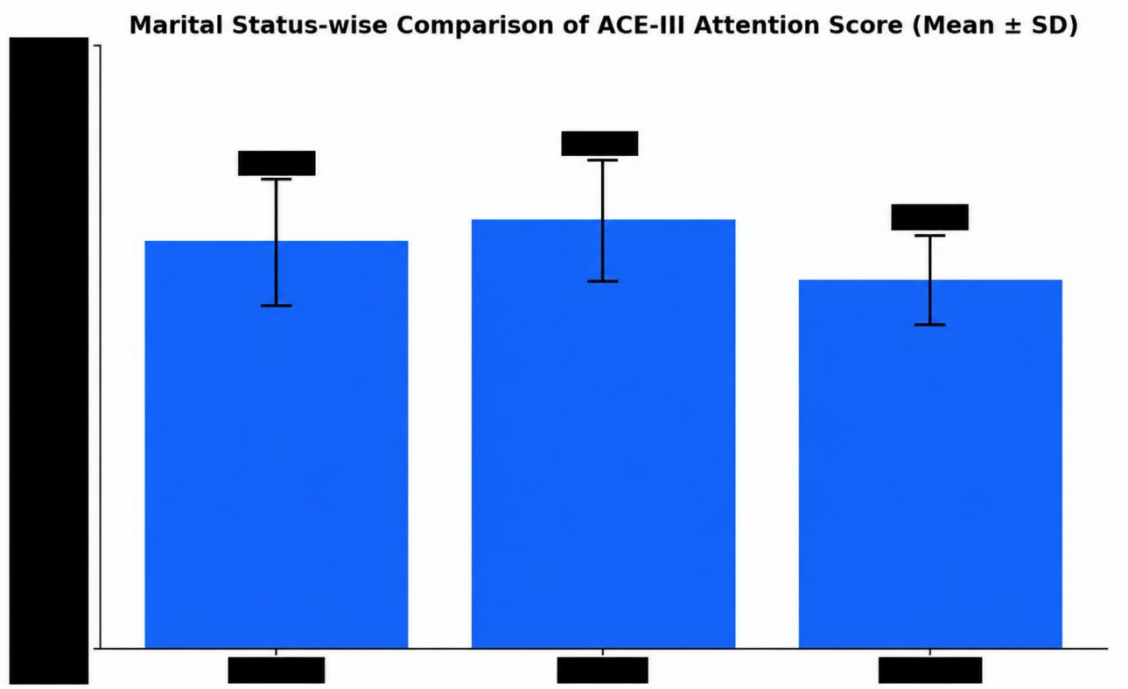
Graph 7 A: Gender-wise Comparison of Total ACE-III Score (Mean ± SD)



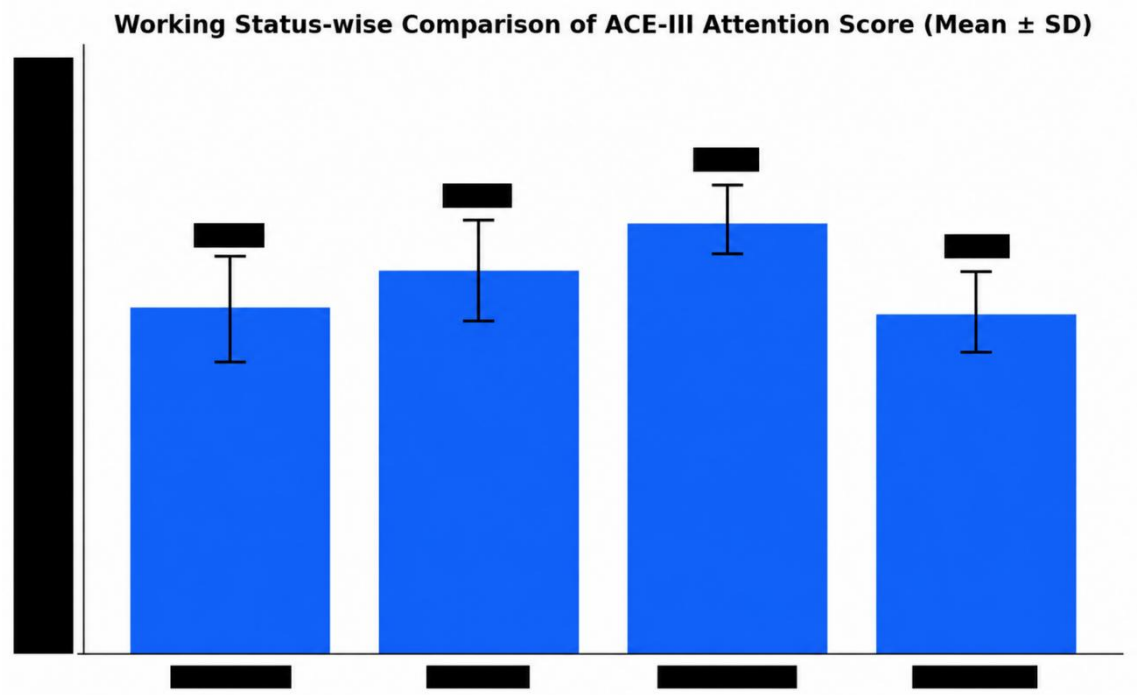
Graph 7 B: Age-wise Comparison of Total ACE-III Score (Mean ± SD)



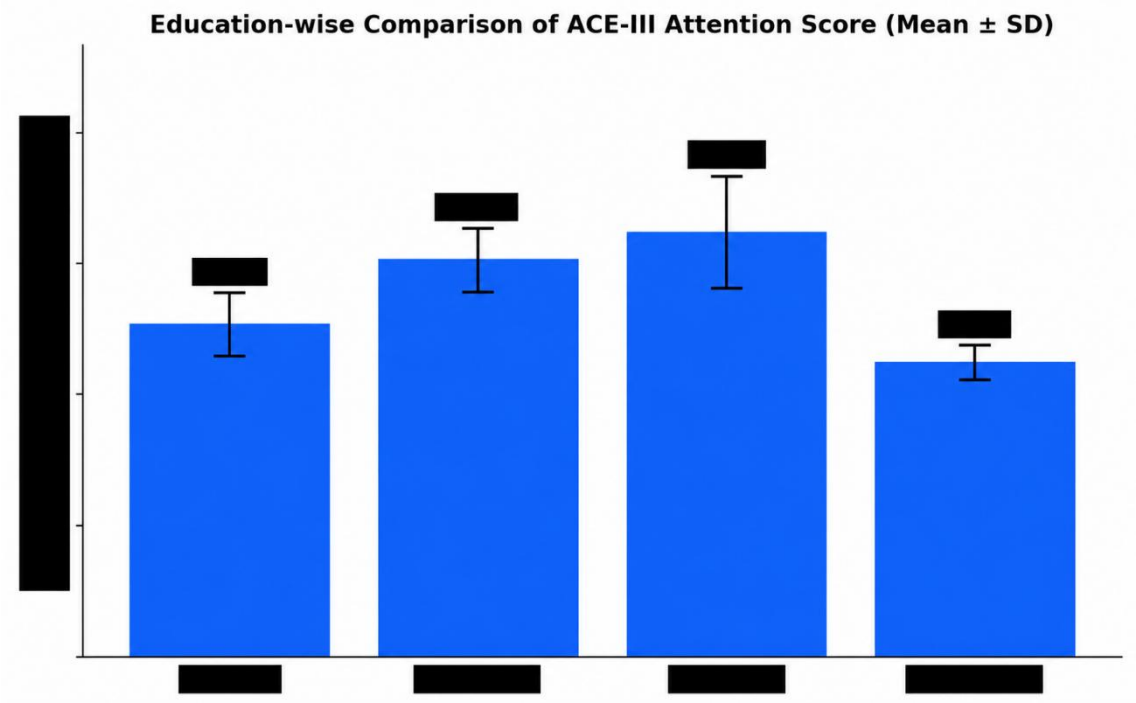
Graph 7 C: Marital Status-wise Comparison of Total ACE-III Score (Mean ± SD)



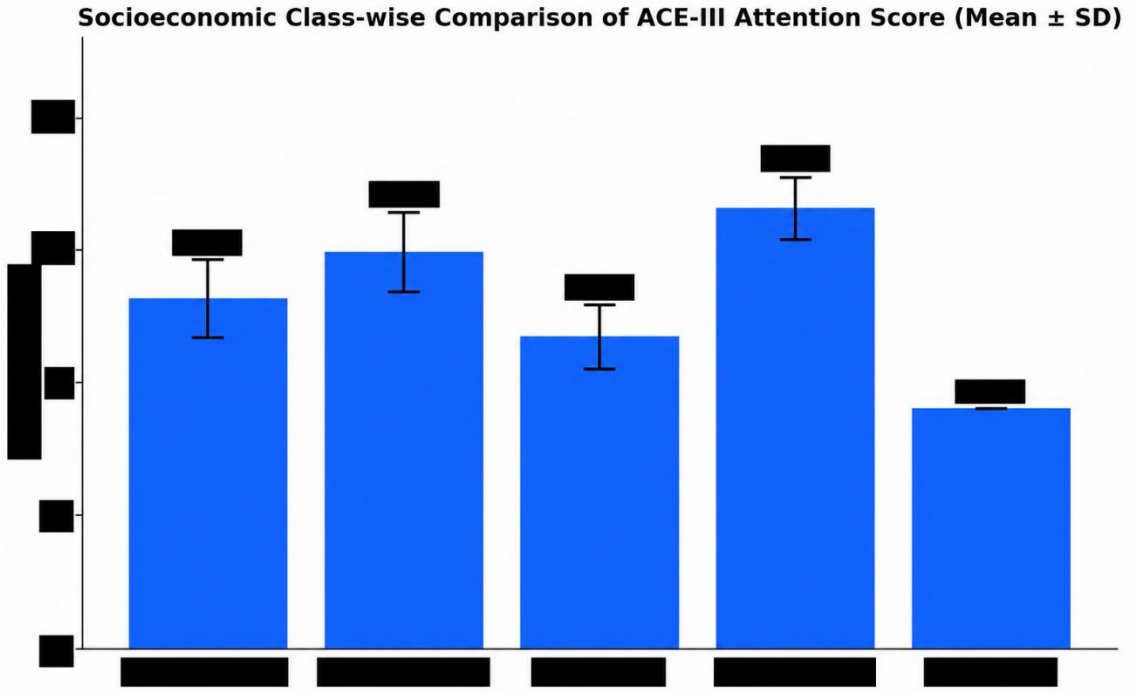
Graph 7 D: Working Status-wise Comparison of Total ACE-III Score (Mean ± SD)



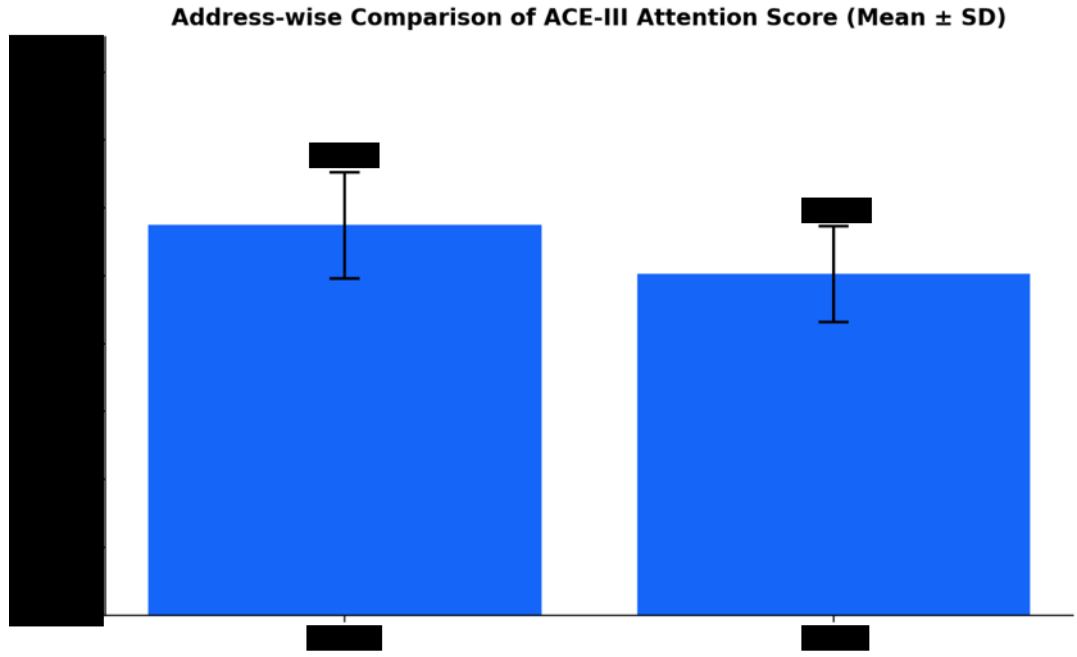
Graph 7 E: Education-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 7 F: Socioeconomic Class-wise Comparison of Total ACE-III Score (Mean ± SD)c



Graph 7 G: Address-wise Comparison of Total ACE-III Score (Mean ± SD)



In the present study, the mean ACE-III Attention score among males (was , whereas among females ( ) it was .

[redacted]

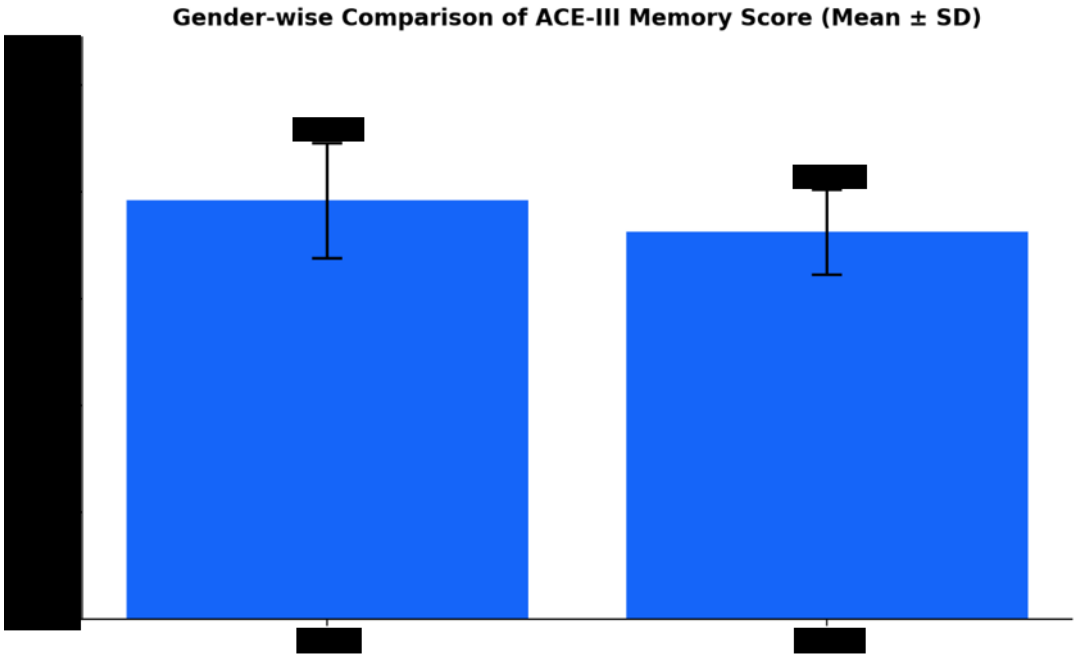
The difference was not statistically significant ([redacted]).

Table 8: Socio-demographic wise Comparison of ACE-III Memory Score

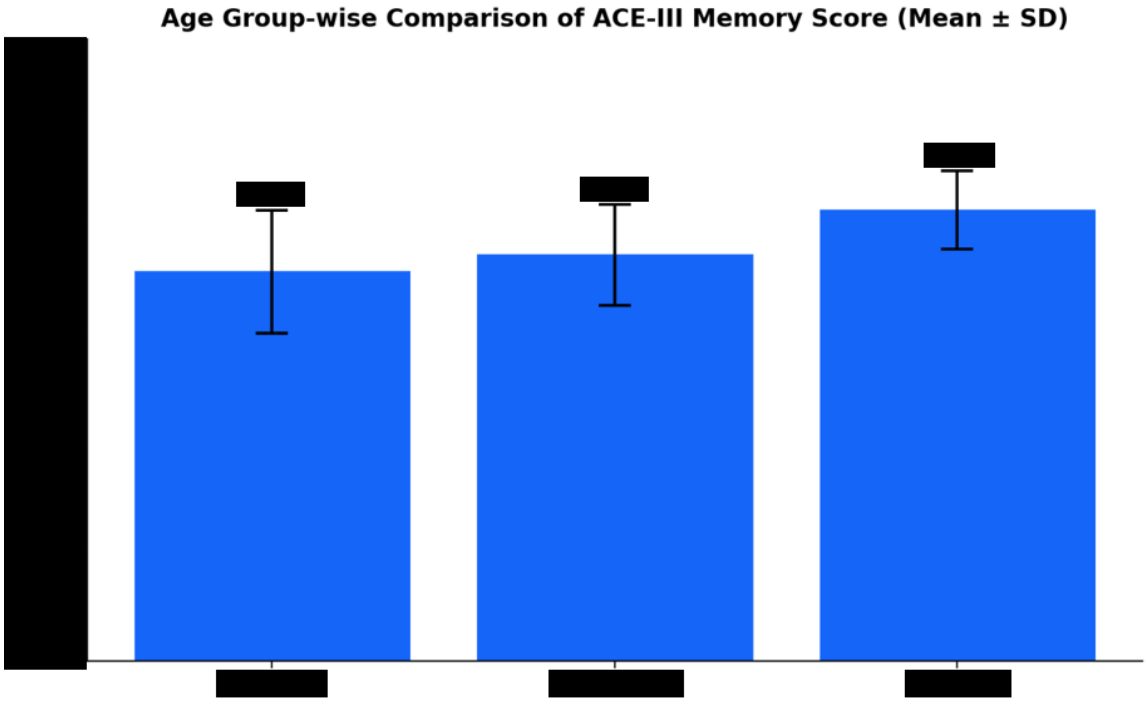
Socio-demographic	N	Memory Score (Mean ± SD)	p-value
Gender			
Male	[redacted]	[redacted]	[redacted]
Female	[redacted]	[redacted]	
Age Group			
≥60 years	[redacted]	[redacted]	[redacted]
50-59 years	[redacted]	[redacted]	
<50 years	[redacted]	[redacted]	
Marital Status			
Divorced	[redacted]	[redacted]	[redacted]
Married	[redacted]	[redacted]	
Widowed	[redacted]	[redacted]	
Working Status			
Unemployed	[redacted]	[redacted]	[redacted]
Employed	[redacted]	[redacted]	
Self-employed	[redacted]	[redacted]	
Homemaker	[redacted]	[redacted]	
Education			
Primary	[redacted]	[redacted]	[redacted]
Secondary	[redacted]	[redacted]	
Graduate	[redacted]	[redacted]	
Uneducated	[redacted]	[redacted]	
Socioeconomic Class			
Upper Lower (IV)	[redacted]	[redacted]	[redacted]
Lower Middle (III)	[redacted]	[redacted]	
Lower (V)	[redacted]	[redacted]	
Upper Middle (II)	[redacted]	[redacted]	
Upper (I)	[redacted]	[redacted]	
Address			
Urban	[redacted]	[redacted]	[redacted]
Rural	[redacted]	[redacted]	

**Independent t-test p-value*

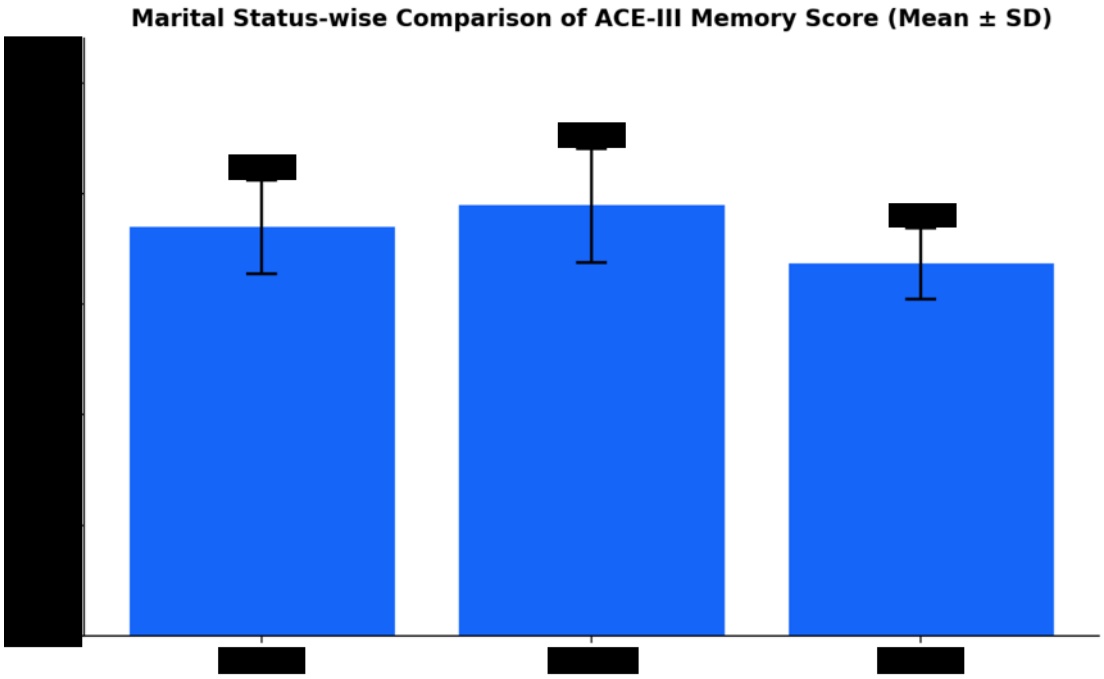
Graph 8 A: Gender-wise Comparison of Total ACE-III Score (Mean ± SD)



