

A CRITICAL APPRAISAL OF SUSTAINABLE ARCHITECTURE ON MENTAL WELLNESS: A CASE STUDY OF THE INSTITUTE OF MENTAL SCIENCES, PUNE, INDIA

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ABSTRACT:

This research paper critically appraises the interplay between sustainable architecture and its impact on mental wellness, focusing on the Institute of Mental Health (IMH) in Pune, Maharashtra, India, as a case study. Drawing upon empirical data and scientific literature, the paper examines the theoretical underpinnings of sustainable design principles and their potential to foster well-being in mental healthcare settings. Real-world examples from the IMH are used to showcase the practical application of these principles and their observed outcomes on patients and staff. The paper concludes by critically analyzing the strengths and limitations of sustainable architecture in promoting mental wellness, offering recommendations for future research and design considerations.

Mental disorders pose a significant global health challenge, leading to substantial distress, impaired functioning, and significant economic burdens. Research suggests that the design of physical environments can either exacerbate symptoms of mental disorders.

KEYWORDS

Green habitat , mental wellness, mental health facilities, Pune, India, biophilic design, daylighting, natural ventilation, thermal comfort, noise control.

INTRODUCTION:

Mental disorders pose a significant global health challenge, impacting over 170 million individuals annually. More than half of the general population in middle and high-income countries is expected to receive a diagnosis of at least one mental disorder during their lifetime. Additionally, mental disorders are associated with profound distress, functional impairments, and substantial economic burdens. Moreover, as the global population continues to grow, the enduring burden of mental disorders is anticipated to rise. Recognizing the impact of mental disorders on both individuals and societies, there arise a critical need for enhanced support for those affected. Over time, architects have concentrated on developing designs aligned with normal human psychology and behaviour, encompassing social interactions and performance in various industries, it is essential to acknowledge that the physical environment can also either trigger or exacerbate symptoms associated with mental disorders. (Hopper Paula, June 22, 2023)

OVERVIEW

FACTORS AFFECTING MENTAL HEALTH?

Mental illness is prevalent, with approximately 1 in 5 adults experiencing it in a given year. Onset can occur at any age, spanning from childhood to later adulthood, though a majority of cases typically emerge earlier in life.

Mental illness stands as a primary contributor to disability. When left untreated, mental health conditions can lead to profound emotional, behavioural, and physical health challenges.

Numerous individuals experience occasional mental health concerns. However, a mental health concern evolves into a mental illness when persistent signs and symptoms consistently induce stress and impede one's ability to function effectively. (Fleming, 2019)

SYMPTOMS

Signs and symptoms of mental illness can vary, influenced by the specific disorder, individual circumstances, and various factors. These symptoms may impact emotions, thoughts, and behaviours. Examples include:

1. Experiencing a sustained shift in mood towards sadness or dejection.
2. Facing challenges with cognitive clarity and focus.
3. Navigating significant concerns, worries, or feelings of guilt.
4. Observing marked fluctuations in emotional states, with periods of euphoria and depression.
5. Taking a break from social interactions or engaging in activities less frequently.
6. Managing difficulties with energy levels and sleep quality.
7. Seeking additional support to meet daily demands and deal with stressful situations.
8. Exploring ways to enhance interpersonal connection and understanding.
9. Evaluating your relationship with substances like alcohol or drugs.
10. Recognizing significant changes in eating habits or appetite.
11. Noticing frequent experiences of intense anger or aggressive tendencies.

12. Having thoughts about ending one's own life.

The age group most vulnerable to mental illness is adolescents, typically ranging from 12 to 18 years old. Various factors contribute to this vulnerability, including the hormonal changes during puberty, which can elevate anxiety levels and make them more susceptible to mood disorders such as depression or bipolar disorder. Additionally, the school environment plays a significant role in mental health, with studies demonstrating a connection between lower academic achievement and a heightened risk of developing mental illnesses like depression. Adolescents who experience bullying at school are particularly prone to depression, potentially impacting their self-esteem negatively.

REASONS WHY AGES 12-18 ARE VULNERABLE TO MENTAL ILLNESS

1. In the age range of 12–18 years old, the brain is not fully developed, impacting how mental illnesses manifest due to factors such as abnormal stress hormone levels or neurotransmitter imbalances.
2. Adolescents experience heightened emotional highs and lows due to increased hormone production during puberty, making them more susceptible to mood swings. Parents should monitor sudden or irrational mood changes.
3. Teens' propensity for risk-taking behaviours can exacerbate or worsen mental illnesses. Open communication about high-risk behaviours, like drug use or alcohol consumption, is crucial for parents to address potential consequences seriously.
4. Puberty affects emotional states, influencing teens' exploration of newfound sexual freedom and potentially leading to physical relationships without consent. This increases the risk of violence or sexual assault, contributing to mental illness symptoms.
5. Body image issues are common among teens dealing with puberty's changes and increased awareness of attractiveness. Acceptance and self-esteem play vital roles in navigating these challenges.
6. Adolescents are more prone to substance abuse due to increased risk-taking behaviour and a desire for adventure, making them vulnerable to mental illnesses related to addiction, such as depression or anxiety.
7. Loneliness during this age range, especially without close friends, may contribute to mental illnesses if teens lack alternative means of expression or friendship beyond virtual interactions.
8. Teens have a higher risk of anxiety disorders due to incomplete brain development. Parents should closely monitor sudden mood swings and seek professional attention for symptoms like panic, fearfulness, restlessness, and irritability.
9. Ongoing brain chemistry development in adolescents may lead to chemical imbalances, resulting in risk-taking behaviour and lack of impulse control, increasing the risk of substance abuse and self-harm.
10. While the discussed vulnerabilities are not definitive predictors of mental illness, other factors like genetics or trauma can also contribute. The goal is to raise awareness so parents and children can recognize signs and seek help proactively.

