

Structural Design, Architectural Planning and Mental Health: A Psychoanalytic Interpretation Based on Sigmund Freud's Theory

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Abstract—The built environment plays a crucial role in shaping human behavior, emotional well-being, and psychological health. With rapid urbanization and increasing dependence on indoor environments, understanding the relationship between architectural design and mental health has become an important interdisciplinary research area. While previous studies have explored the impact of environmental factors such as natural lighting, ventilation, green spaces, acoustic comfort, and spatial organization on psychological well-being, limited attention has been given to interpreting these effects through established psychological theories. This study examines the influence of structural design and architectural planning on mental health using Sigmund Freud's Psychoanalytic Theory as a conceptual framework. Freud's concepts of the Id, Ego, Superego, unconscious mind, and defense mechanisms provide a unique perspective for understanding how physical environments influence emotions, behavior, and psychological responses. A survey involving 57 participants was conducted to investigate public perceptions regarding the impact of architectural features on mental well-being. The results indicate that natural lighting, overall comfort, ventilation quality, and access to green spaces significantly contribute to emotional stability, stress reduction, and improved productivity. Survey findings revealed that approximately 82.5% of respondents agreed that natural daylight positively influences mood and energy levels, while 80.7% believed that green spaces contribute to stress reduction and emotional relaxation. Furthermore, 68.4% of participants acknowledged that building design directly affects mental health outcomes. The findings suggest that architectural spaces function not merely as physical structures but also as psychological environments that influence unconscious processes, emotional regulation, and social behavior.

The study proposes the Freudian Architectural Response Model (FARM), a conceptual framework that links

architectural characteristics with psychoanalytic personality structures. The proposed model highlights how human-centered architectural planning can support emotional well-being, strengthen adaptive psychological functioning, and create healthier living environments. The research concludes that integrating psychological principles into architectural design can contribute significantly to improved quality of life and mental health in contemporary urban societies.

Index Terms—Mental Health, Structural Design, Architectural Planning, Psychoanalytic Theory, Sigmund Freud, Environmental Psychology, Human-Centered Design, Built Environment, Emotional Well-being, Urban Health.

I. INTRODUCTION

The spaces in which individuals live, work, study, and interact have a profound influence on their physical and psychological well-being. Throughout history, architecture has primarily focused on providing shelter, ensuring structural stability, and satisfying aesthetic requirements. However, contemporary research increasingly recognizes that buildings and urban environments significantly affect human emotions, cognition, social interaction, and mental health. As modern lifestyles require individuals to spend a substantial portion of their time indoors, the psychological effects of the built environment have become an important area of interdisciplinary investigation.

The relationship between architecture and mental health has gained significant attention in recent decades due to rising levels of stress, anxiety, depression, and other psychological disorders associated with urban living. Rapid urbanization,

population growth, and technological advancement have transformed human environments, often leading to increased exposure to overcrowding, noise pollution, inadequate ventilation, and limited access to natural elements. These environmental conditions can negatively influence emotional well-being, resulting in heightened psychological stress and reduced quality of life.

Architectural design encompasses numerous environmental variables that contribute to mental health outcomes. Factors such as natural lighting, ventilation systems, spatial organization, room proportions, building density, accessibility, acoustic comfort, and the presence of green spaces collectively shape the experiences of building occupants. Well-designed environments have been shown to promote relaxation, increase productivity, improve concentration, and support social interaction. Conversely, poorly designed spaces can contribute to discomfort, stress, emotional fatigue, and feelings of confinement.

While existing architectural research has extensively documented the relationship between environmental design and psychological well-being, relatively few studies have attempted to explain these relationships through established psychological theories. One of the most influential psychological frameworks for understanding human behavior is Sigmund Freud's Psychoanalytic Theory. Freud proposed that human behavior is influenced by unconscious desires, internal conflicts, emotional experiences, and interactions among three fundamental personality structures: the Id, Ego, and Superego. These psychological components continuously interact to shape emotional responses, decision-making processes, and social behavior.