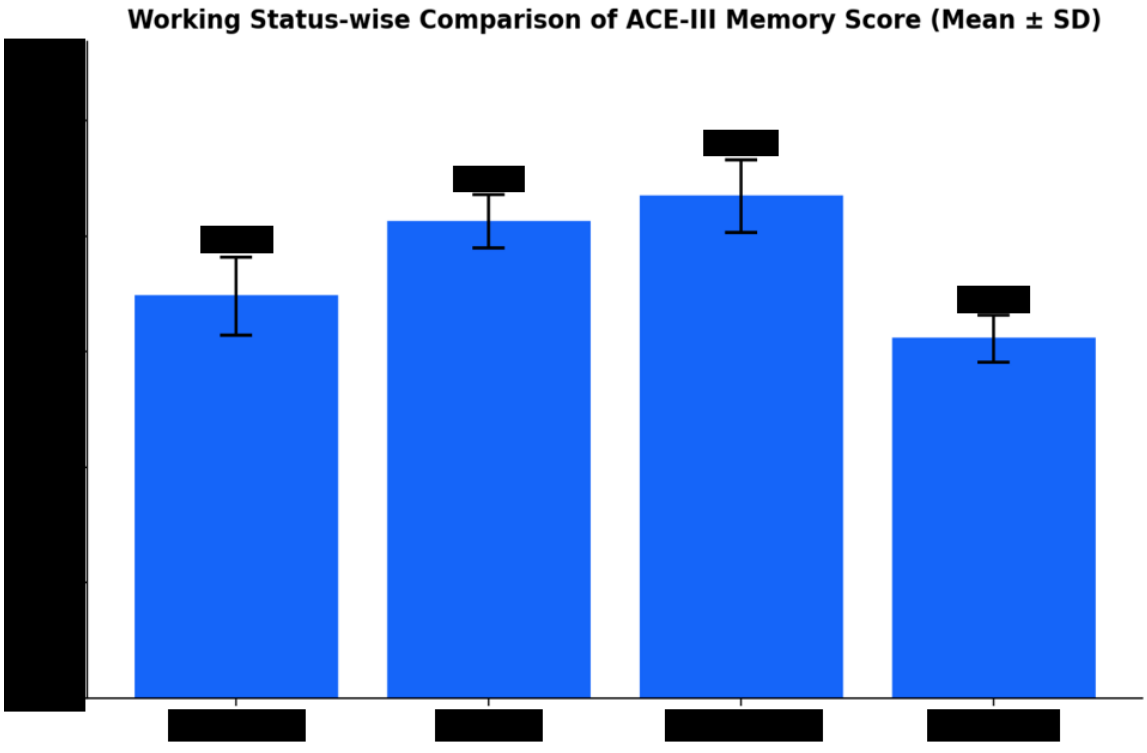
Graph 8 B: Age Group-wise Comparison of Total ACE-III Score (Mean ± SD)



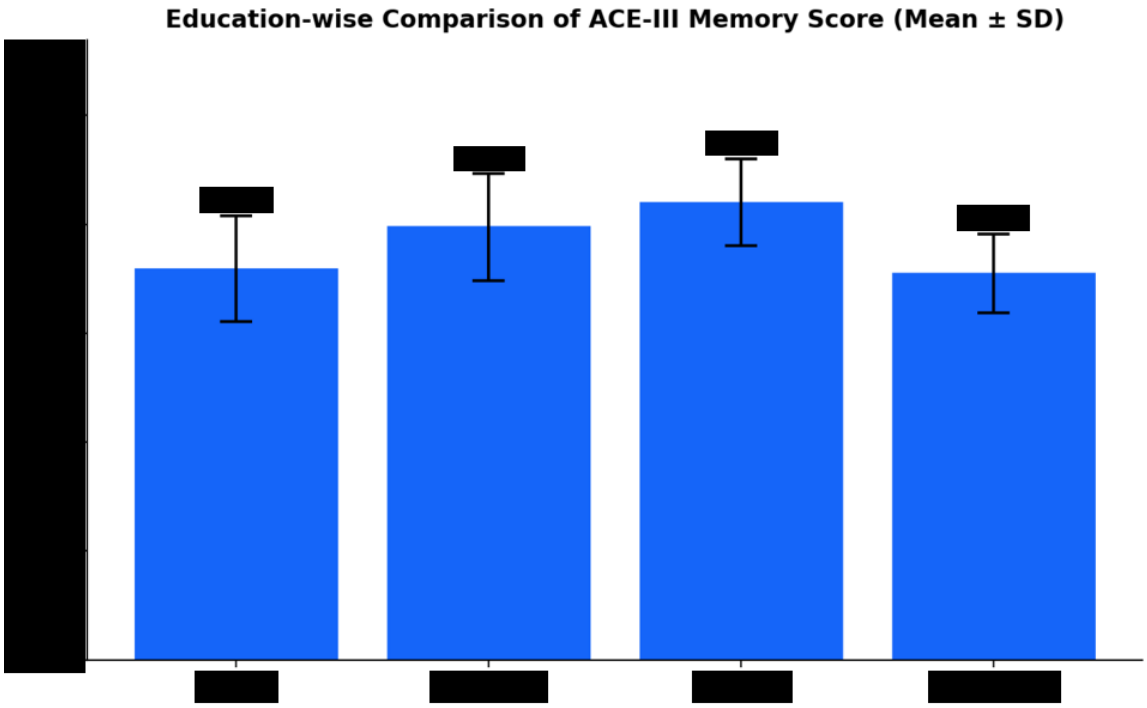
Graph 8 C: Marital Status-wise Comparison of Total ACE-III Score (Mean ± SD)



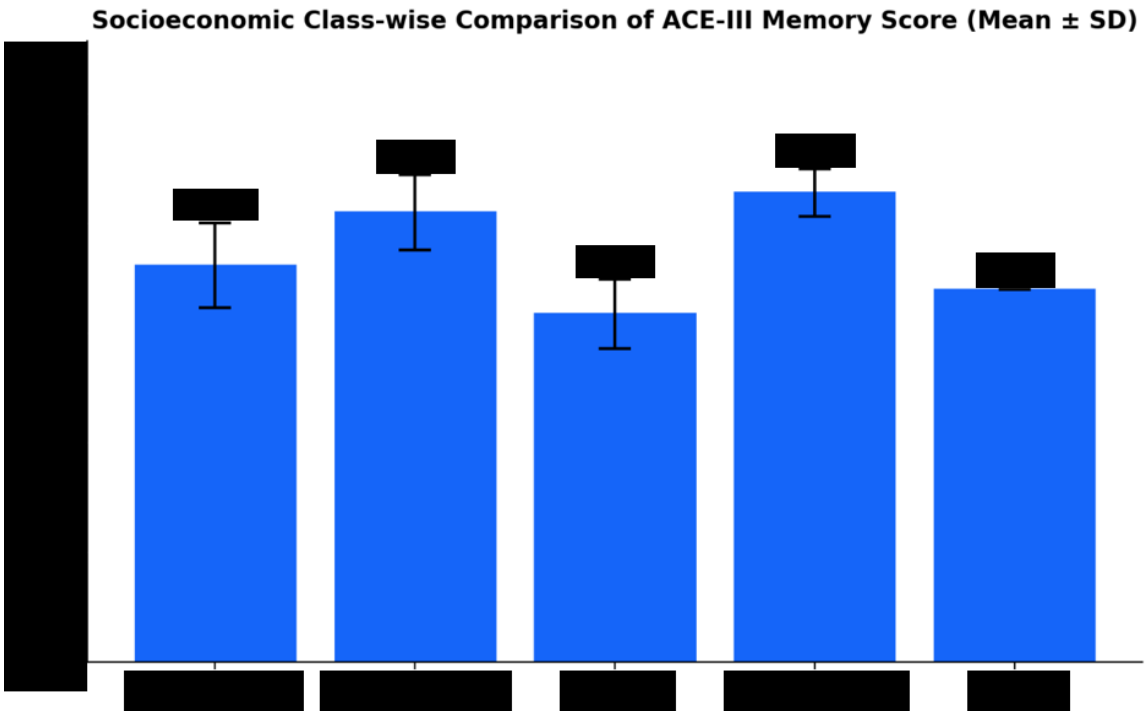
Graph 8 D: Working Status-wise Comparison of Total ACE-III Score (Mean ± SD)



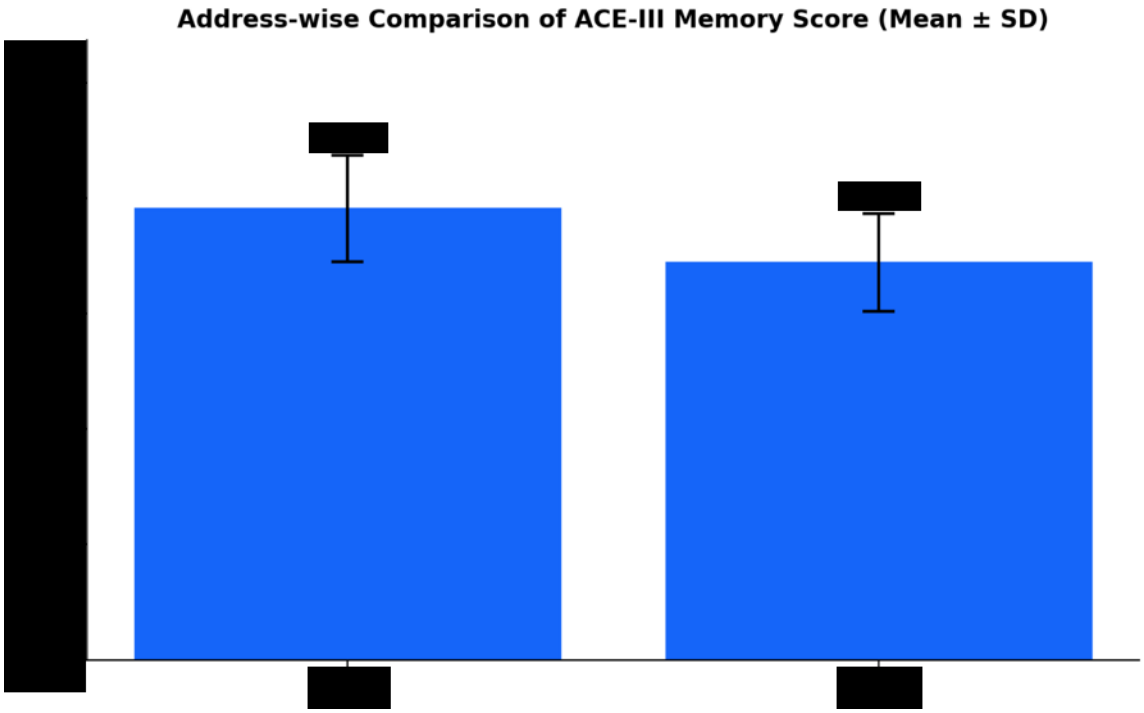
Graph 8 E: Education-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 8 F: Socioeconomic Class-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 8 G: Address-wise Comparison of Total ACE-III Score (Mean ± SD)



In the present study, the mean ACE-III Memory score among males ([redacted]) was [redacted], whereas among females ([redacted]) it was [redacted]. [redacted]

[redacted]

The difference was not statistically significant ([redacted]).

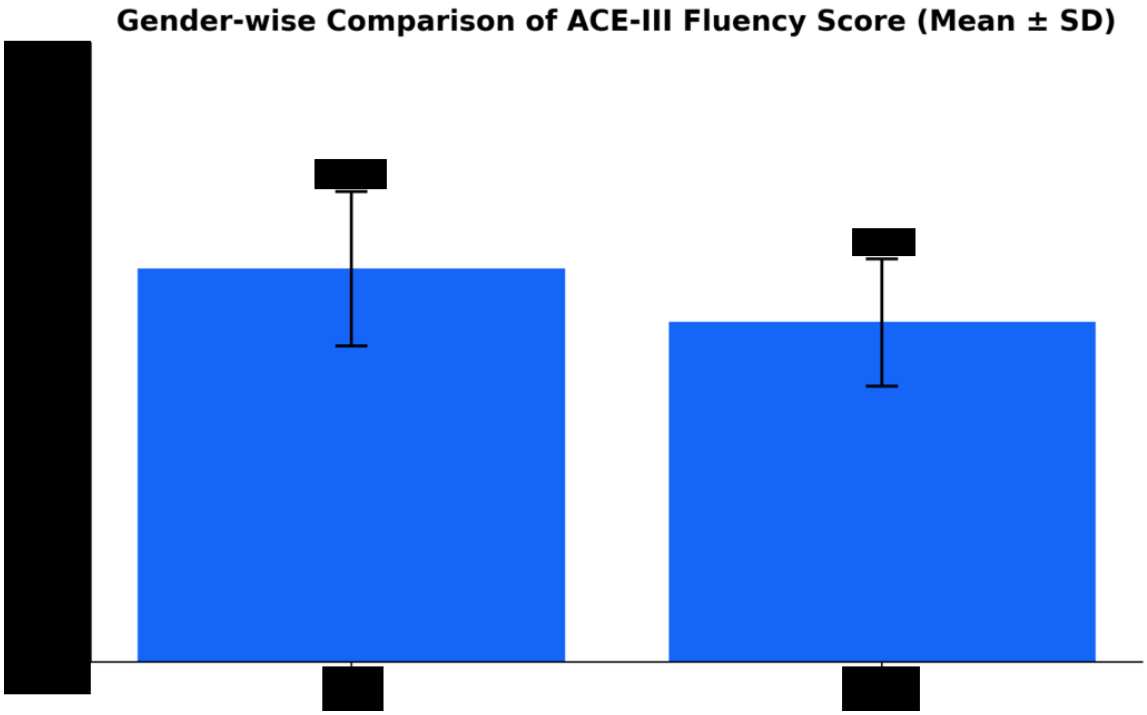
Table 9: Socio-demographic wise Comparison of ACE-III Fluency Score

Socio-demographic	N	Fluency Score (Mean ± SD)	p-value
Gender			
Male	[redacted]	[redacted]	[redacted]
Female	[redacted]	[redacted]	
Age Group			
≥60 years	[redacted]	[redacted]	[redacted]
50-59 years	[redacted]	[redacted]	
<50 years	[redacted]	[redacted]	
Marital Status			
Divorced	[redacted]	[redacted]	[redacted]
Married	[redacted]	[redacted]	
Widowed	[redacted]	[redacted]	
Working Status			
Unemployed	[redacted]	[redacted]	[redacted]
Employed	[redacted]	[redacted]	
Self-employed	[redacted]	[redacted]	
Homemaker	[redacted]	[redacted]	
Education			
Primary	[redacted]	[redacted]	[redacted]
Secondary	[redacted]	[redacted]	
Graduate	[redacted]	[redacted]	
Uneducated	[redacted]	[redacted]	
Socioeconomic Class			
Upper Lower (IV)	[redacted]	[redacted]	[redacted]

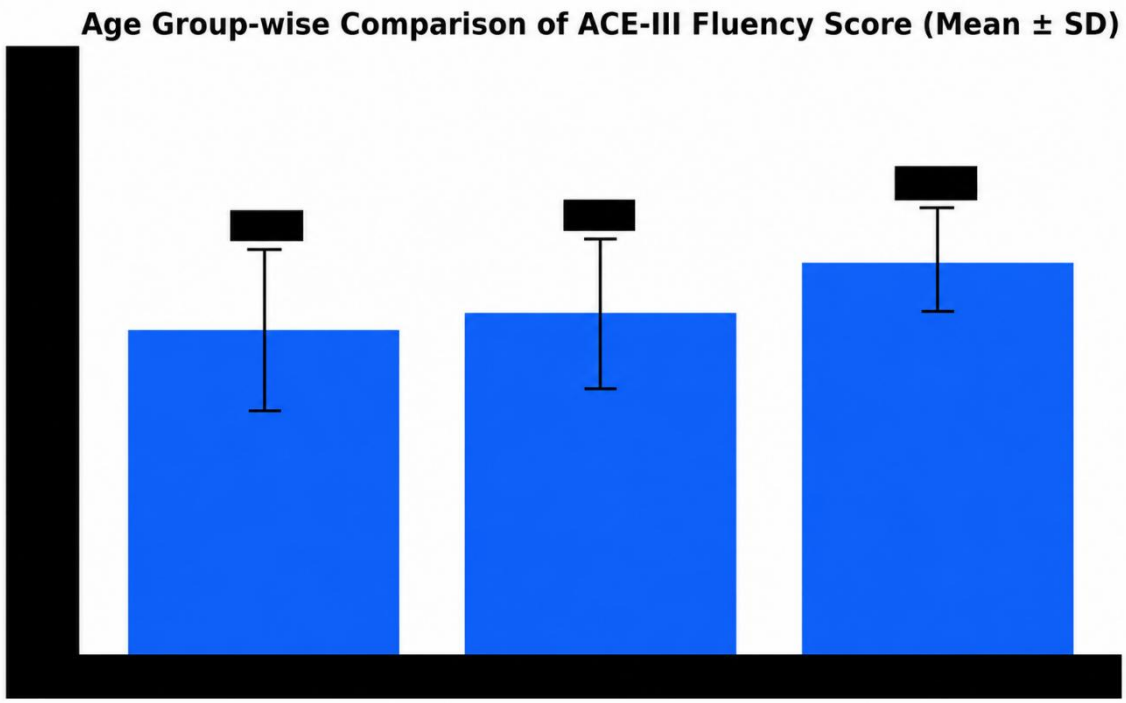
Lower Middle (III)	[redacted]	[redacted]	
Lower (V)	[redacted]	[redacted]	
Upper Middle (II)	[redacted]	[redacted]	
Upper (I)	[redacted]	[redacted]	
Address			
Urban	[redacted]	[redacted]	[redacted]
Rural	[redacted]	[redacted]	

Independent t-test p-value

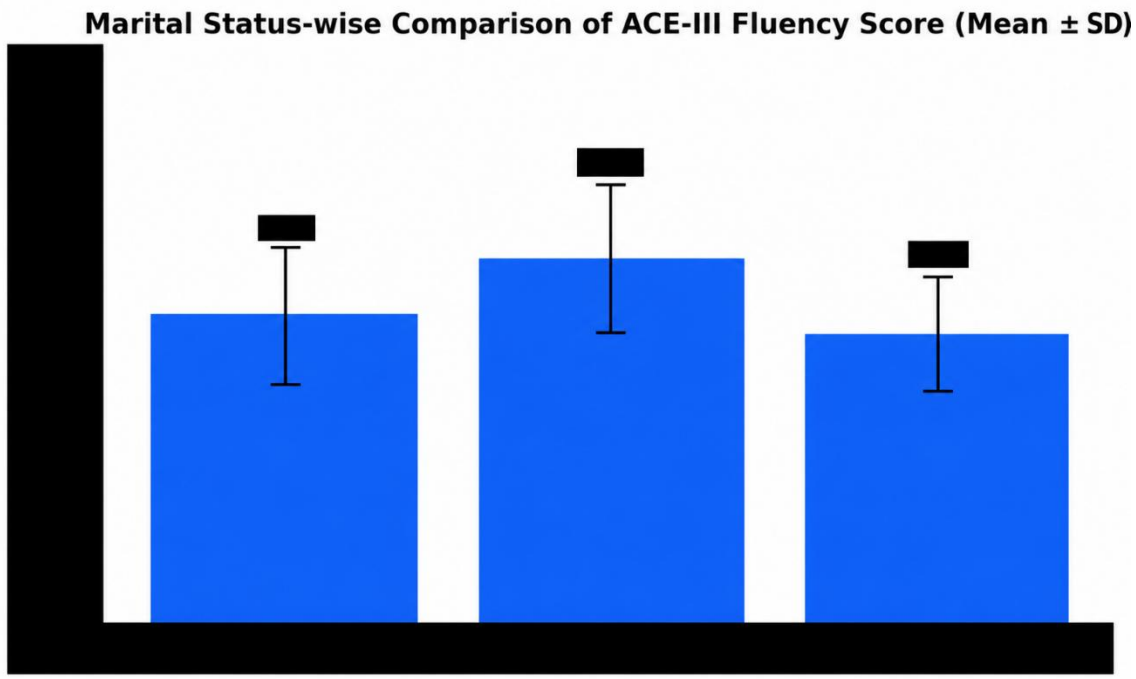
Graph 9 A: Gender-wise Comparison of Total ACE-III Score (Mean ± SD)