Applying Freud's psychoanalytic perspective to architecture offers a novel approach to understanding how physical environments affect mental health. Architectural spaces can influence unconscious emotions, stimulate psychological responses, and either facilitate or hinder emotional regulation. For example, naturally illuminated spaces may contribute to emotional balance and cognitive clarity, whereas overcrowded or poorly ventilated environments may increase anxiety and psychological discomfort. Similarly, green spaces and biophilic design elements can reduce stress and promote emotional restoration

by addressing unconscious psychological needs for connection with nature.

The psychoanalytic interpretation of architectural environments suggests that buildings function as more than physical structures; they also serve as psychological spaces that influence human experiences. Architectural features can affect feelings of security, freedom, privacy, control, and social belonging, all of which are closely related to mental health. Understanding these relationships can assist architects, engineers, urban planners, and policymakers in designing environments that support both physical functionality and psychological well-being.

The present study seeks to bridge the gap between environmental psychology, architecture, and psychoanalytic theory by investigating the influence of structural design and architectural planning on mental health through the lens of Sigmund Freud's psychoanalytic concepts. Using survey-based data collected from 57 participants, the research examines public perceptions regarding the psychological effects of architectural environments and develops a conceptual framework for understanding these effects from a psychoanalytic perspective.

The findings of this study are expected to contribute to the growing field of human-centered design by emphasizing the importance of incorporating psychological considerations into architectural planning. By recognizing the interconnected nature of physical environments and mental health, future architectural practices can move beyond traditional design objectives and create spaces that actively support emotional well-being, cognitive performance, and overall quality of life.

1.1. NEED FOR THE STUDY

Mental health has emerged as one of the most significant public health concerns of the twenty-first century. Increasing levels of stress, anxiety, depression, and social isolation have raised important questions regarding the role of environmental conditions in influencing psychological well-being. While medical and psychological interventions remain essential, growing evidence suggests that the built environment itself can either contribute to or alleviate mental health challenges.

Traditional architectural practices have focused primarily on safety, structural performance,

functionality, and aesthetics. However, contemporary research indicates that psychological comfort should be considered an equally important design objective. Buildings influence daily experiences through their spatial characteristics, environmental quality, and sensory stimulation. Consequently, understanding how architectural features affect mental health is necessary for creating healthier and more supportive environments.

Furthermore, existing studies often analyze environmental influences on mental health from physiological or behavioral perspectives but rarely incorporate psychoanalytic explanations. Freud's theory provides valuable insights into unconscious emotional processes and psychological responses that may be influenced by environmental conditions. Exploring these relationships can enhance interdisciplinary understanding and contribute to more holistic architectural design approaches.

Therefore, this study is necessary to examine the psychological implications of structural design and architectural planning and to develop a conceptual framework that integrates psychoanalytic theory with contemporary architectural practice.

II. LITERATURE REVIEW

The relationship between the built environment and mental health has become an important area of research in architecture, psychology, urban planning, and public health. Numerous studies have demonstrated that environmental conditions significantly influence emotional well-being, stress levels, cognitive functioning, and overall quality of life. As urban populations continue to increase, researchers have emphasized the importance of designing human-centered environments that support psychological health in addition to meeting structural and functional requirements.

Mental health is not solely determined by biological and social factors; it is also influenced by physical surroundings. The environments in which individuals spend their daily lives affect perceptions, emotions, behaviors, and interpersonal interactions. Consequently, architectural design has evolved beyond aesthetics and functionality to include considerations related to psychological comfort and emotional well-being.

2.1. Built Environment and Mental Health

The built environment encompasses all human-made surroundings, including residential buildings, educational institutions, workplaces, healthcare facilities, public spaces, and urban infrastructure. Research indicates that environmental characteristics such as spatial organization, crowding, lighting quality, ventilation systems, noise levels, and accessibility directly influence mental health outcomes.

According to the World Health Organization (WHO), housing and environmental conditions significantly affect psychological well-being. Poor housing quality, inadequate ventilation, excessive noise exposure, and overcrowding have been associated with increased levels of stress, anxiety, depression, and emotional exhaustion. Conversely, environments designed to promote comfort, safety, and social interaction contribute positively to mental health.

Environmental psychologists argue that individuals continuously interact with their surroundings, and these interactions shape emotional responses and behavioral patterns. When environmental conditions fail to satisfy psychological needs for privacy, security, comfort, and autonomy, occupants may experience psychological distress and reduced well-being.

2.2. Influence of Natural Lighting

Natural lighting is widely recognized as one of the most influential architectural factors affecting mental health. Exposure to daylight regulates circadian rhythms, supports hormone production, improves mood, and enhances cognitive performance.

Studies have shown that individuals who spend time in naturally illuminated environments experience lower levels of stress and greater emotional stability compared to those occupying poorly lit spaces. Daylight exposure stimulates serotonin production, which contributes to positive mood regulation and psychological well-being.

In educational settings, natural lighting has been associated with improved concentration, academic performance, and reduced fatigue. Similarly, workplaces designed to maximize daylight access demonstrate increased employee satisfaction and productivity. Healthcare environments incorporating natural light have also reported improved patient recovery rates and reduced anxiety.

The psychological benefits of natural lighting suggest that daylight should be considered a fundamental design parameter rather than merely an aesthetic feature.

2.3. Ventilation and Indoor Environmental Quality

Indoor environmental quality significantly influences physical comfort and psychological health. Ventilation systems are essential for maintaining air quality, regulating temperature, and ensuring adequate oxygen circulation within enclosed spaces.

Research indicates that poor indoor air quality contributes to fatigue, headaches, irritability, reduced concentration, and emotional discomfort. Buildings with inadequate ventilation may create feelings of confinement and psychological stress among occupants.

Modern sustainable design approaches emphasize natural ventilation strategies, which improve both environmental performance and occupant well-being. Proper ventilation supports cognitive functioning, reduces discomfort, and contributes to a healthier indoor environment.

Furthermore, thermal comfort has been identified as a key determinant of psychological satisfaction. Occupants exposed to extreme temperatures often report increased stress and reduced productivity. Therefore, ventilation and environmental control systems play a critical role in promoting mental health.

2.4. Green Spaces and Biophilic Design

One of the most significant developments in environmental psychology is the recognition of nature's influence on mental health. Biophilic design is based on the principle that humans possess an inherent psychological connection with natural environments.

The incorporation of vegetation, gardens, natural materials, water features, and outdoor spaces within architectural environments has been associated with numerous psychological benefits. Studies demonstrate that access to green spaces reduces stress, lowers anxiety levels, improves mood, and enhances cognitive functioning.

Ulrich's landmark research on healthcare environments found that patients with views of nature recovered more quickly and experienced lower stress levels than patients without such views. Similar

findings have been reported in educational institutions, workplaces, and residential developments.

Green spaces provide opportunities for relaxation, social interaction, and psychological restoration. Consequently, contemporary architectural practices increasingly incorporate biophilic design principles to support occupant well-being.

2.5. Spatial Organization and Human Behavior

Spatial organization refers to the arrangement of spaces within a building and the relationships between those spaces. Architectural layouts influence movement patterns, social interaction, privacy, and emotional comfort.

Open and flexible environments often encourage communication, collaboration, and social engagement. However, excessive openness may also reduce privacy and increase distractions. Therefore, effective architectural planning requires a balance between openness and personal space.

Research suggests that overcrowded environments contribute to stress, frustration, aggression, and reduced psychological comfort. Individuals require adequate personal space to maintain emotional well-being and social functioning.

Architectural layouts that support intuitive navigation, accessibility, and functional organization contribute positively to occupant satisfaction and psychological health.

2.6. Noise Control and Acoustic Comfort

Acoustic conditions represent another important factor influencing mental health. Excessive noise exposure has been linked to increased stress levels, sleep disturbances, impaired concentration, and emotional fatigue.