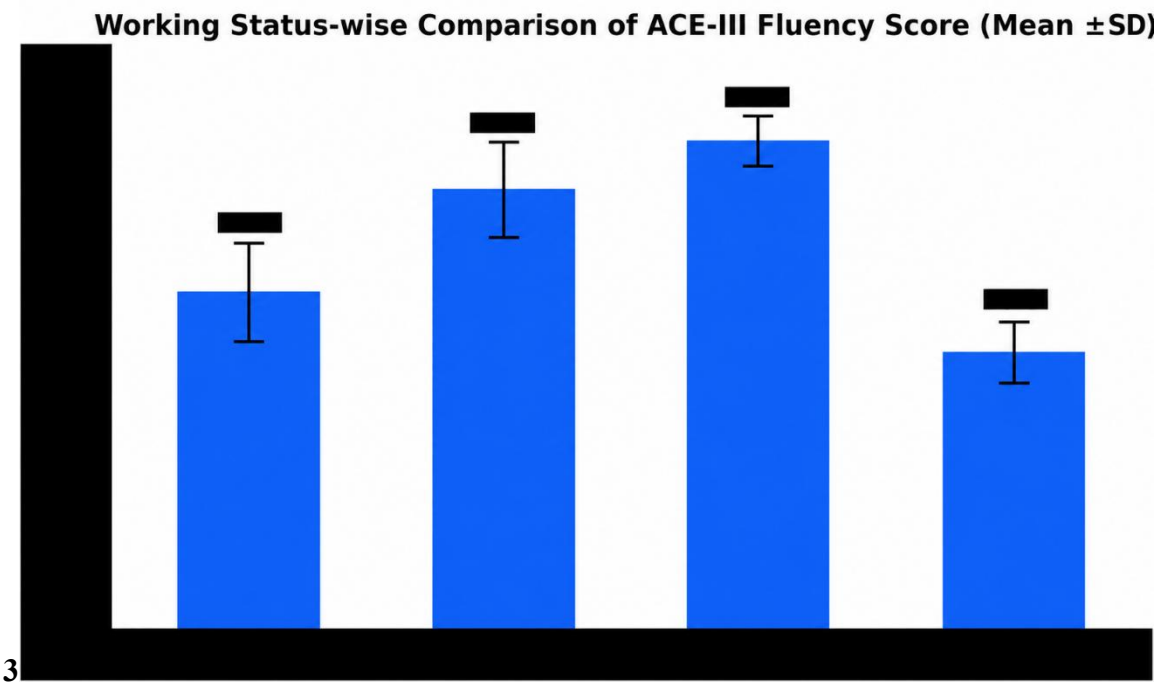
Graph 9 B: Age Group-wise Comparison of Total ACE-III Score (Mean ± SD)



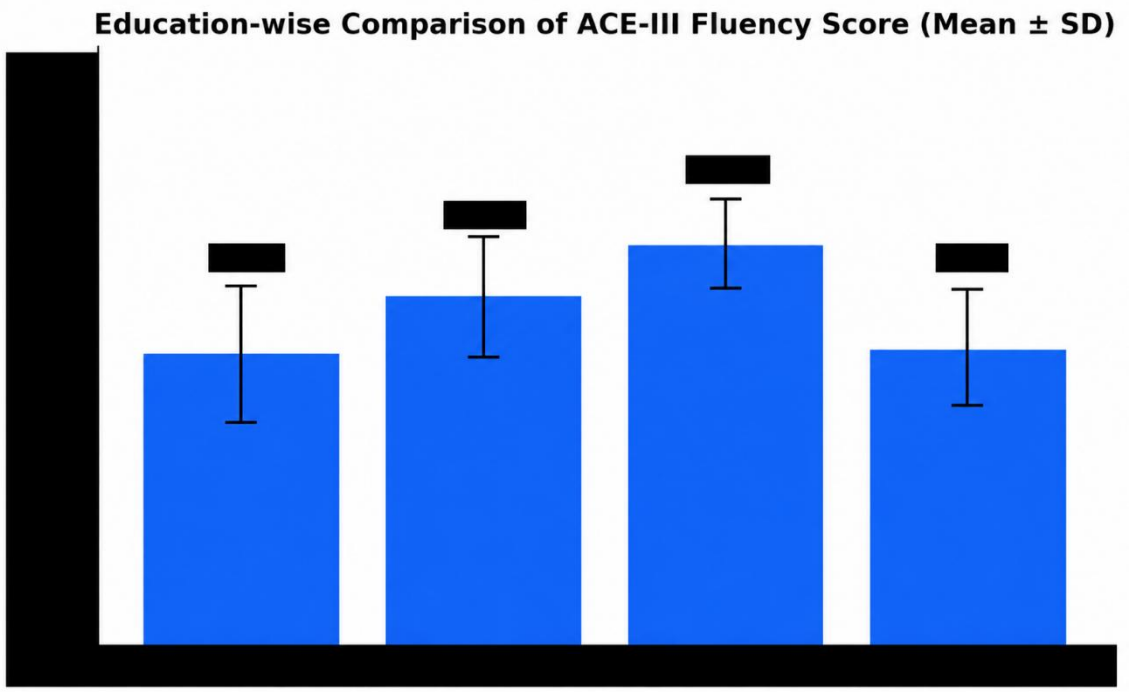
Graph 9 C: Marital Status-wise Comparison of Total ACE-III Score (Mean ± SD)



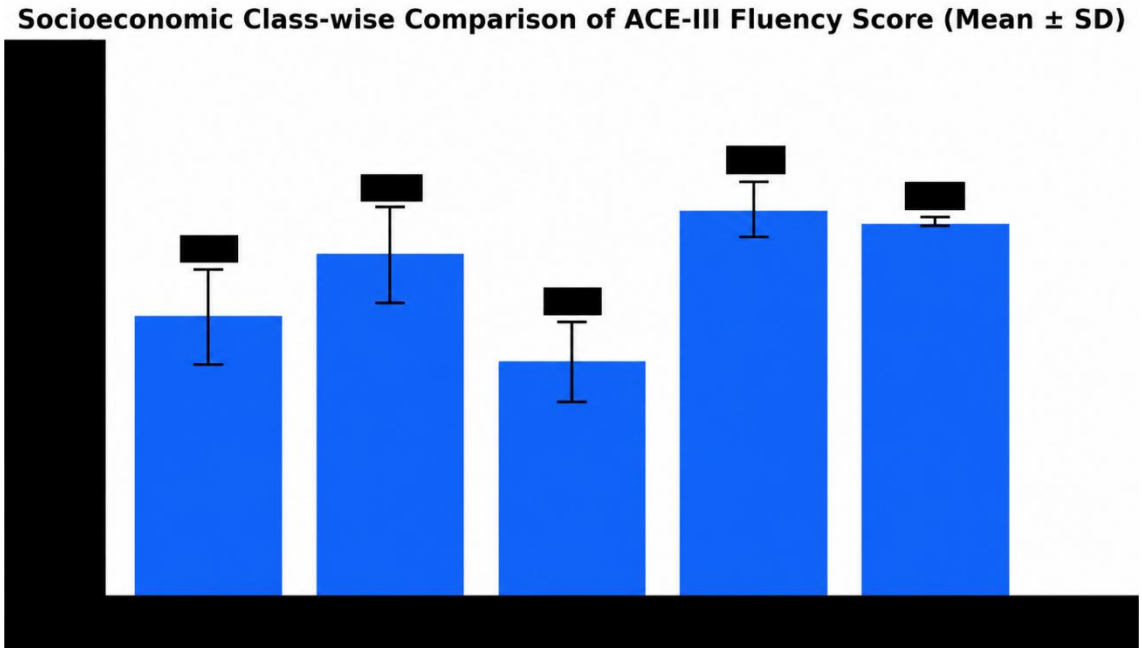
Graph 9 D: Working Status-wise Comparison of Total ACE-III Score (Mean ± SD)



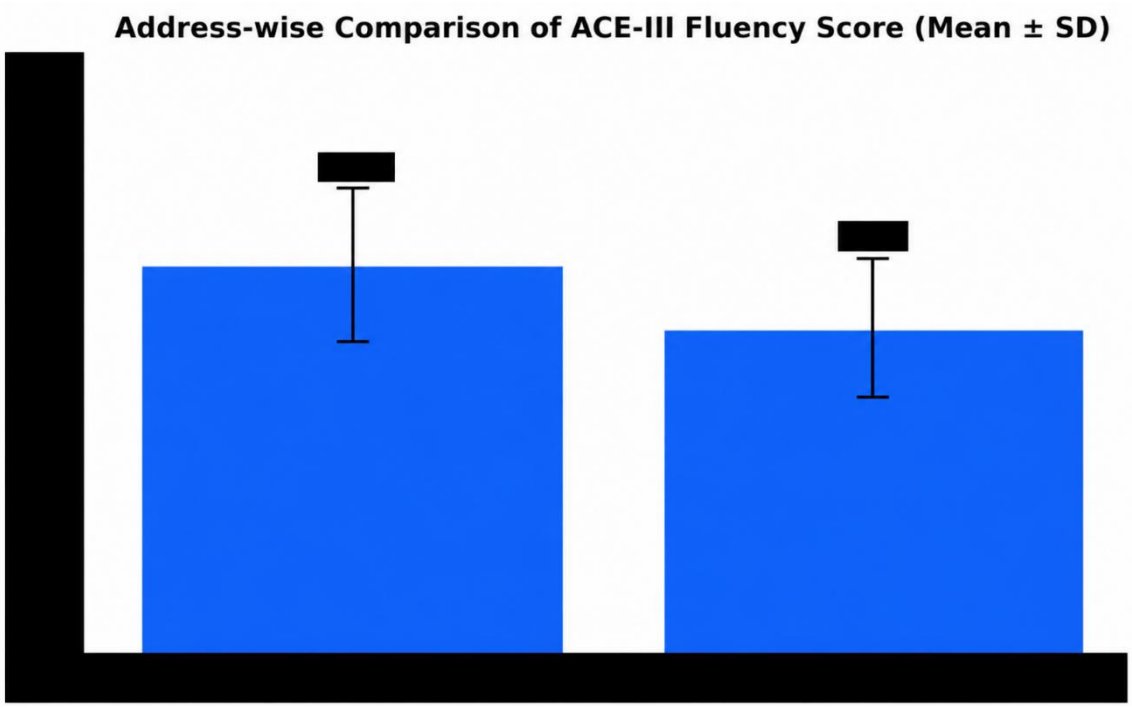
Graph 9 E: Education-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 9 F: Socioeconomic Class-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 9 G: Address-wise Comparison of Total ACE-III Score (Mean ± SD)



the present study, the mean ACE-III Fluency score among males ( ) was , whereas among females ( ) it was . [redacted]

[redacted]

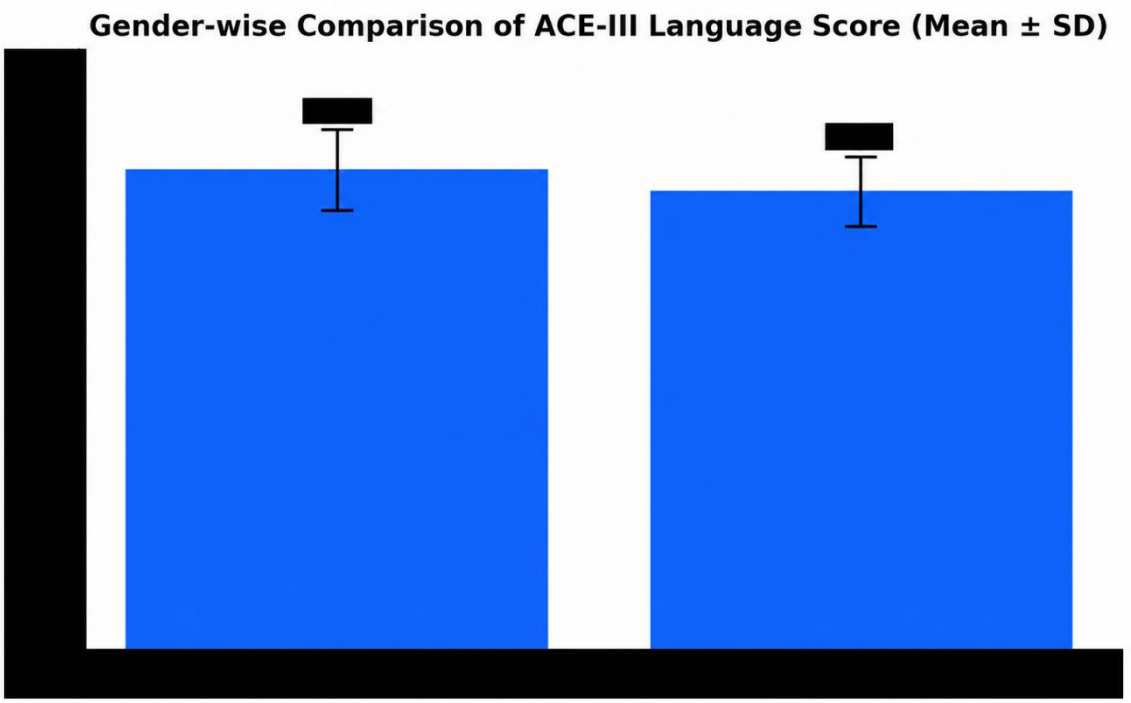
The difference was statistically significant ([redacted]).

Table 10: Socio-demographic wise Comparison of ACE-III Language Score

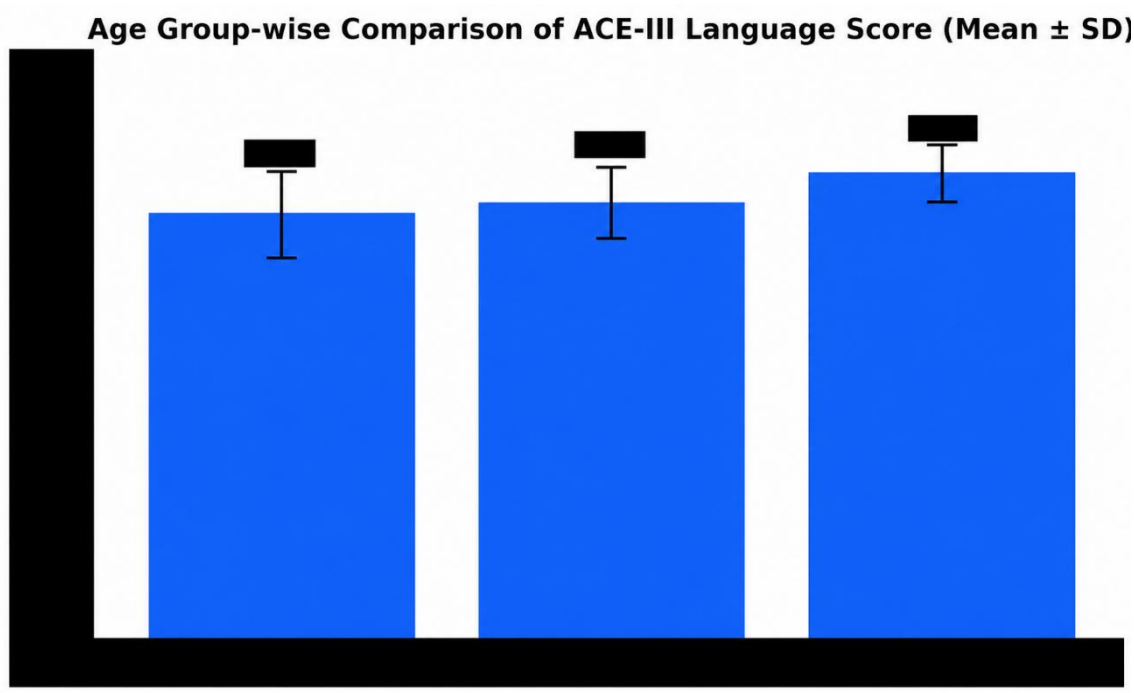
Socio-demographic	N	Language Score (Mean ± SD)	p-value
Gender			
Male	[redacted]	[redacted]	[redacted]
Female	[redacted]	[redacted]	
Age Group			
≥60 years	[redacted]	[redacted]	[redacted]
50-59 years	[redacted]	[redacted]	
<50 years	[redacted]	[redacted]	
Marital Status			
Divorced	[redacted]	[redacted]	[redacted]
Married	[redacted]	[redacted]	
Widowed	[redacted]	[redacted]	
Working Status			
Unemployed	[redacted]	[redacted]	[redacted]
Employed	[redacted]	[redacted]	
Self-employed	[redacted]	[redacted]	
Homemaker	[redacted]	[redacted]	
Education			
Primary	[redacted]	[redacted]	[redacted]
Secondary	[redacted]	[redacted]	
Graduate	[redacted]	[redacted]	
Uneducated	[redacted]	[redacted]	
Socioeconomic Class			
Upper Lower (IV)	[redacted]	[redacted]	[redacted]
Lower Middle (III)	[redacted]	[redacted]	
Lower (V)	[redacted]	[redacted]	
Upper Middle (II)	[redacted]	[redacted]	
Upper (I)	[redacted]	[redacted]	
Address			
Urban	[redacted]	[redacted]	[redacted]
Rural	[redacted]	[redacted]	

**Independent t-test p-value*

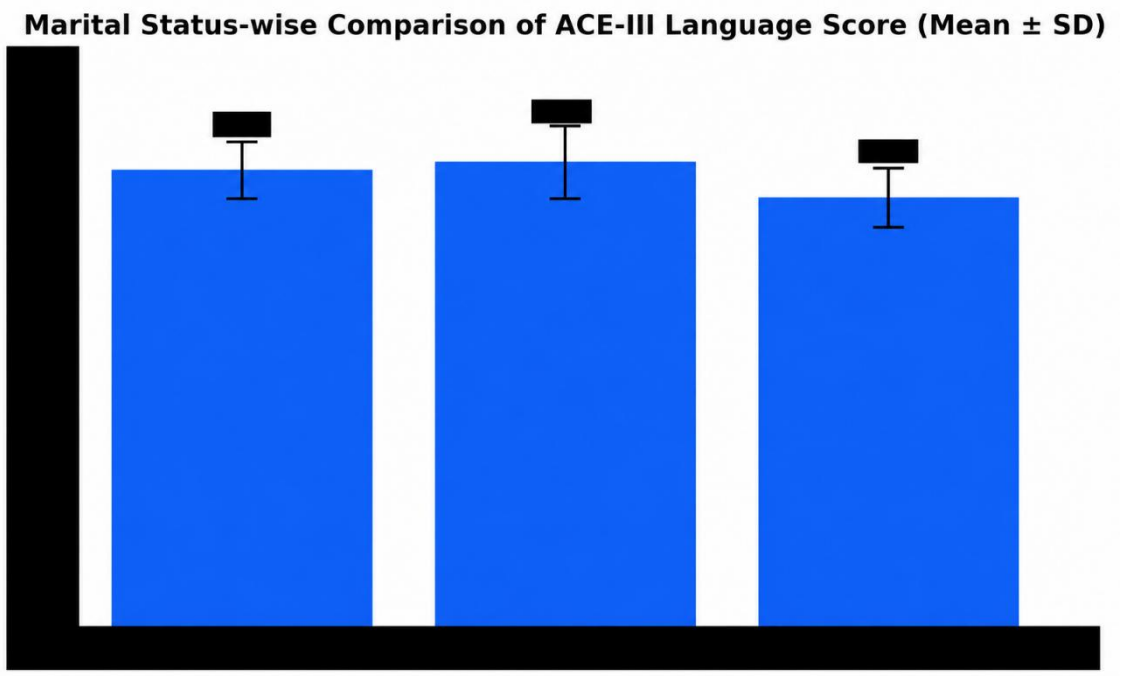
Graph 10 A: Gender-wise Comparison of Total ACE-III Score (Mean ± SD)



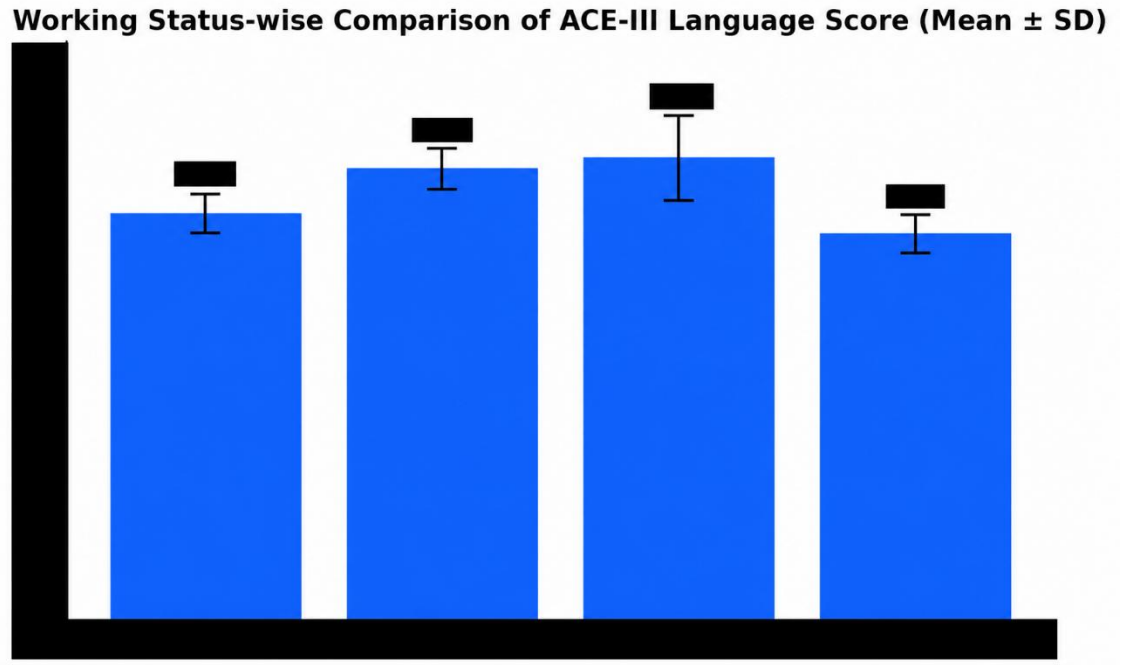
Graph 10 B Age Group-wise Comparison of Total ACE-III Score (Mean ± SD)



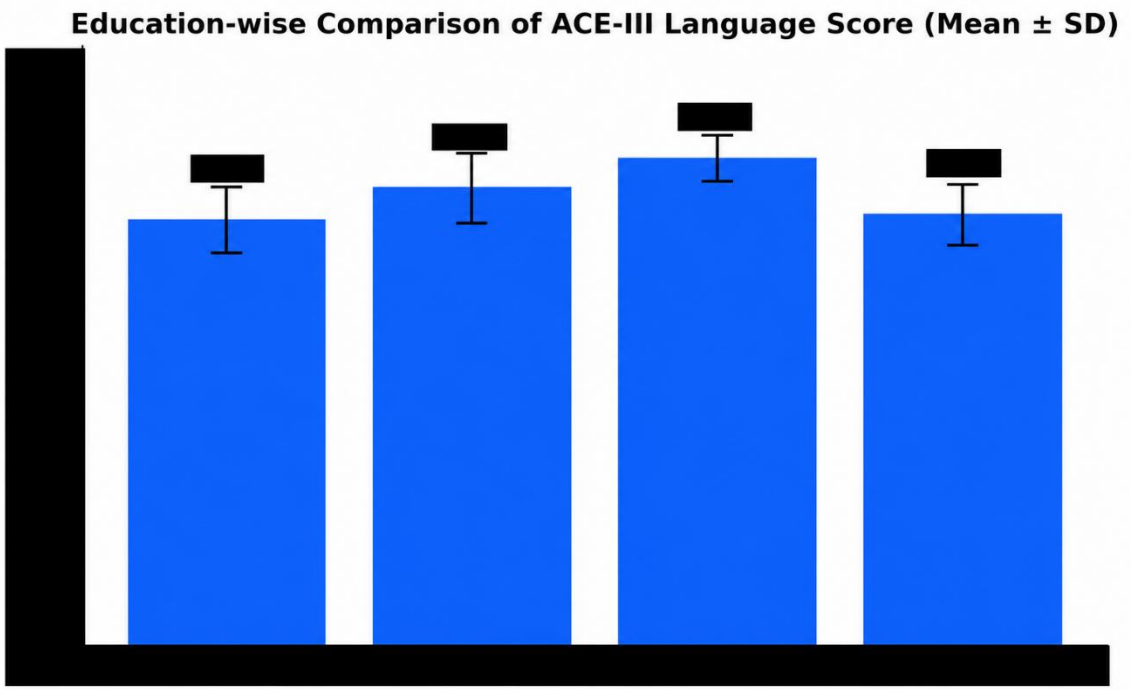
Graph 10 C: Marital Status-wise Comparison of Total ACE-III Score (Mean ± SD)



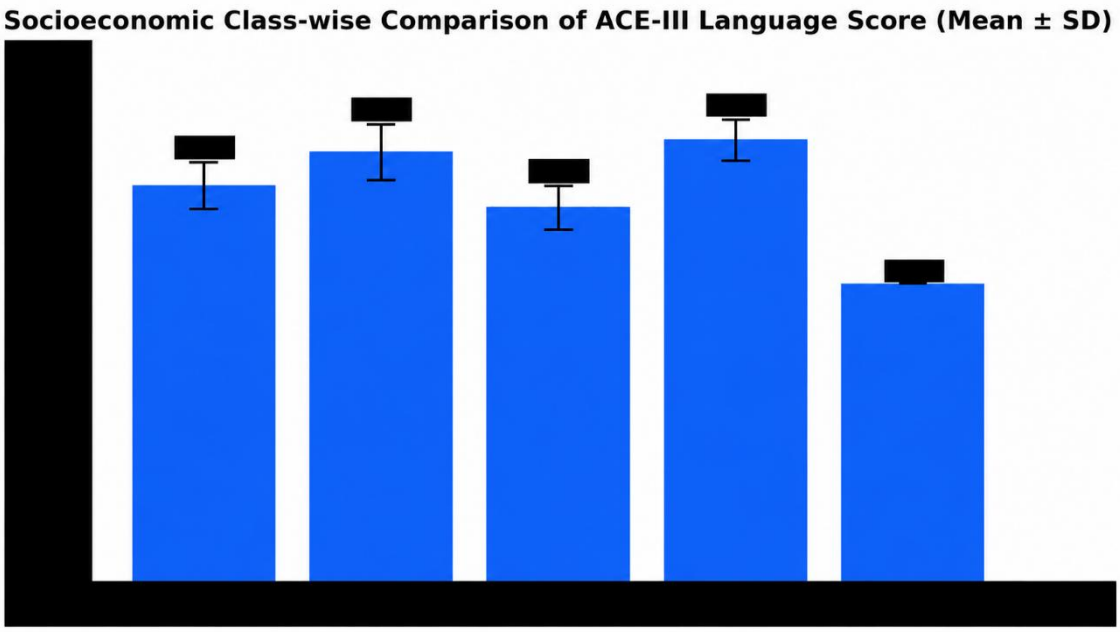
Graph 10 D: Working Status-wise Comparison of Total ACE-III Score (Mean ± SD)



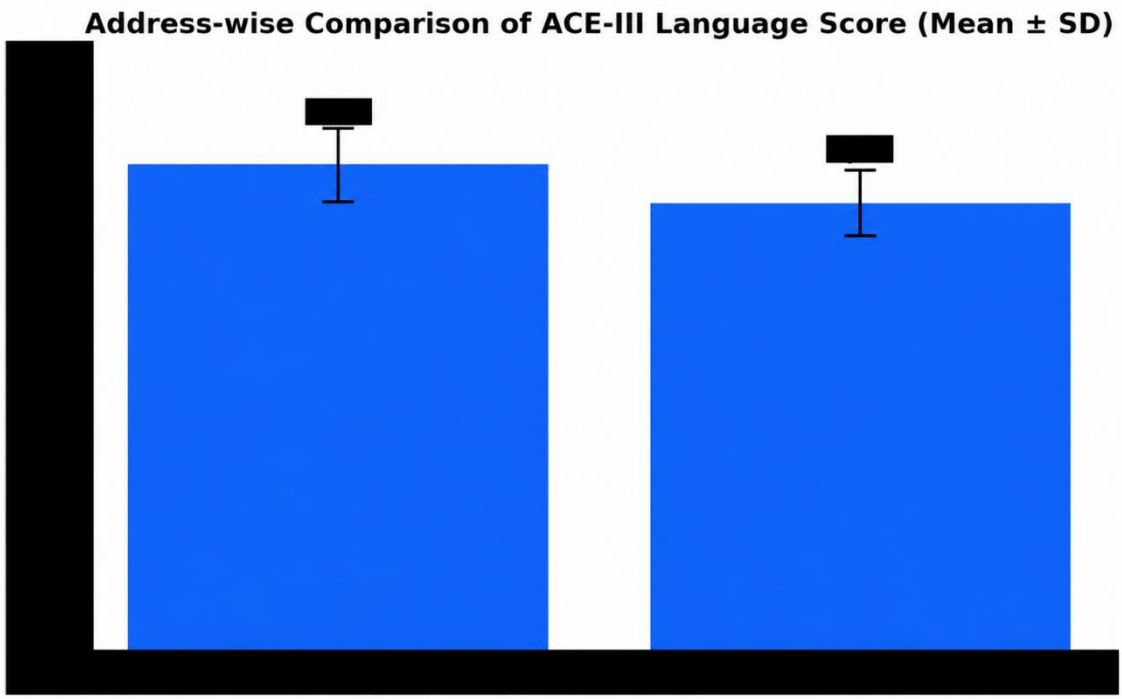
Graph 10 E: Education-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 10 F: Socioeconomic Class-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 10 G: Address-wise Comparison of Total ACE-III Score (Mean ± SD)



In the present study, the mean ACE-III Language score among males ([redacted]) was [redacted], whereas among females ([redacted]) it was [redacted]. [redacted]

[redacted]

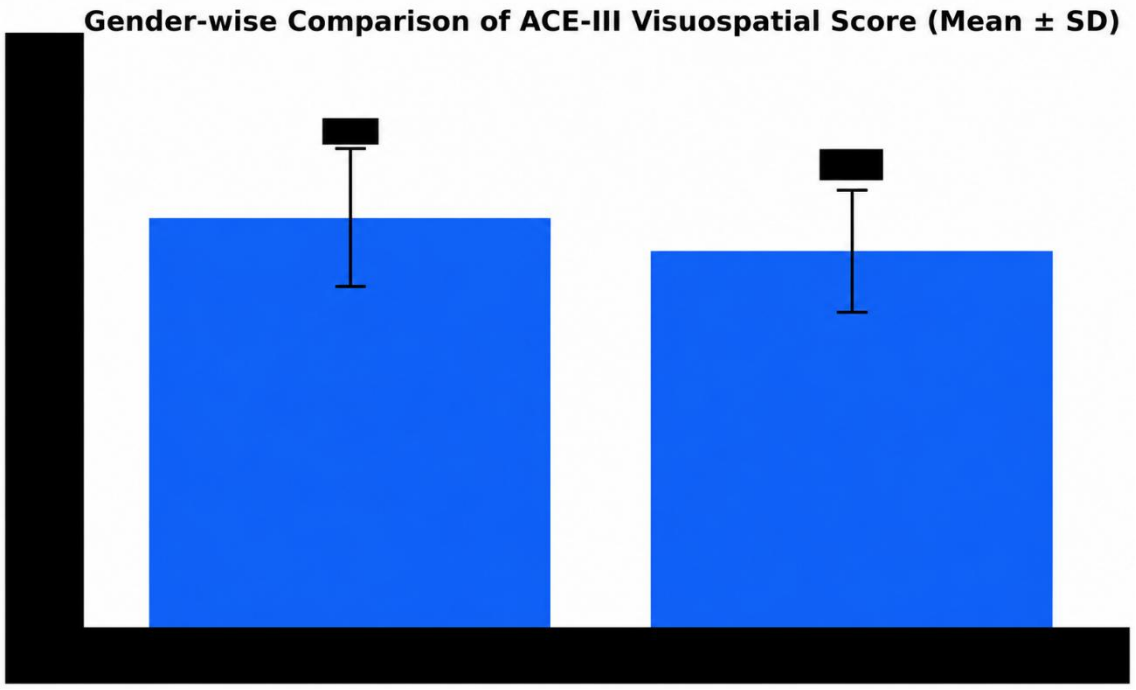
The difference was not statistically significant ([redacted]).

Table 11: Socio-demographic wise Comparison of ACE-III Visuospatial Score

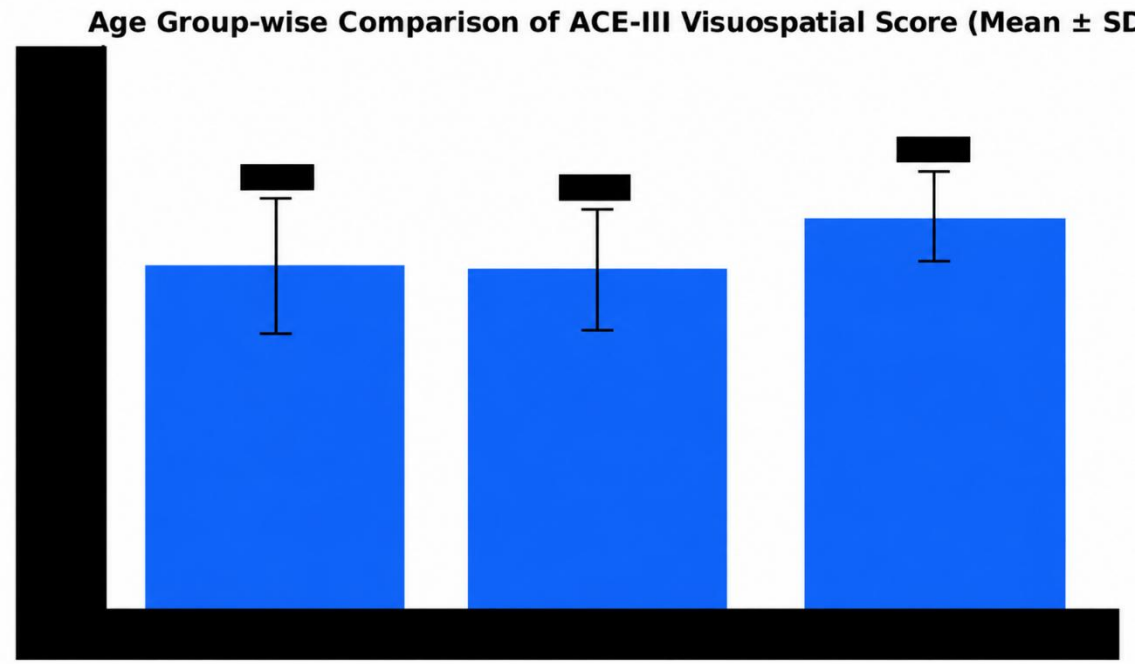
Socio-demographic	N	Visuospatial Score (Mean ± SD)	p-value
Gender			
Male	[redacted]	[redacted]	[redacted]
Female	[redacted]	[redacted]	
Age Group			
≥60 years	[redacted]	[redacted]	[redacted]
50-59 years	[redacted]	[redacted]	
<50 years	[redacted]	[redacted]	
Marital Status			
Divorced	[redacted]	[redacted]	[redacted]
Married	[redacted]	[redacted]	
Widowed	[redacted]	[redacted]	
Working Status			
Unemployed	[redacted]	[redacted]	[redacted]
Employed	[redacted]	[redacted]	
Self-employed	[redacted]	[redacted]	
Homemaker	[redacted]	[redacted]	
Education			
Primary	[redacted]	[redacted]	[redacted]
Secondary	[redacted]	[redacted]	
Graduate	[redacted]	[redacted]	
Uneducated	[redacted]	[redacted]	
Socioeconomic Class			
Upper Lower (IV)	[redacted]	[redacted]	[redacted]
Lower Middle (III)	[redacted]	[redacted]	
Lower (V)	[redacted]	[redacted]	
Upper Middle (II)	[redacted]	[redacted]	
Upper (I)	[redacted]	[redacted]	
Address			
Urban	[redacted]	[redacted]	[redacted]
Rural	[redacted]	[redacted]	

Independent t-test p-value

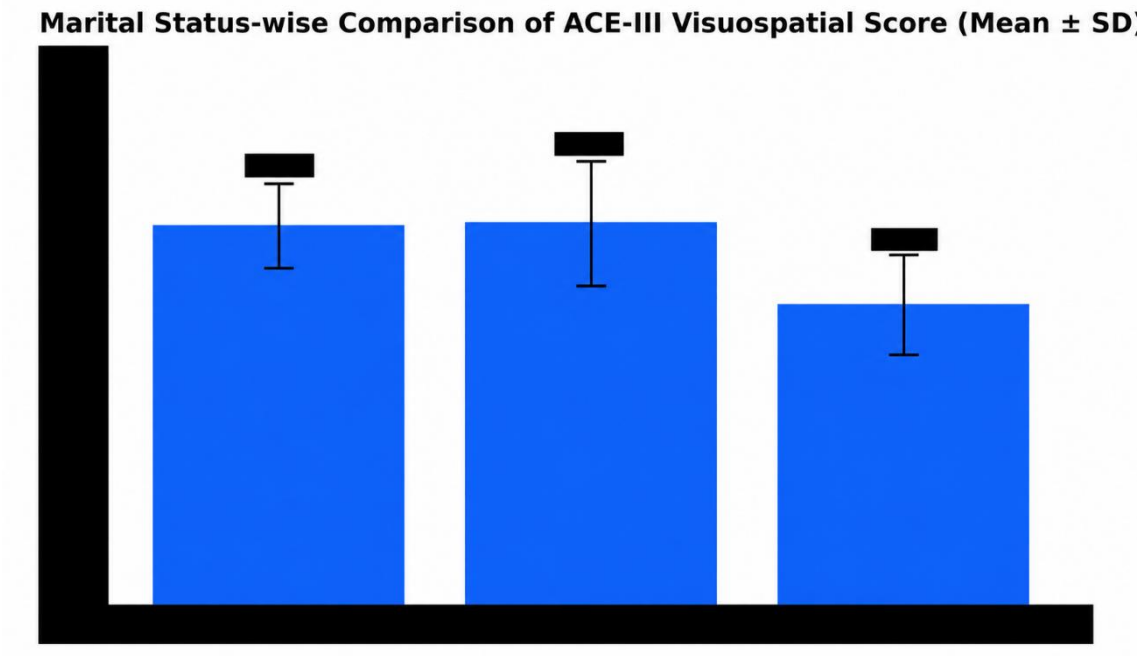
Graph 11 A: Gender-wise Comparison of Total ACE-III Score (Mean ± SD)



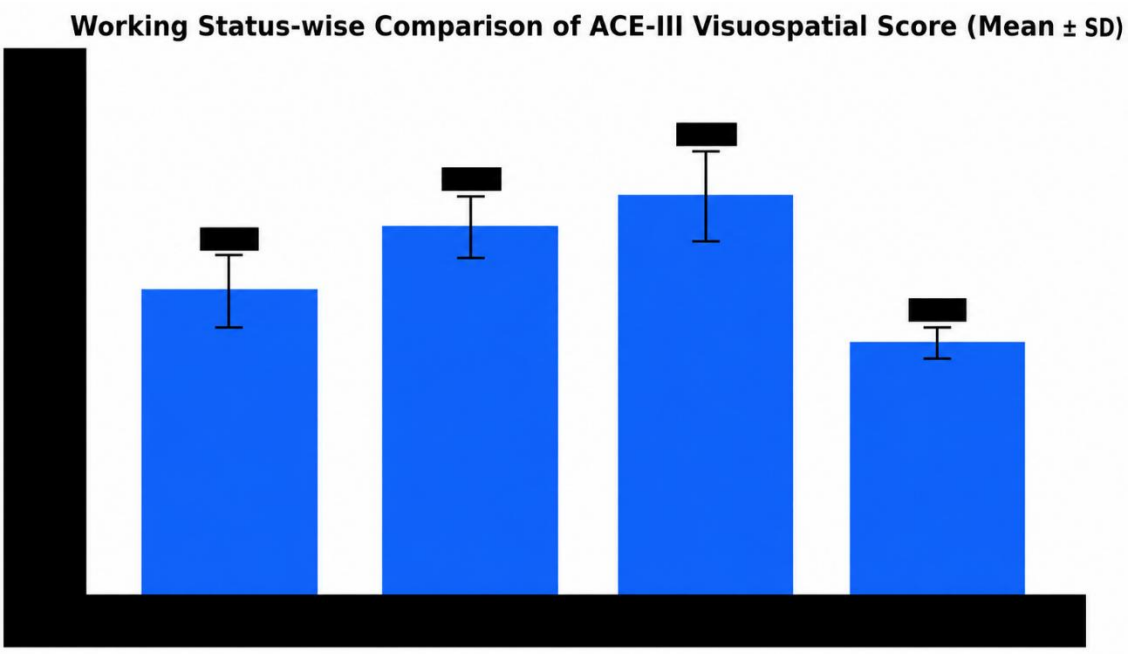
Graph 11 B: Age Group-wise Comparison of Total ACE-III Score (Mean ± SD)