Urban environments often expose individuals to continuous noise generated by traffic, construction activities, industrial operations, and dense populations. Prolonged exposure to such conditions can negatively affect psychological well-being.

Architectural strategies for noise control include sound insulation, acoustic materials, spatial separation, and environmental planning. Buildings designed with effective acoustic management systems create more comfortable and psychologically supportive environments.

Research consistently demonstrates that quiet and acoustically balanced spaces improve concentration, productivity, and emotional stability.

III. SIGMUND FREUD'S PSYCHOANALYTIC THEORY

Sigmund Freud is widely regarded as one of the founding figures of modern psychology. His psychoanalytic theory revolutionized the understanding of human behavior by emphasizing the importance of unconscious processes, childhood experiences, and internal psychological conflicts.

Freud proposed that much of human behavior is influenced by mental processes operating outside conscious awareness. According to psychoanalytic theory, thoughts, emotions, motivations, and behaviors often originate from unconscious desires and unresolved conflicts.

The theory provides a comprehensive framework for understanding personality development, emotional regulation, anxiety, and human motivation. Although originally developed within clinical psychology, psychoanalytic concepts can also be applied to environmental and architectural contexts.

3.1. The Structure of the Mind

Freud divided the human mind into three levels:

3.1.1. Conscious Mind

The conscious mind consists of thoughts, perceptions, and experiences that individuals are currently aware of. It represents the immediate awareness of one's surroundings and ongoing mental activities.

Examples include:

- Reading a book
- Solving a problem
- Making a decision
- Observing environmental conditions

The conscious mind represents only a small portion of overall mental activity.

3.1.2. Preconscious Mind

The preconscious mind contains memories and information that are not currently within conscious awareness but can be recalled when needed.

Examples include:

- Personal memories
- Learned knowledge
- Past experiences

Information stored within the preconscious mind serves as an intermediate level between conscious and unconscious processes.

3.1.3. Unconscious Mind

The unconscious mind contains repressed emotions, desires, fears, instincts, and memories that influence behavior without conscious awareness.

Freud believed that the unconscious mind exerts a powerful influence on emotions and decision-making. Many psychological responses to environmental conditions may originate from unconscious processes. Architectural environments often evoke unconscious reactions related to safety, freedom, comfort, and social belonging.

3.2. Structural Model of Personality

Freud proposed that personality consists of three interacting psychological systems:

3.2.1. Id

The Id is the primitive and instinctual component of personality.

Characteristics:

- Operates according to the Pleasure Principle
- Seeks immediate gratification
- Driven by biological instincts
- Functions unconsciously

In architectural contexts, environments that restrict movement, privacy, or comfort may frustrate instinctual needs and increase stress.

3.2.2. Ego

The Ego develops to balance instinctual desires with reality.

Characteristics:

- Operates according to the Reality Principle
- Promotes rational thinking
- Facilitates problem-solving
- Supports adaptation to environmental conditions

Architectural environments that provide comfort, clarity, accessibility, and safety strengthen adaptive functioning and emotional regulation.

3.2.3. Superego

The Superego represents moral values, social expectations, and ethical standards.

Characteristics:

- Guides socially acceptable behavior
- Encourages self-control
- Produces feelings of responsibility

Institutional buildings, educational facilities, and structured environments often reinforce Superego-related behaviors through organization and regulation.

3.3. Defense Mechanisms

Defense mechanisms are unconscious psychological strategies used to manage anxiety and internal conflict.

Examples include:

Repression

Unpleasant memories are excluded from conscious awareness.

Rationalization

Individuals create logical explanations for emotionally driven behavior.

Projection

Personal feelings are attributed to others.

Sublimation

Negative emotions are redirected into constructive activities.

From an architectural perspective, well-designed environments may reduce psychological stress and decrease the need for maladaptive defense mechanisms.

3.4. Architecture Through a Psychoanalytic Lens

Freud's theory suggests that environments influence not only conscious experiences but also unconscious psychological processes. Architectural spaces can evoke feelings of security, control, belonging, freedom, or anxiety depending on their design characteristics.