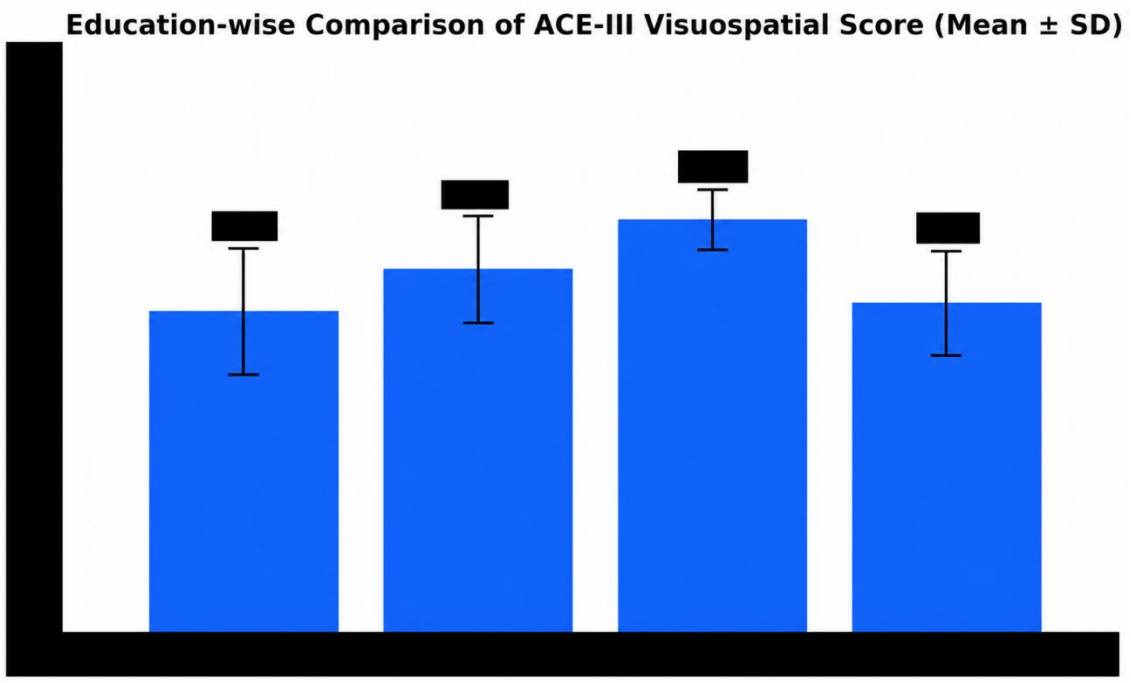
Graph 11 C: Marital Status-wise Comparison of Total ACE-III Score (Mean ± SD)



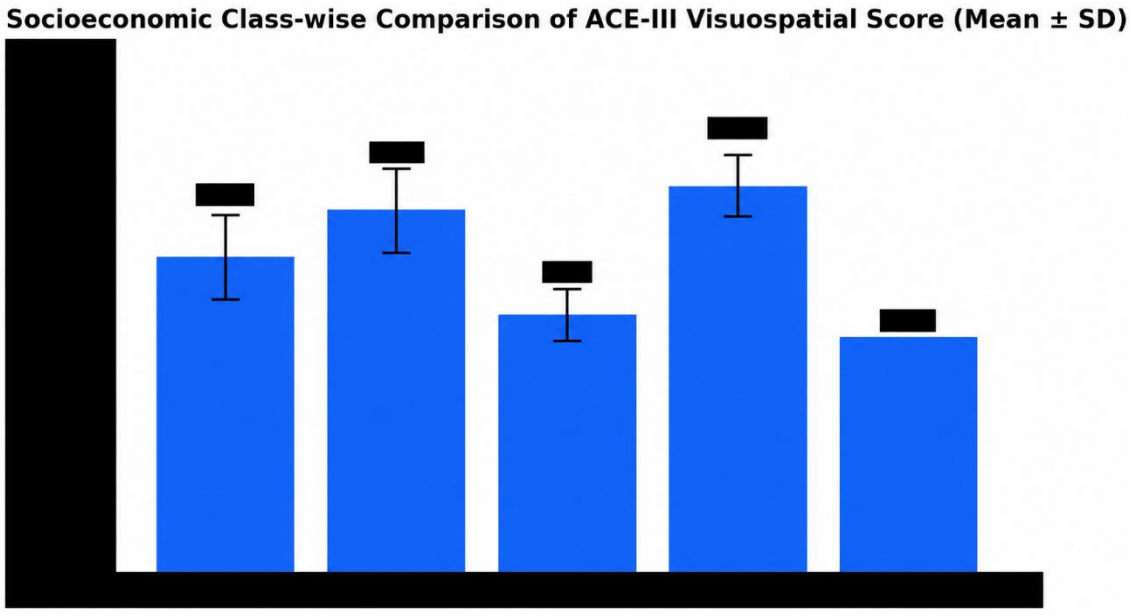
Graph 11 D: Working Status-wise Comparison of Total ACE-III Score (Mean ± SD)



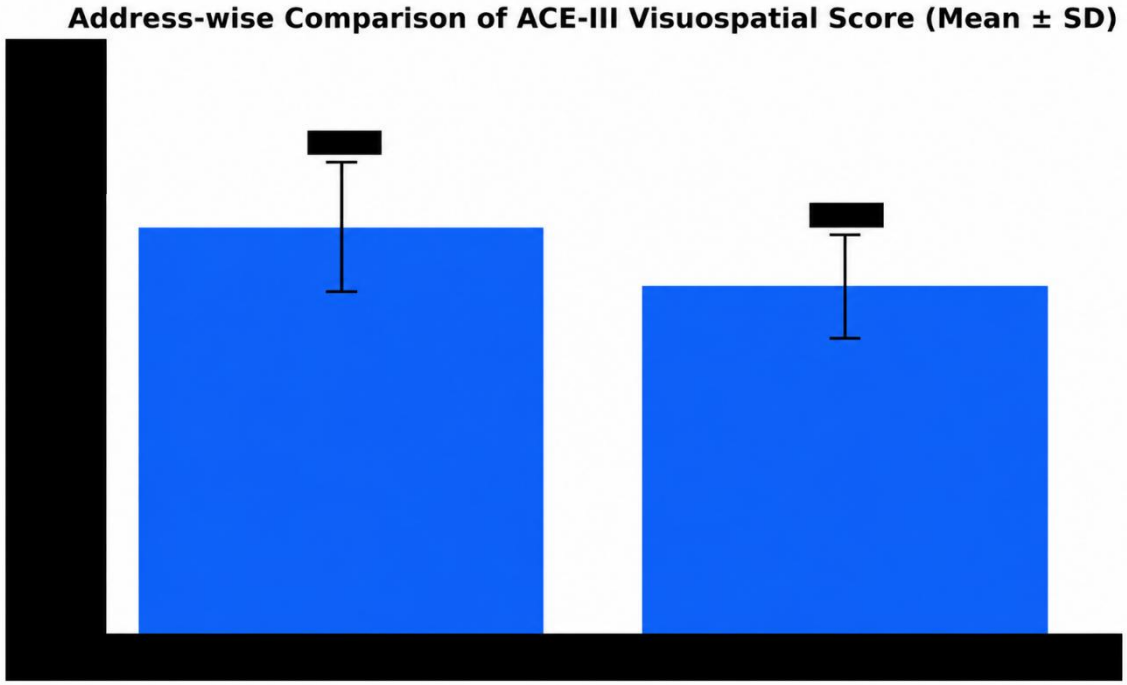
Graph 11 E: Education-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 11 F: Socioeconomic Class-wise Comparison of Total ACE-III Score (Mean ± SD)



Graph 11 G: Address-wise Comparison of Total ACE-III Score (Mean ± SD)



In the present study, the mean ACE-III Visuospatial score among males ([redacted]) was [redacted], whereas among females ([redacted]) it was [redacted]. [redacted]

[redacted]

[redacted]The difference was not statistically significant ([redacted]).

DISCUSSION

DISCUSSION

Type 2 Diabetes Mellitus is increasingly recognized as an important risk factor for cognitive impairment, affecting multiple cognitive domains including attention, memory, language, fluency and visuospatial abilities. [redacted]

The findings of the present study are discussed in relation to previously published literature to determine the influence of sociodemographic characteristics on cognitive function among patients with Type 2 Diabetes Mellitus.

Age distribution in the study population

In the present study, the mean age of patients with Type 2 Diabetes Mellitus was [redacted] years, with a median age of [redacted] years. [redacted]

[redacted] Compared with their older cohort, the present study included relatively younger diabetic patients, which may help in identifying early cognitive deficits before severe age-related decline develops.

Family Income in the Study Population

In the present study, the mean family income was [redacted], with a median income of [redacted]. [redacted]

[redacted] These findings support

the inclusion of family income as an important sociodemographic variable in the present study. [redacted]

Sociodemographic characteristics of the study population

In the present study, males constituted [redacted] and females [redacted], showing a slight male predominance. [redacted]

[redacted] Aderinto et al. (2023) also emphasized that demographic and social determinants contribute to cognitive impairment in diabetes (89).

[redacted]

Duration of Type 2 Diabetes Mellitus

In the present study, the mean duration of Type 2 Diabetes Mellitus was 8[redacted] years**,** with a median duration of [redacted] years**.** The duration ranged from [redacted] years, and the [redacted] confidence interval was [redacted] years**.** [redacted]

[redacted] Their findings further support the clinical importance of cognitive assessment in individuals with long-standing diabetes. [redacted]

ACE-III Cognitive Scores in the Study Population

In the present study, the mean ACE-III attention score was [redacted], memory score was [redacted], fluency score was [redacted], language score was [redacted] and visuospatial score was [redacted]. [redacted]

[redacted]

Similarly, the mean

total ACE-III scores of 78.34 ± 9.78 observed in the present study underscores the importance of routine cognitive assessment among patients with Type 2 Diabetes Mellitus.

[redacted]

Sociodemographic-wise Comparison of Total ACE-III Score

In the present study, total ACE-III score demonstrated significant associations with gender, age group, educational status, working status and socioeconomic class. [redacted]

[redacted] Their findings support the clinical significance of the reduced cognitive scores observed among socioeconomically disadvantaged and less educated participants in the present study. [redacted]

Sociodemographic-wise Comparison of ACE-III Attention Score

In the present study, ACE-III attention score showed significant associations with gender, age group, working status, educational status and socioeconomic class. [redacted]

Similar to the present study, the authors emphasized the importance of identifying cognitive deficits in diabetic patients and understanding factors associated with impaired cognitive performance.

Sociodemographic-wise Comparison of ACE-III Memory Score

In the present study, ACE-III memory score demonstrated significant associations with gender, age group, working status, educational status and socioeconomic class.

[redacted] Their findings support the clinical significance of the cognitive deficits observed in the present study and emphasize the importance of early identification of cognitive impairment in diabetic patients. [redacted]

Sociodemographic-wise Comparison of ACE-III Fluency Score

In the present study, ACE-III fluency score demonstrated significant associations with gender, age group, working status, educational status, socioeconomic class and domicile. [redacted]

[redacted]. These findings are consistent with the present study, where significant sociodemographic differences were observed in fluency-related cognitive performance. [redacted]

[redacted]

Sociodemographic-wise Comparison of ACE-III Language Score

In the present study, ACE-III language score showed significant association with age group, educational status and socioeconomic class. [redacted]

[redacted] Their study evaluated demographic variables while interpreting cognitive performance, which is comparable to the present study where language scores varied significantly across age and educational groups. [redacted]

Sociodemographic-wise Comparison of ACE-III Visuospatial Score

In the present study, ACE-III visuospatial score demonstrated significant associations with age group, working status, educational status and socioeconomic class. [redacted]

[redacted] These findings are consistent with the present study, where visuospatial performance varied significantly according to age, education and socioeconomic characteristics. [redacted]

CONCLUSION

CONCLUSION

The present study was conducted to assess the correlation between cognitive deficit and sociodemographic factors among patients with Type 2 Diabetes Mellitus attending a tertiary care hospital. [redacted]

[redacted]

Routine cognitive assessment using comprehensive tools such as ACE-III may facilitate early identification of cognitive impairment in diabetic patients and help in planning targeted interventions aimed at improving diabetes self-management, treatment adherence and overall quality of life.

SUMMARY

SUMMARY

The present study titled “To Assess the Correlation Between Cognitive Deficit and Sociodemographic Factors in Patients with Type 2 Diabetes Mellitus at a Tertiary Care Hospital” was conducted among 110 patients with Type 2 Diabetes Mellitus. [redacted]

[redacted]

[redacted] The study highlights the importance of routine cognitive screening in diabetic patients, especially among older individuals and those with lower educational and socioeconomic backgrounds, to facilitate early identification of cognitive impairment and improve overall disease management.

STRENGTHS & LIMITATIONS

STRENGTHS OF THE STUDY

1. The study specifically evaluated the correlation between cognitive deficit and sociodemographic factors in patients with Type 2 Diabetes Mellitus, an area of increasing clinical importance.

8. Statistical analysis was performed to identify significant associations between sociodemographic factors and cognitive domains, enhancing the scientific validity of the findings.

LIMITATIONS OF THE STUDY

1. The cross-sectional study design limits the ability to establish causal relationships between sociodemographic factors and cognitive impairment.

[redacted]

10. Long-term follow-up was not undertaken; therefore, the impact of cognitive impairment on future clinical outcomes and disease progression could not be assessed.

FUTURE DIRECTIONS

[redacted]

1. Longitudinal cohort studies with regular follow-up (at 1, 2, and 5 years) are needed to track the trajectory of cognitive decline in T2DM patients across different sociodemographic subgroups. This would help identify which sociodemographic factors accelerate or protect against cognitive progression over time.

[redacted]

[redacted]

[redacted]

[redacted]

10. Economic analysis of the cost-effectiveness of routine cognitive screening in T2DM diabetic OPDs, particularly targeting high-risk sociodemographic groups identified in this study, would provide policy-level evidence to support the integration of cognitive assessment into standard diabetes care protocols in India.

BIBLIOGRAPHY

BIBLIOGRAPHY

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2. Buschur EO, Lawrence S. Type 1 diabetes. In: Care of adults with chronic childhood conditions: a practical guide. Cham: Springer; 2024. p. 131-147.

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

95. Ma X, Gao H, Wu Y, Zhu X, Wu S, Lin L. Investigating modifiable factors associated with cognitive decline: insights from the UK Biobank. Biomedicines. 2025;13(3):549.

ANNEXURES

ANNEXURE

CASE RECORD FORM

[redacted]

Demographic Details

[redacted]

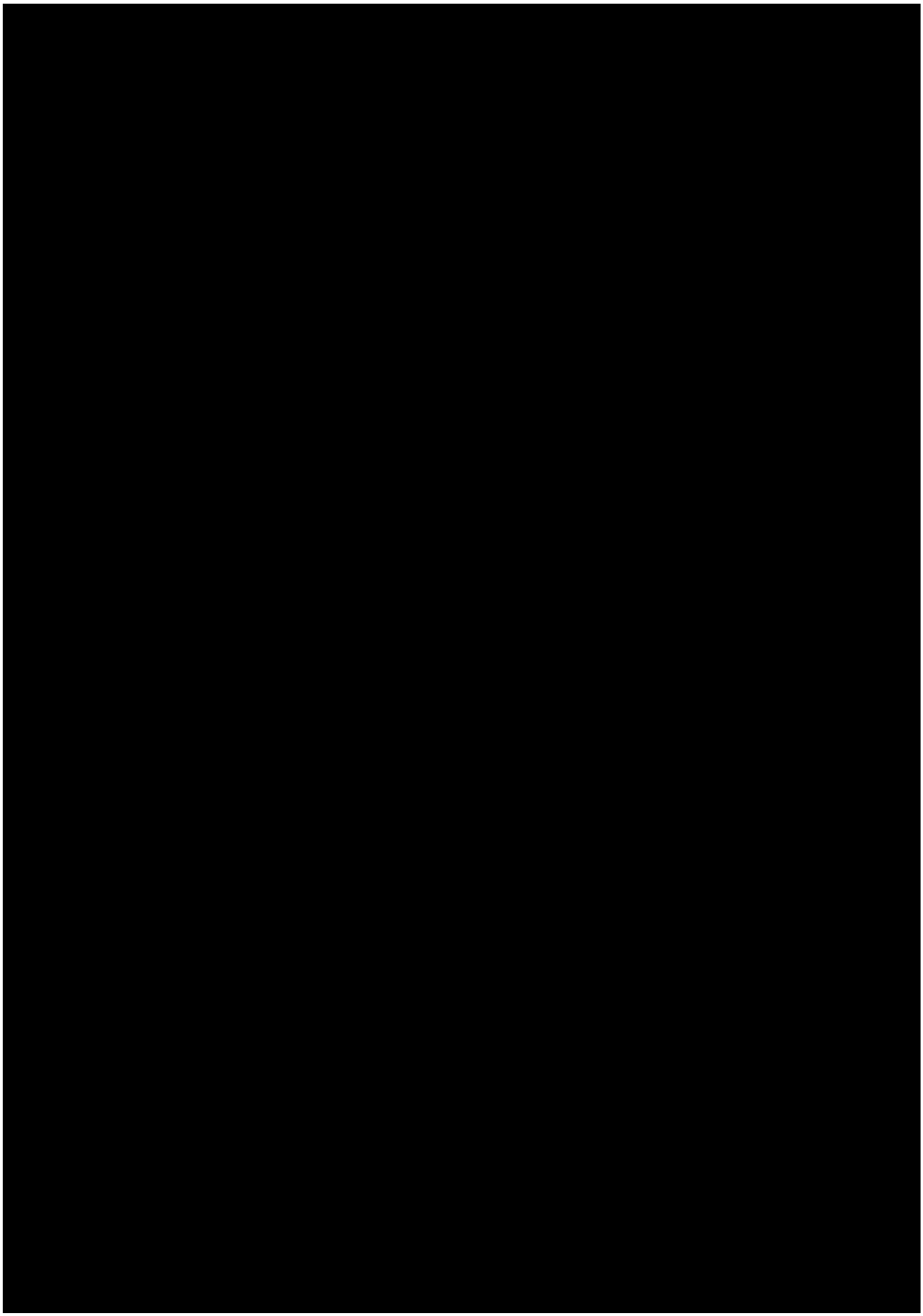
Socioeconomic Details

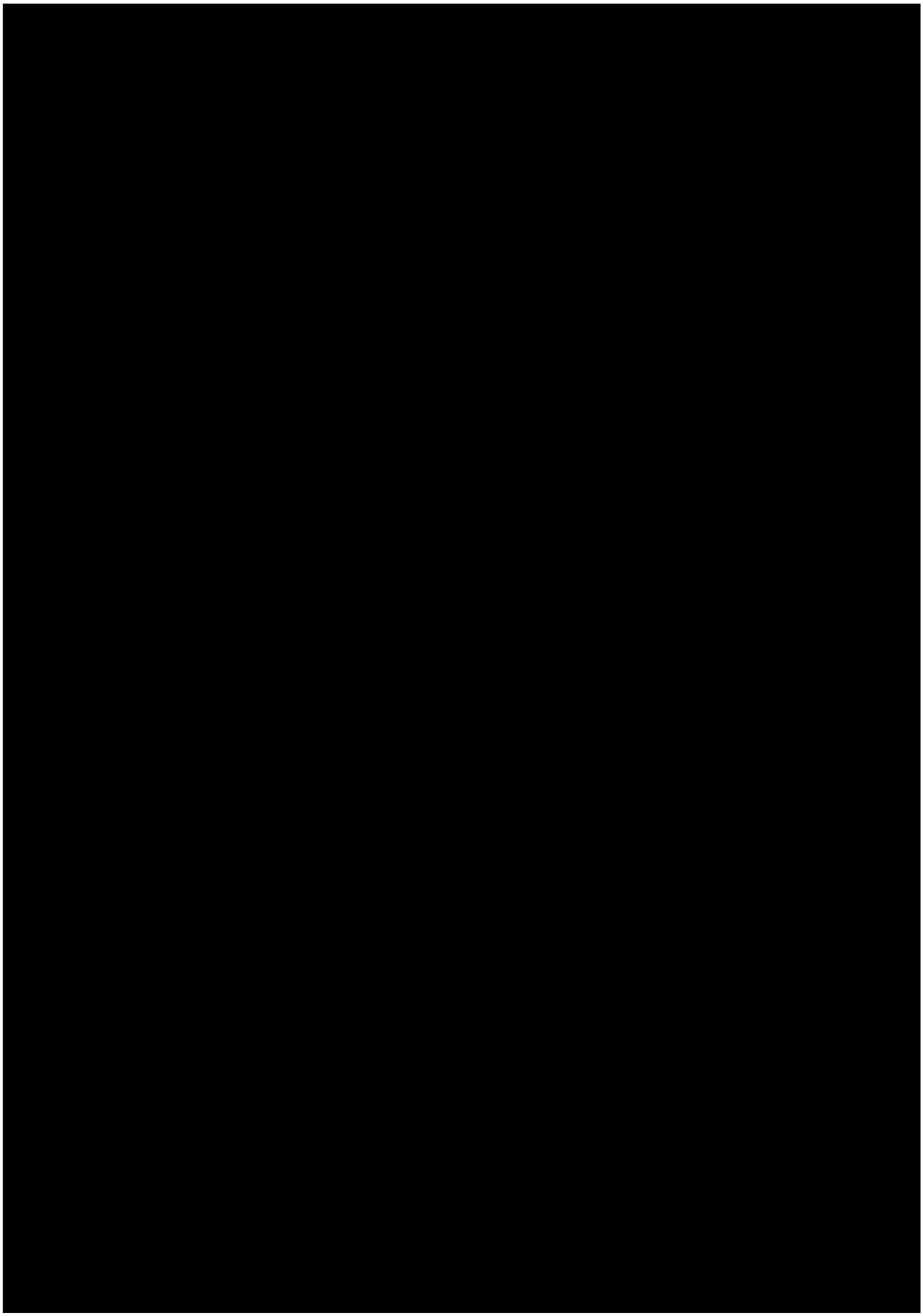
[redacted]

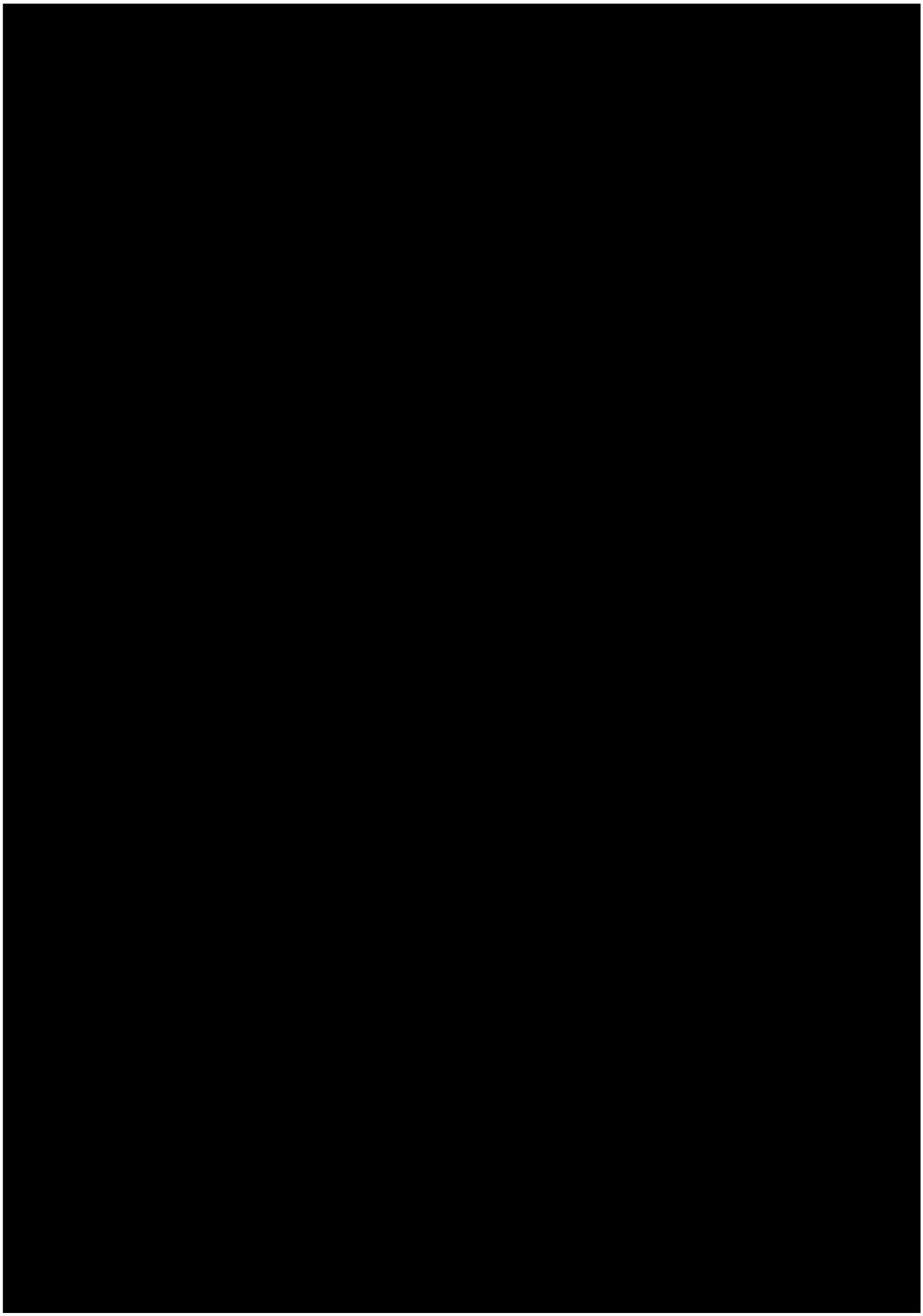
Clinical Details

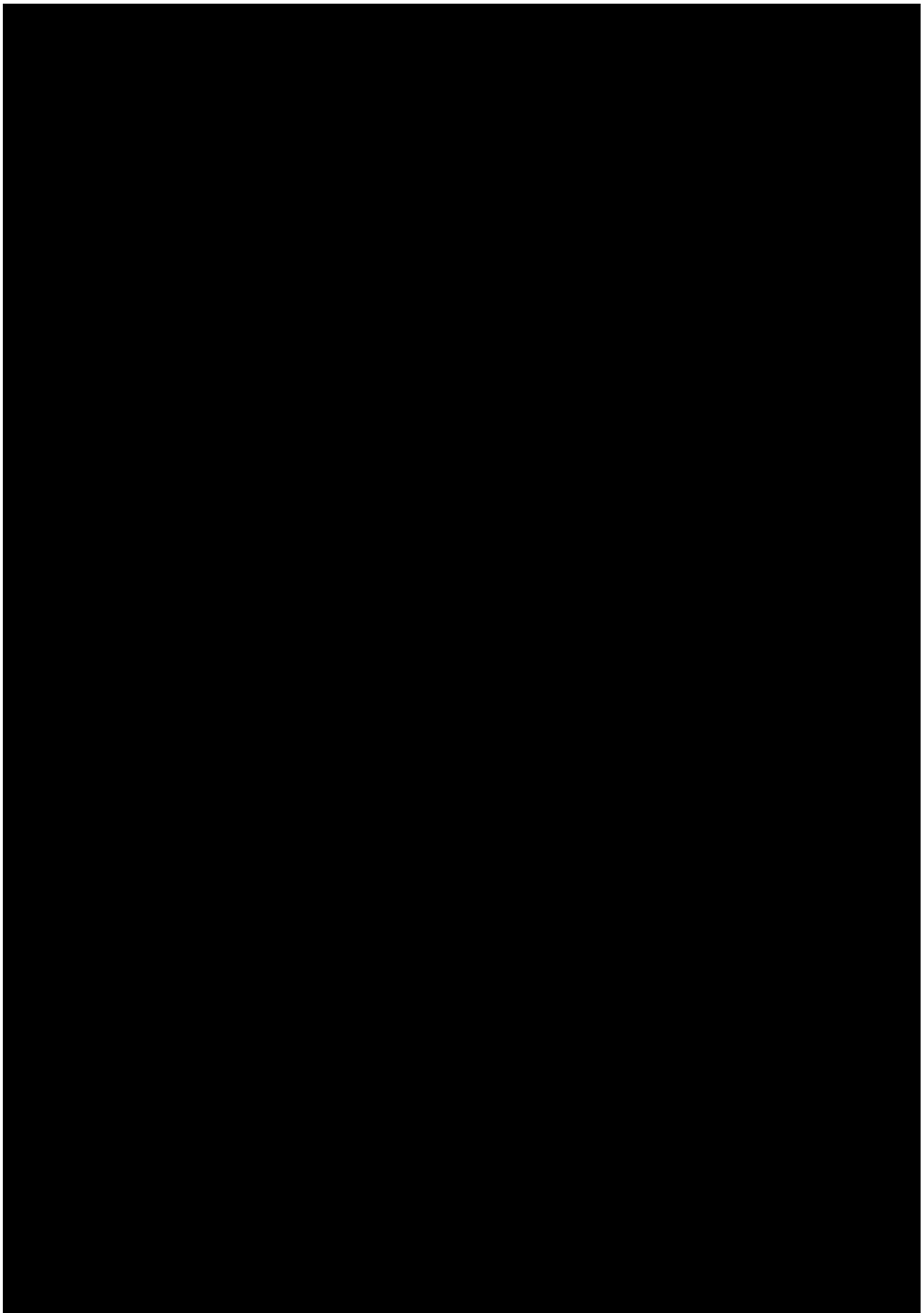
[redacted]