Natural lighting may contribute to emotional clarity and Ego functioning. Green spaces may reduce unconscious stress and facilitate psychological restoration. Open layouts may encourage social

adaptation, whereas overcrowded environments may increase frustration and psychological conflict.

Consequently, architecture should be viewed as both a physical and psychological system that shapes human experiences and mental well-being.

IV. RESEARCH GAP

Over the past two decades, substantial research has been conducted on the relationship between architectural design and mental health. Existing studies have established that environmental factors such as natural lighting, ventilation, green spaces, acoustic comfort, spatial organization, and indoor environmental quality significantly influence psychological well-being. Similarly, environmental psychology has provided valuable insights into how physical environments affect human behavior, emotions, and social interactions.

However, despite the growing body of literature on architecture and mental health, several important gaps remain.

First, most architectural studies primarily focus on measurable environmental factors such as daylight availability, thermal comfort, and air quality while paying limited attention to deeper psychological mechanisms that explain human responses to these environments.

Second, psychological research related to architecture often adopts behavioral or cognitive approaches while overlooking psychoanalytic perspectives. Although Sigmund Freud's Psychoanalytic Theory remains one of the most influential frameworks for understanding human emotions, unconscious motivations, and personality development, its application within architectural and environmental design research remains limited.

Third, there is a lack of interdisciplinary frameworks that connect architectural design variables with psychoanalytic concepts such as the Id, Ego, Superego, unconscious processes, and defense mechanisms.

Finally, limited studies have attempted to investigate how modern building environments influence unconscious emotional responses and psychological

adaptation. As urban populations continue to grow and individuals spend increasing amounts of time indoors, understanding these relationships has become increasingly important.

Therefore, the present study attempts to address these gaps by integrating architectural planning, environmental psychology, and Freud's psychoanalytic theory into a unified conceptual framework known as the Freudian Architectural Response Model (FARM).

V. RESEARCH OBJECTIVES

The primary objective of this research is to investigate the influence of structural design and architectural planning on mental health using Sigmund Freud's Psychoanalytic Theory as an interpretive framework.

The specific objectives are:

1. To examine the relationship between architectural design and psychological well-being.
2. To evaluate how environmental factors such as natural lighting, ventilation, green spaces, and spatial organization influence emotional health.
3. To analyze public perceptions regarding the impact of building environments on mental well-being.
4. To interpret architectural influences using Freud's concepts of the Id, Ego, Superego, and unconscious mind.
5. To identify the architectural features that contribute most significantly to mental health outcomes.
6. To develop a psychoanalytic framework linking built environments with psychological functioning.
7. To propose design recommendations that support emotional well-being and healthy psychological development.

VI. RESEARCH METHODOLOGY

6.1. Research Design

The present study adopts a descriptive and exploratory research design. A survey-based methodology was employed to collect information regarding participants' perceptions of architectural environments and their influence on mental health.

The study combines quantitative survey analysis with qualitative psychoanalytic interpretation to establish relationships between environmental design factors and psychological outcomes.

This interdisciplinary approach integrates principles from:

- Civil Engineering
- Architecture
- Environmental Psychology
- Psychoanalytic Psychology
- Urban Health Research

The methodology enables both statistical analysis and theoretical interpretation of participant responses.

6.2. Data Collection Method

Primary data were collected using a structured online questionnaire developed through Google Forms.

The questionnaire was designed to gather information regarding:

- Demographic characteristics
- Perceptions of architectural environments
- Mental well-being indicators
- Environmental preferences
- Psychological responses to built spaces

Participants voluntarily responded to the survey and provided their perceptions regarding the influence of building design on mental health.

The survey remained open for responses over a designated period and was distributed among students, young adults, and working individuals.

6.3. Sample Size

A total of 57 valid responses were collected and analyzed.

The sample consisted of participants belonging to different educational and social backgrounds.

The demographic composition of the sample is summarized below.