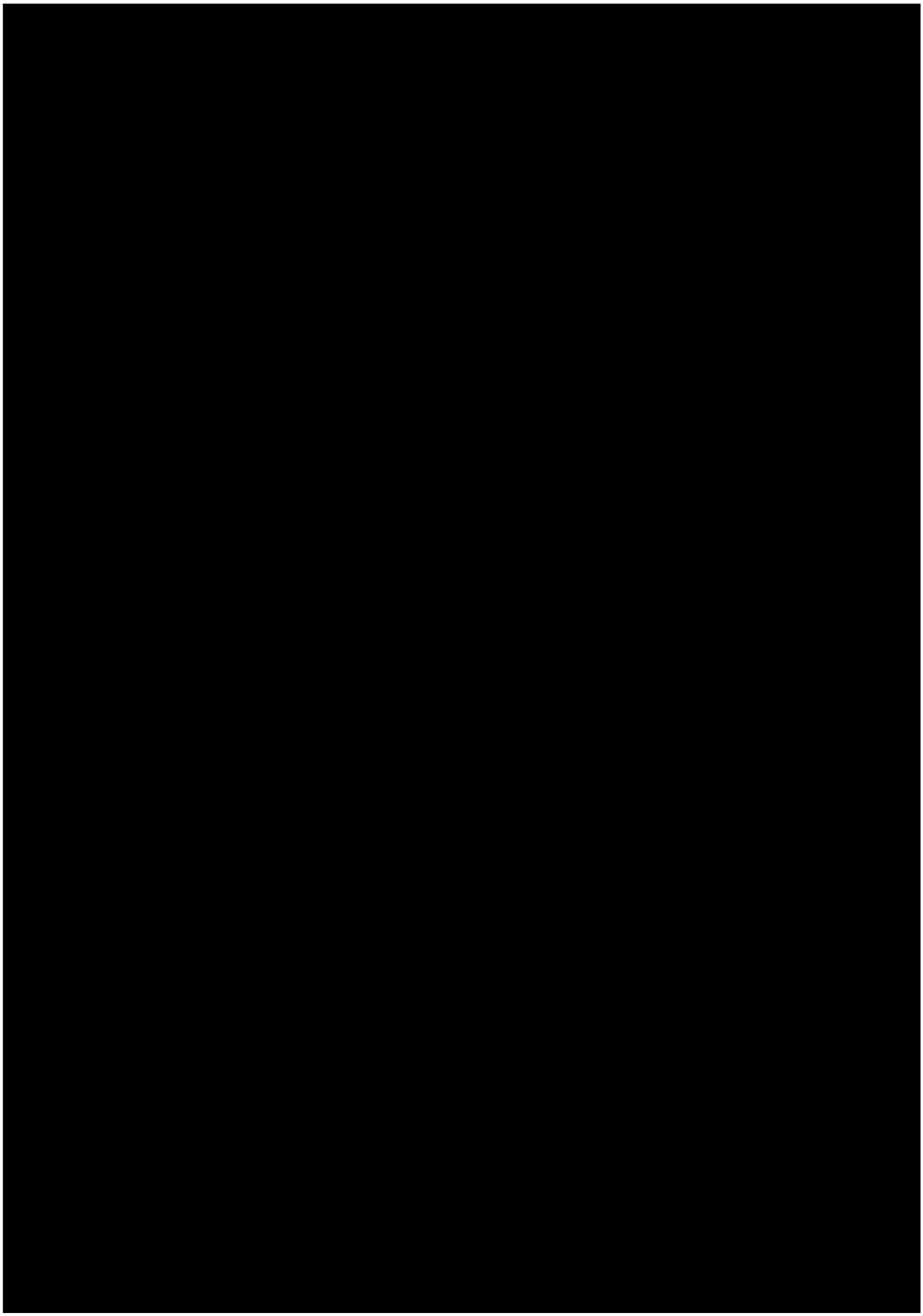
ADDENBROOKE'S COGNITIVE EXAMINATION

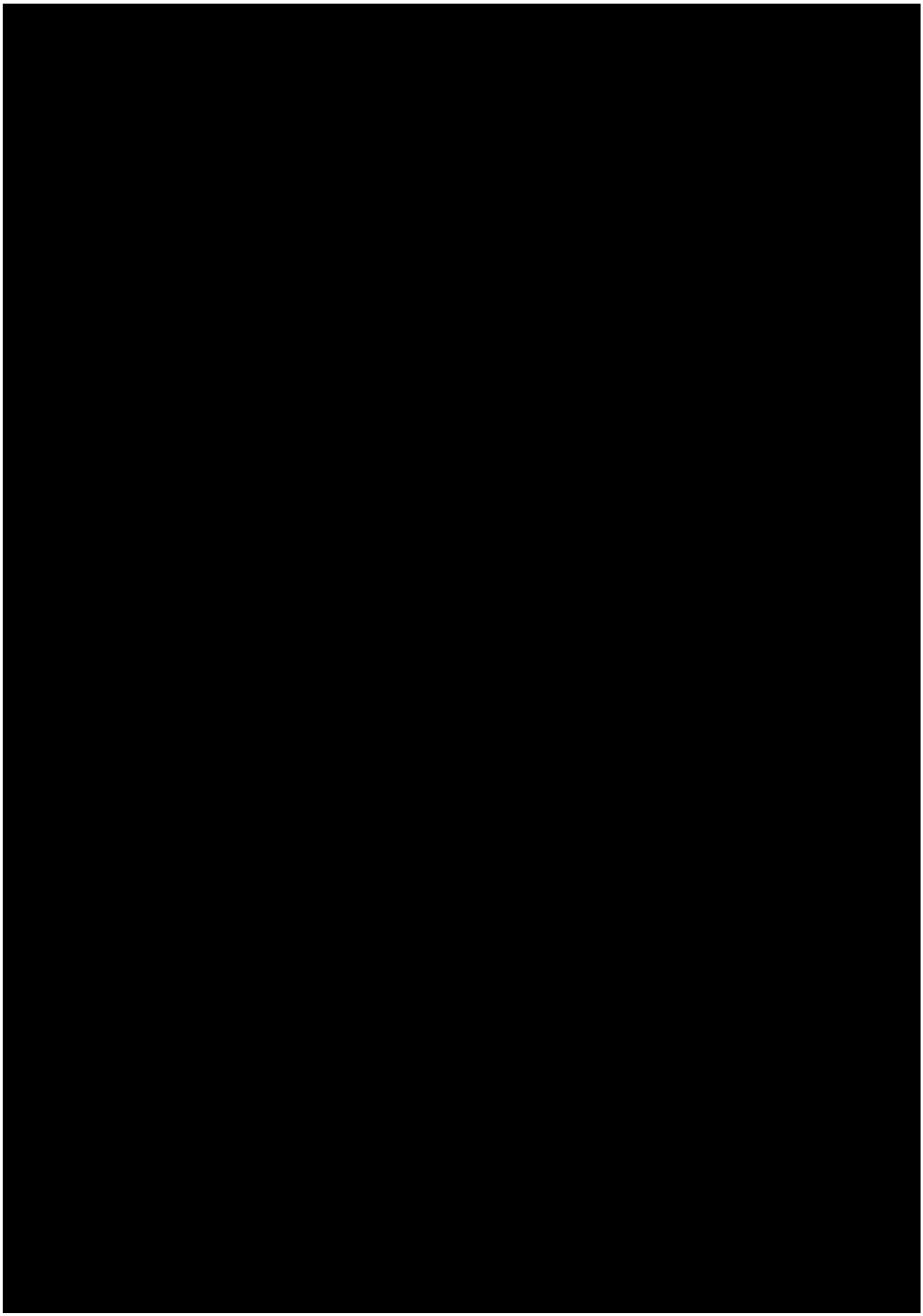


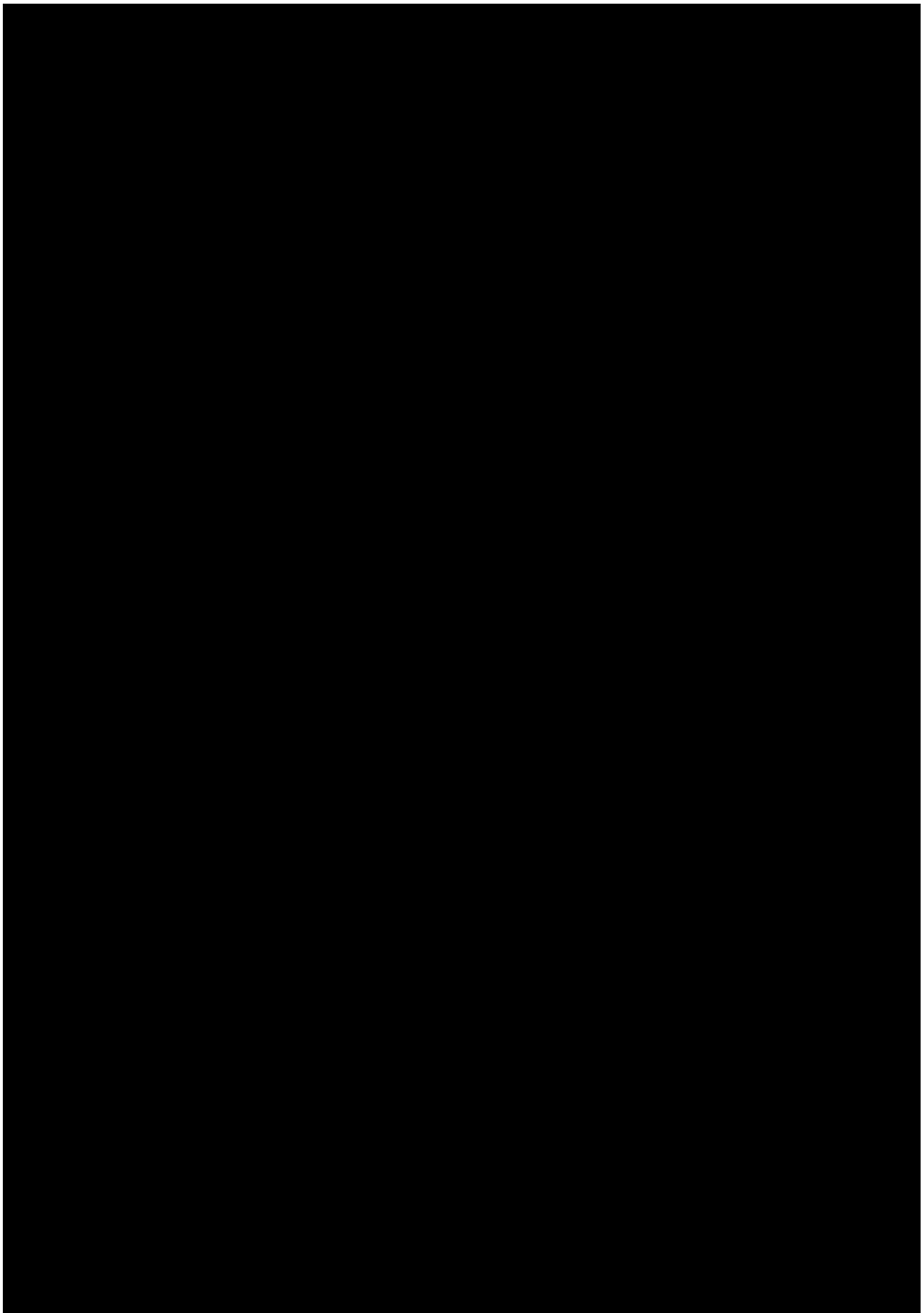


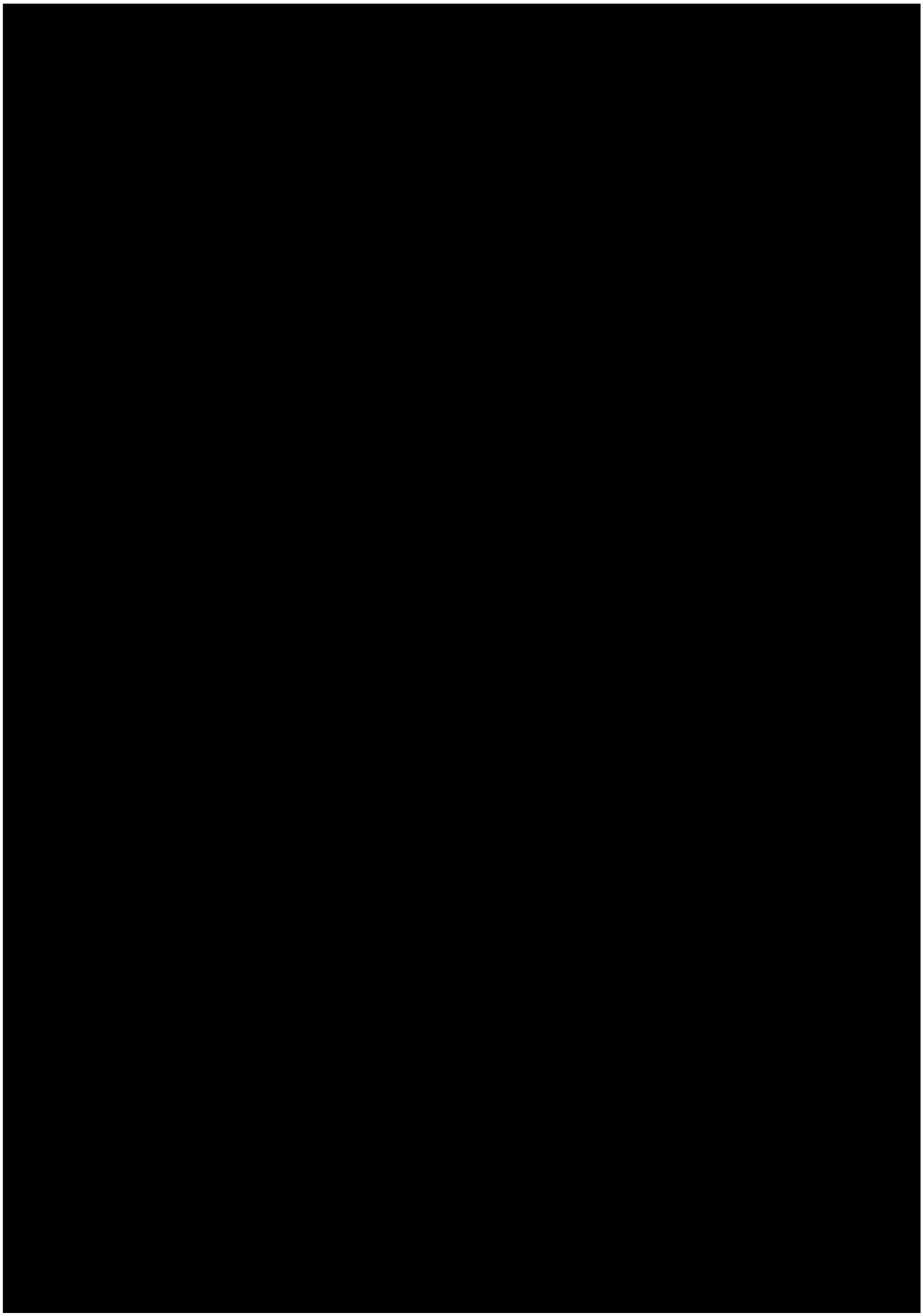


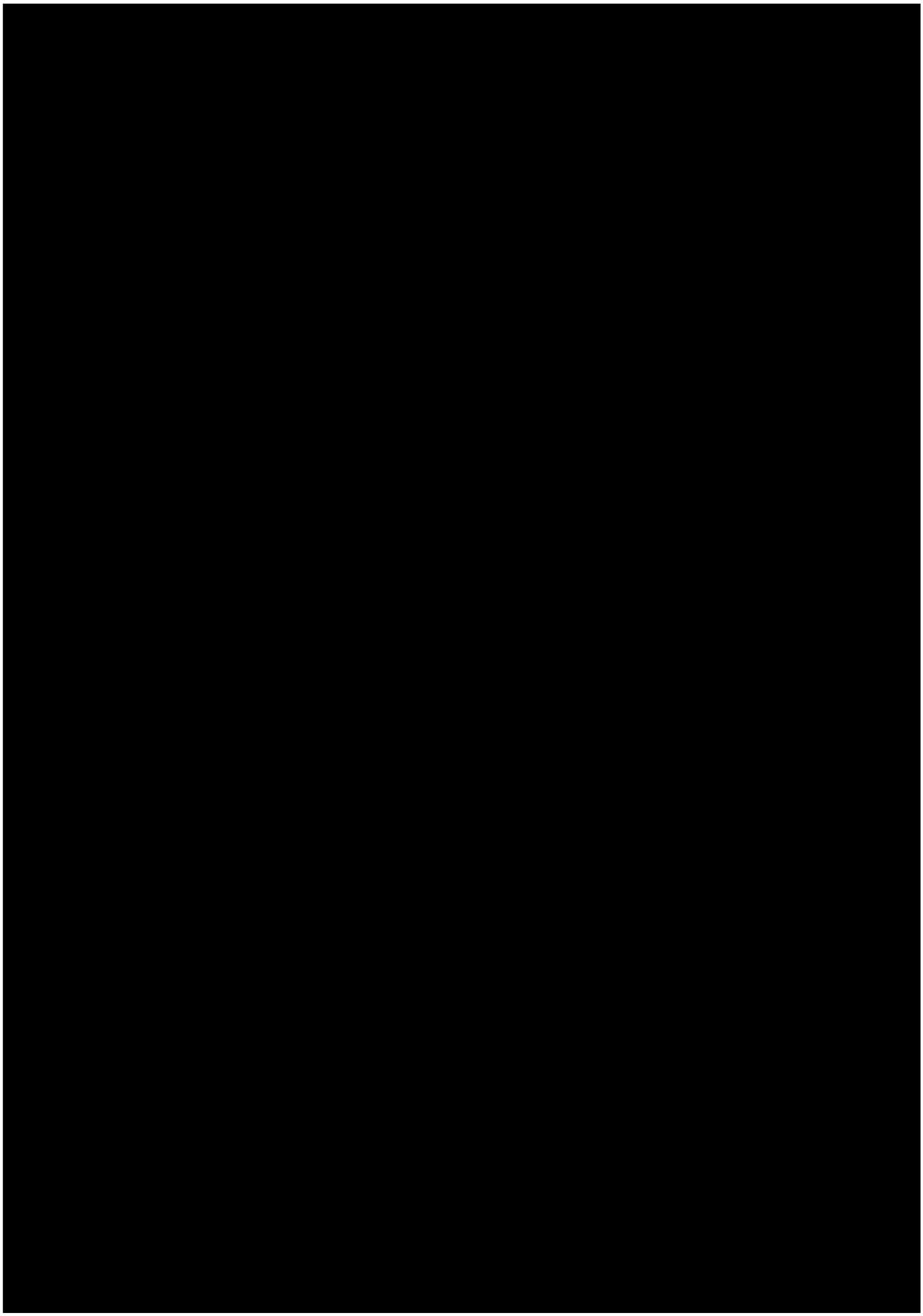


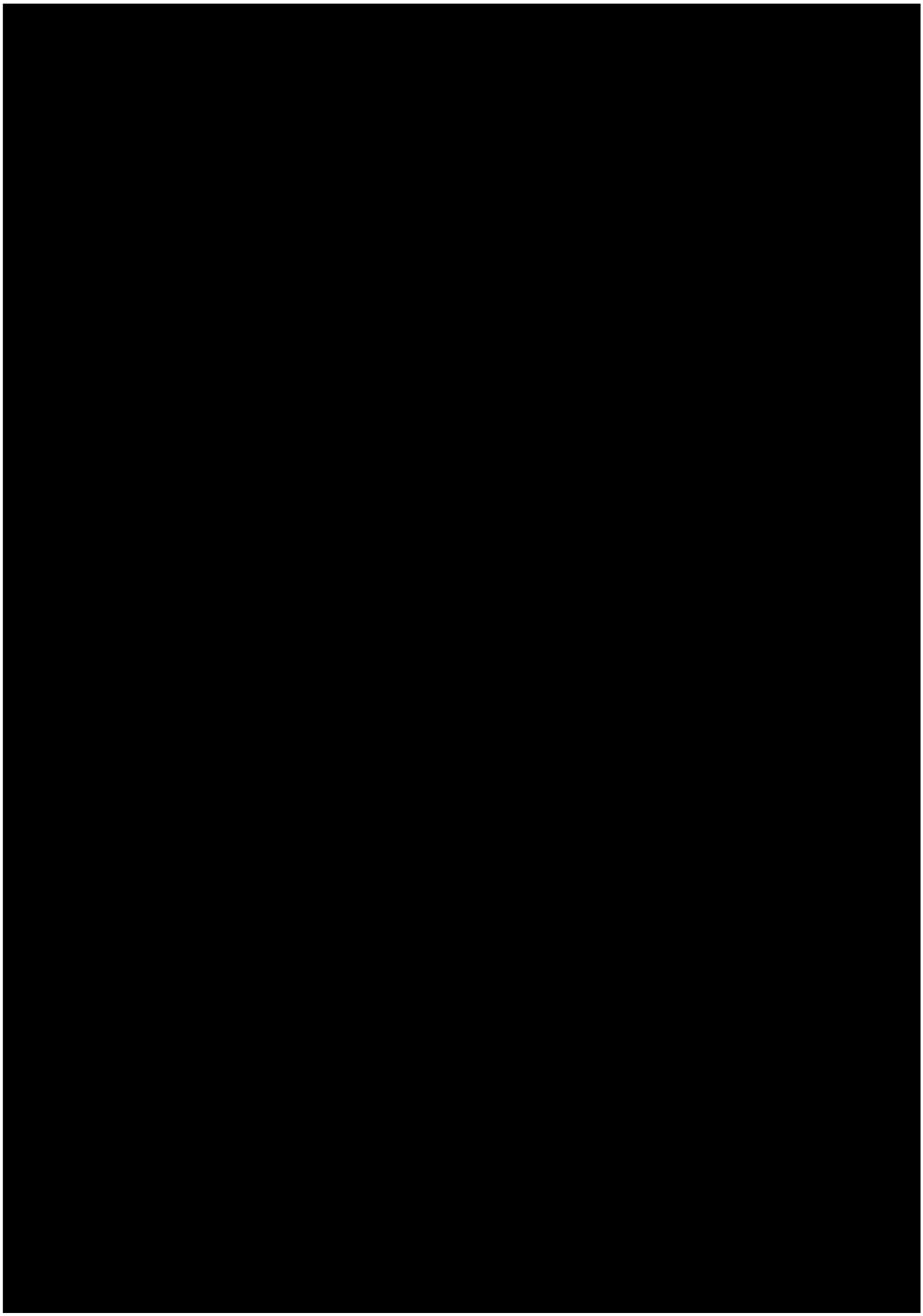


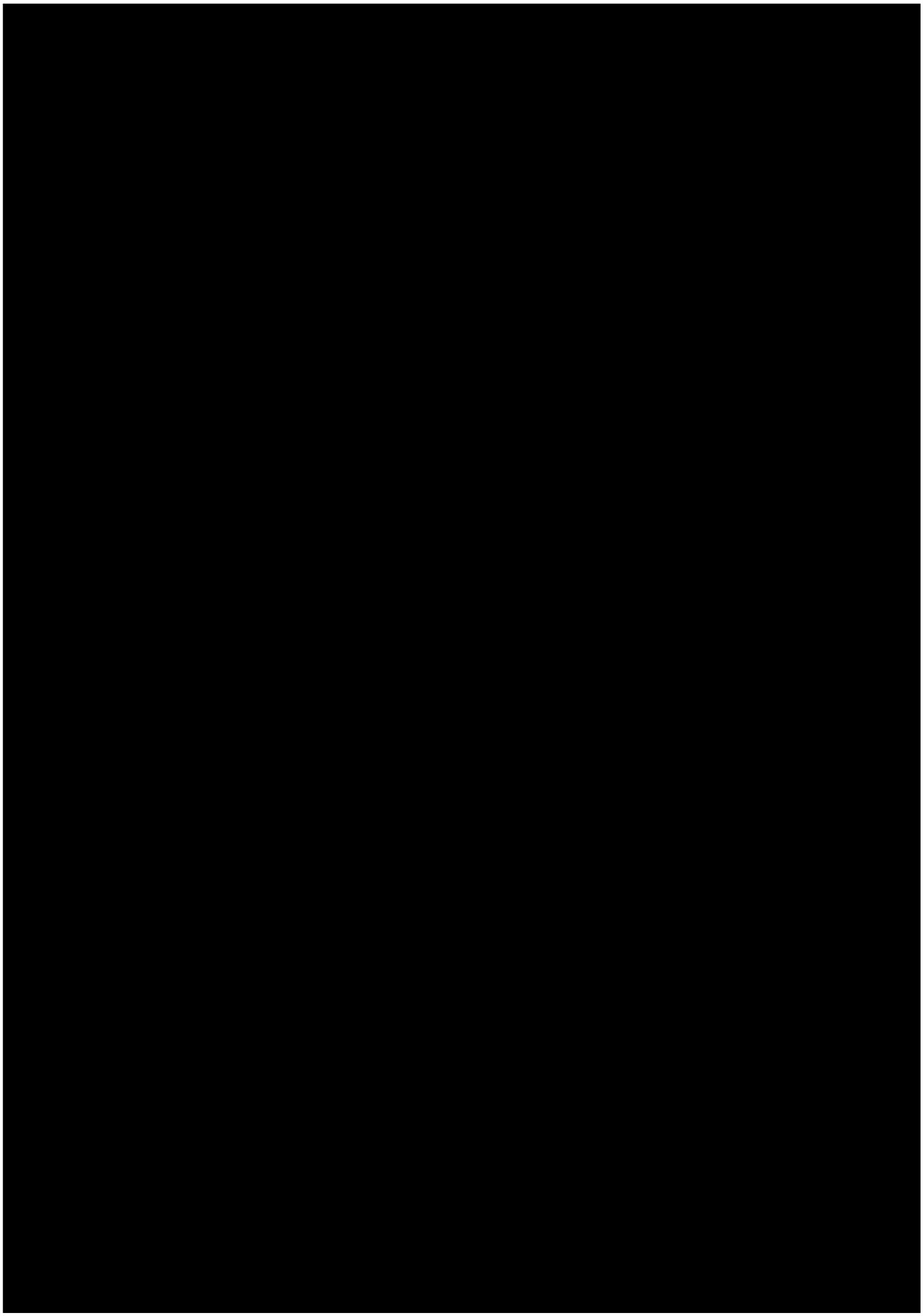


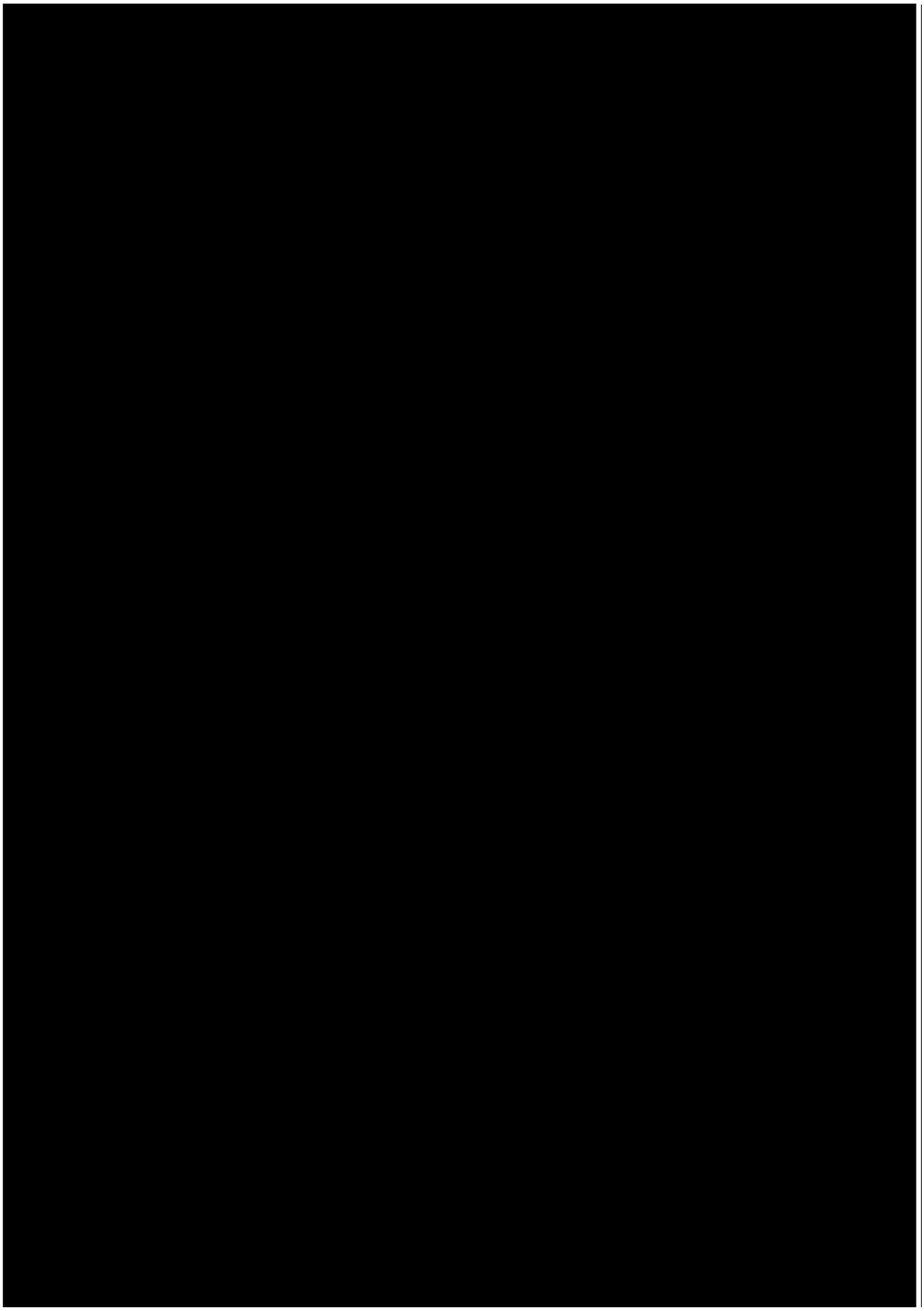


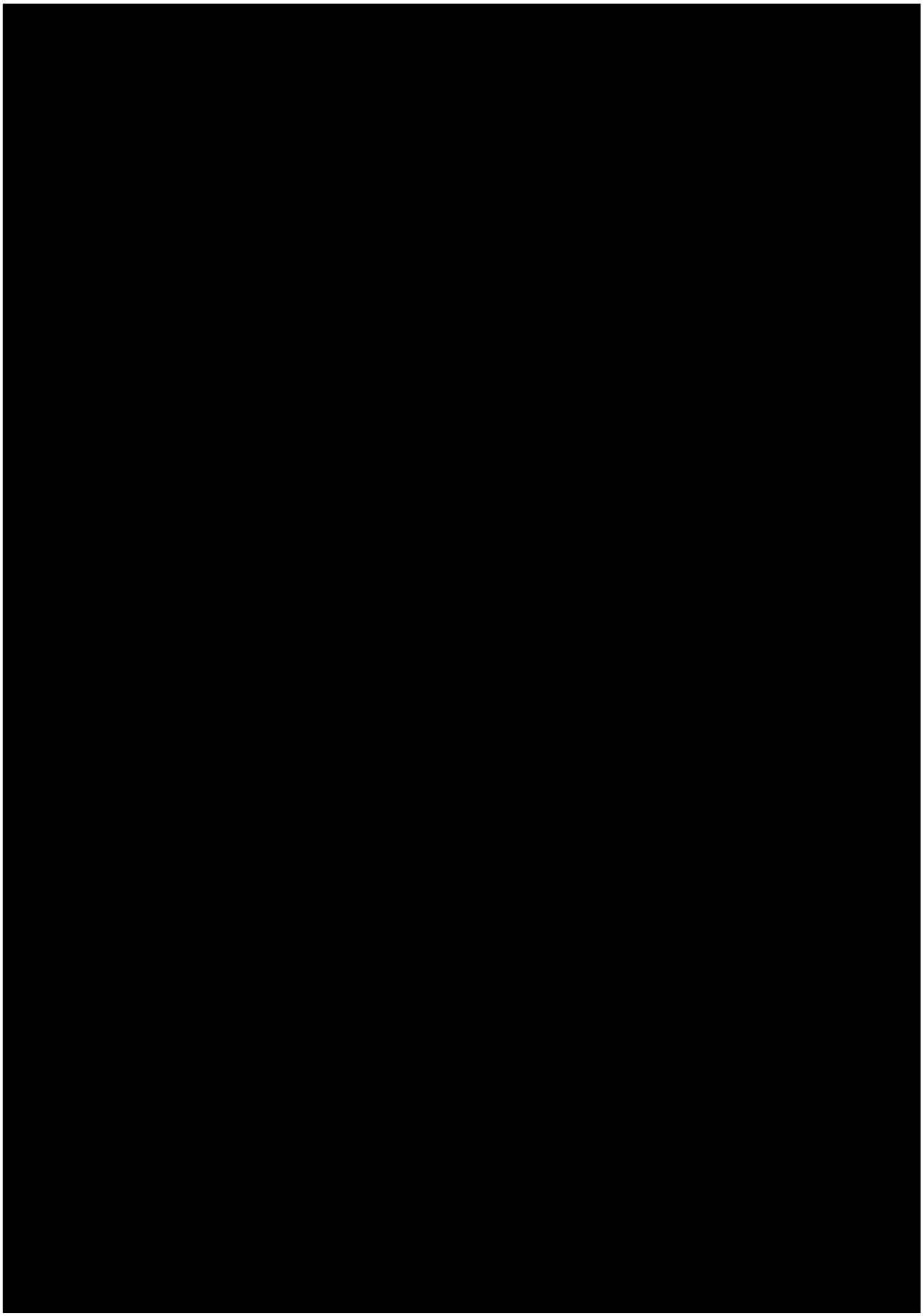


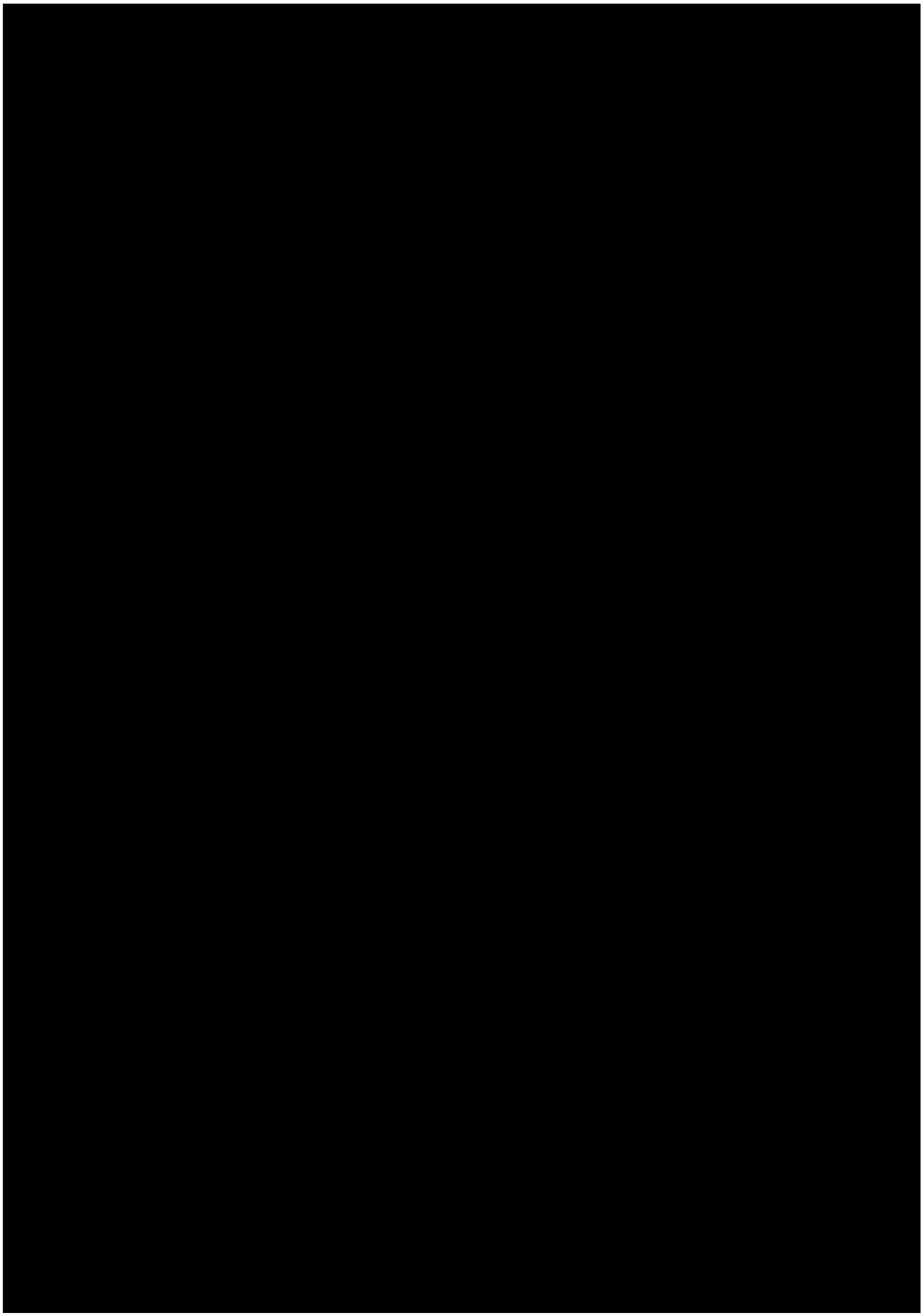


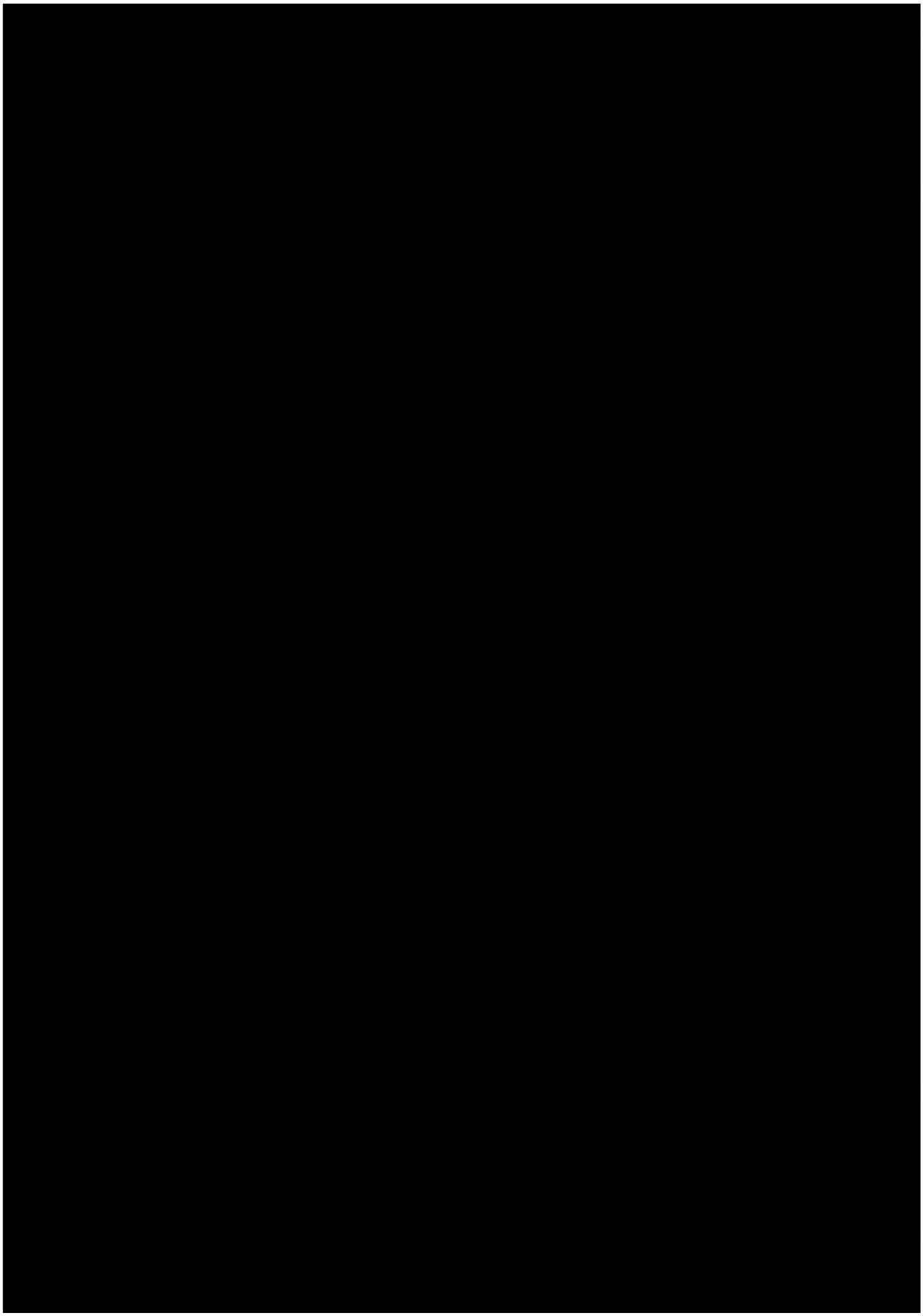


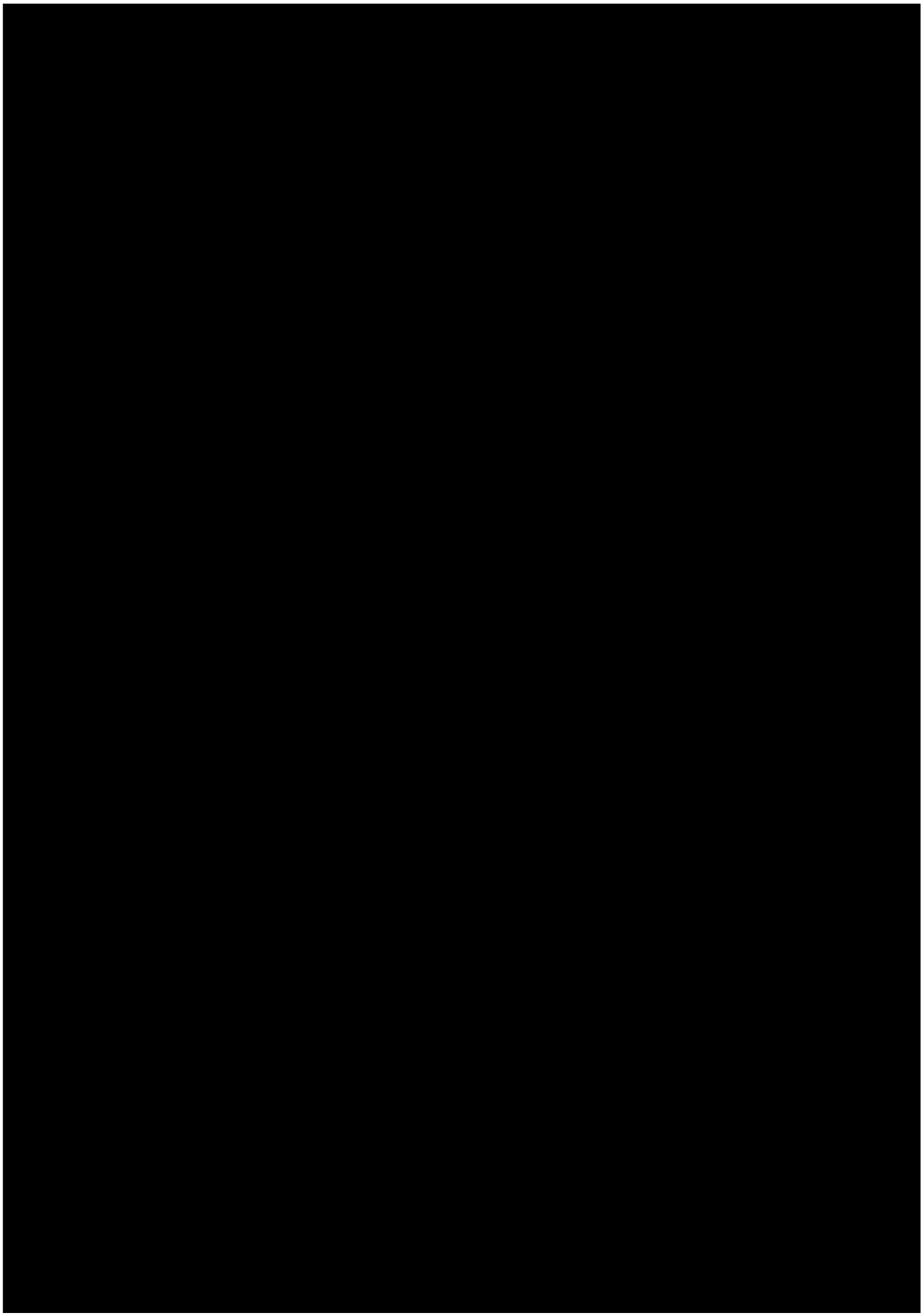


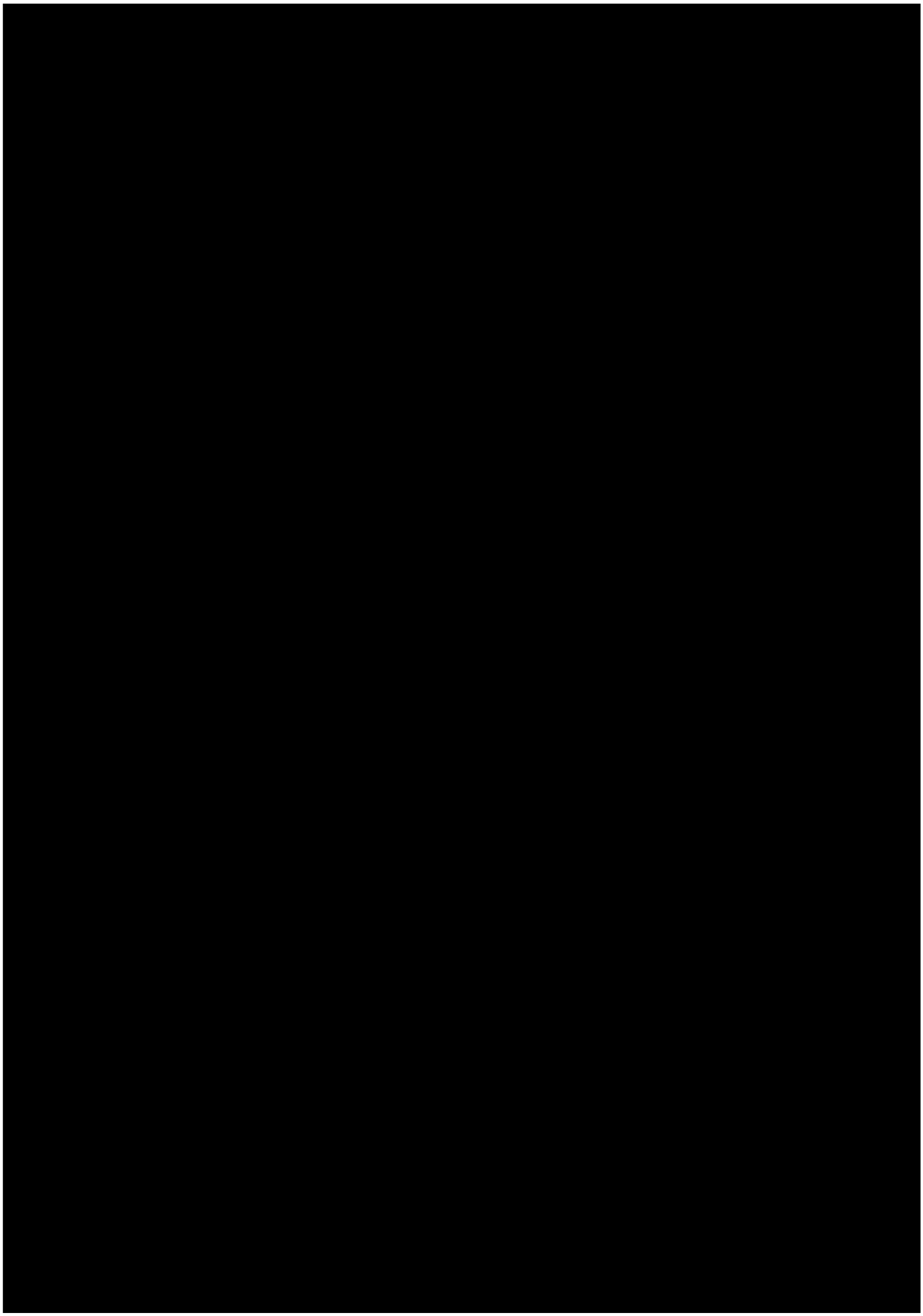


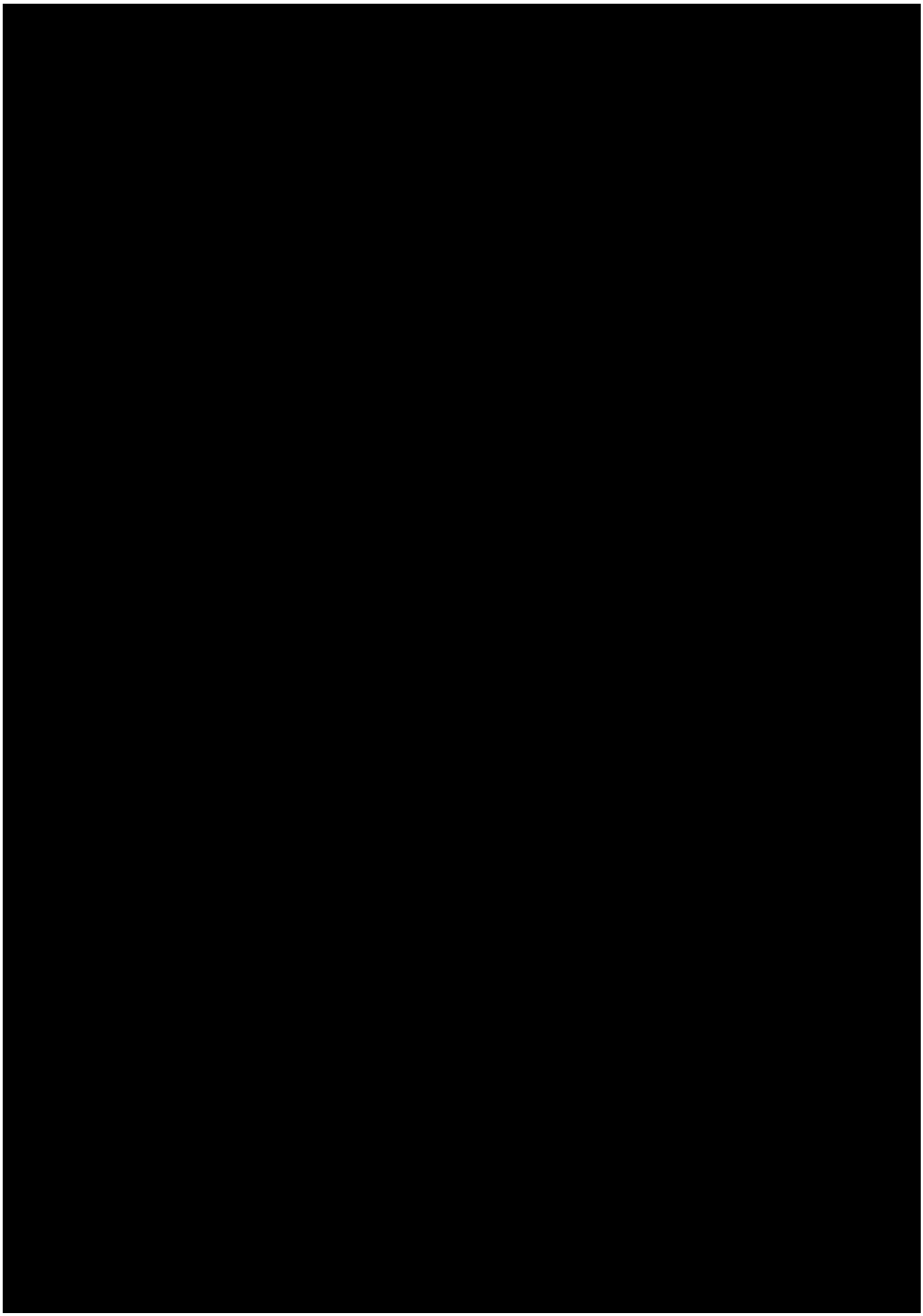












Modified Kuppuswamy Scale [27]

1. **Occupation of Head of the Family:**

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

2. **Education of the Head of the Family**

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

3. **Total monthly income of the family**

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]

4. **Modified Kuppuswamy's socio-economic status scale 2022**

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[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

INFORMED CONSENT FORM

[redacted]

सूचित सहमति प्रपत्र

सूचित संमती अर्ज

[redacted]

MASTERCHART

MASTERCHART

Sr No	Patient Name Initial	Age	Gender	Religion	Address	Working Status	Marital Status	Family Type	Education	Family Income (₹)	Socioeconomic Class	Duration of T2DM (Years)	ACE-III Attention	ACE-III Memory	ACE-III Fluency	ACE-III Language	ACE-III Visuospatial	Total ACE-III Score
1	[redacted]	64	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
2	[redacted]	50	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
3	[redacted]	63	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
4	[redacted]	52	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
5	[redacted]	45	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
6	[redacted]	52	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
7	[redacted]	59	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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13	[redacted]	52	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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21	[redacted]	61	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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96	[redacted]	49	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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98	[redacted]	51	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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104	[redacted]	55	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
105	[redacted]	49	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
106	[redacted]	60	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
107	[redacted]	53	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
108	[redacted]	47	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
109	[redacted]	51	Female	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
110	[redacted]	64	Male	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]