Table 6.1 Demographic Distribution of Participants

Category	Percentage
Male	78.9%
Female	21.1%

Table 6.2 Age Distribution

Age Group	Percentage
18–25 Years	80.7%
26–35 Years	10.5%
Above 35 Years	8.8%

The dominance of young respondents is beneficial because younger populations spend considerable time in educational institutions, workplaces, and urban environments where architectural influences are highly relevant.

6.4. Survey Questionnaire Design

The questionnaire consisted of multiple-choice and Likert-scale questions designed to evaluate participant perceptions regarding architecture and mental health. The survey addressed the following themes:

Section A: Demographic Information

- Age
- Gender
- Educational background

Section B: Architectural Environment Assessment

- Quality of natural lighting
- Ventilation effectiveness
- Indoor comfort
- Building layout
- Noise control
- Green space availability

Section C: Mental Health Indicators

- Stress levels
- Mood enhancement
- Emotional well-being
- Concentration
- Productivity

Section D: Architectural Preferences

Participants identified architectural features they considered most important for mental well-being.

Options included:

- Natural lighting
- Ventilation
- Green spaces
- Noise control
- Building layout
- Overall comfort

6.5. Data Analysis Procedure

Collected responses were organized and analyzed using descriptive statistical methods.

The analysis involved:

Percentage Analysis

Response frequencies were converted into percentages to identify dominant trends.

Comparative Analysis

Different environmental factors were compared to determine their relative influence on mental health.

Psychoanalytic Interpretation

Survey findings were interpreted through Freud's psychoanalytic framework.

Relationships were established between architectural features and psychological processes such as:

- Anxiety regulation
- Emotional balance
- Social adaptation
- Psychological comfort
- Unconscious responses

VII. DEMOGRAPHIC ANALYSIS

7.1. Gender Distribution

Among the 57 respondents, approximately 78.9% were male and 21.1% were female.

The higher representation of male participants reflects the demographic characteristics of the surveyed population.

Despite gender differences, participants demonstrated similar perceptions regarding the importance of architectural environments for mental health.

Interpretation

The findings suggest that awareness regarding the psychological impact of architectural design is not limited to a particular gender group. Mental health considerations appear relevant across diverse populations.

7.2. Age Distribution

The majority of participants (80.7%) belonged to the 18–25-year age group.

This demographic represents students and young professionals who spend substantial amounts of time in educational institutions, workplaces, and urban residential environments.

Interpretation

Young adults are particularly sensitive to environmental conditions because their academic performance, social interactions, and emotional development are strongly influenced by surrounding environments.

Therefore, their perceptions provide valuable insights regarding human-centered architectural design.

VIII. PRELIMINARY SURVEY FINDINGS

The survey revealed strong public recognition of the relationship between architectural environments and mental health.

Key observations include:

Natural Daylight and Mood

82.5% of respondents agreed that natural daylight positively influences mood and emotional well-being.

Green Spaces and Stress Reduction

80.7% agreed that green spaces reduce stress and improve emotional comfort.

Building Design and Mental Health

68.4% acknowledged that architectural design directly affects psychological well-being.

Overall Comfort

Participants identified overall comfort as the most important architectural factor affecting mental health. These findings indicate that environmental quality significantly contributes to psychological functioning and support the central hypothesis of this study.

8.1. Most Important Architectural Feature

Participants were asked to identify the architectural factor they considered most influential for mental well-being.

Table 8.1 Preferred Architectural Features

Feature	Frequency
Overall Comfort	19
Natural Lighting	14
Ventilation and Air Quality	14
Noise Control	5
Green Spaces	3
Building Layout	2

Interpretation

The dominance of overall comfort indicates that individuals perceive mental well-being as a result of multiple interacting environmental factors rather than a single design characteristic.

Comfort represents a holistic combination of lighting, ventilation, accessibility, spatial organization, and environmental quality.

This observation aligns with contemporary human-centered architectural approaches that emphasize occupant experience as a primary design objective