MORPHOGENESIS

The built environment, the spaces we inhabit and interact with daily, plays a profound role in shaping our mental and physical well-being. Sustainable architecture, with its focus on creating healthy and resilient buildings in harmony with nature, has emerged as a promising approach to fostering mental well-being. This research-based morphogenesis explores the potential of sustainable architecture to aid in the healing of mental illness. (Alyssa, 2021) (Connellan, 2013)

Women's risk of major depression is nearly double men's.

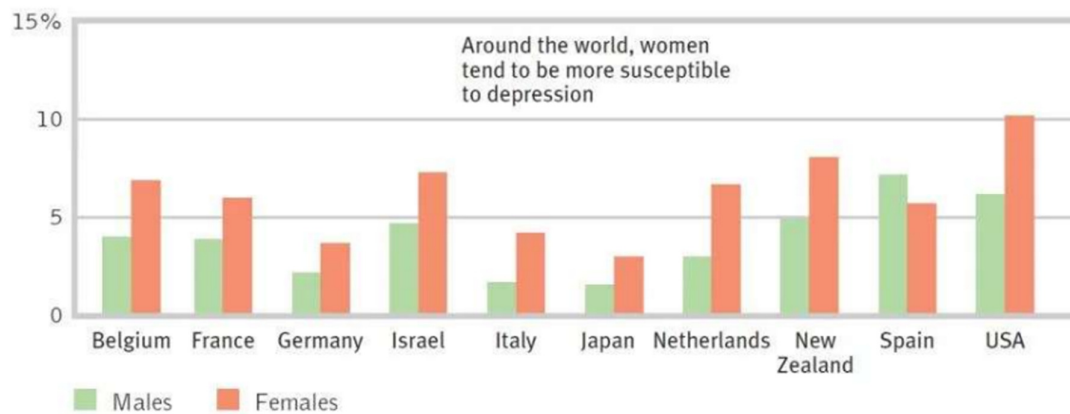


figure - figure shows percentage of adults experiencing major depression in year 2011
Reference: Psychology, (11th edition) D.G.Mayers, C.N.Dewall

TIMELINE (PROGRESS IN A DECADE)

2013:

- **Mental Health Act Revised:** The Mental Healthcare Act of 2013 recognizes mental illness as a disability and emphasizes community-based care, informed consent, and patient rights. It also establishes the National Mental Health Commission.
- **Low awareness and stigma:** Mental health remains largely stigmatized, with low awareness and limited access to services. Traditional healers and faith-based approaches dominate treatment.

2014-2016:

- **Rise of public-private partnerships:** More NGOs and private hospitals start offering mental health services, filling gaps in public healthcare. Telemedicine initiatives pilot remote consultations.

- Increased mental health focus in government programs: National Health Mission includes mental health interventions, and AYUSH (Ayurveda, Yoga, Unani, Siddha, and Homeopathy) practices are explored for mental health conditions.

2017-2019:

- National Mental Health Survey: First nationwide survey reveals the high prevalence of mental disorders (10.6%). This data fuels advocacy for increased resources and infrastructure.
- Expansion of mental health programs: NIMHJ (National Institute of Mental Health and Neuro-Sciences) expands its outreach, and more mental health professionals are trained and deployed.
- Technology adoption: Mental health apps and online therapy platforms gain traction, offering accessible and confidential services, especially in remote areas. (Kathrin Cohen Kadosh, 2021)

2020-2022:

- COVID-19 pandemic: The pandemic highlights the importance of mental health, leading to increased awareness and demand for services. However, disruptions in access and treatment pose challenges.
- Focus on psychosocial support: Mental health hotlines and online resources are expanded to provide immediate support during the pandemic.
- Rise of mindfulness and self-care practices: Increased focus on preventive measures like meditation and self-care practices to promote mental well-being. (Godman, 2024)

2023 onwards:

- Integration of mental health into primary care: Government initiatives aim to integrate mental health services into primary healthcare settings for wider reach.
- Deinstitutionalization efforts: Focus on reducing reliance on large mental health institutions and promoting community-based care and social integration for patients.
- Personalized medicine: Advancements in genetics and neuroscience inform more personalized treatment approaches for mental health. (Genomics of Signalopathies at the service of Medicine M. U.-S.) (Genomics of Signalopathies at the service of Medicine M. U., 2023) (Marsh, , 2023)

EVOLUTION (POLICIES BASED)

Predicting the evolution of mental illness curing in a decade, as it depends on various factors like scientific advancements, social changes, and healthcare policies. However, I can share some potential trends based on current developments:

Personalized Medicine:

- **Genetic testing and biomarkers:** Identifying genetic markers and biological signatures associated with specific mental illnesses could lead to personalized treatment plans. This could involve tailoring medication, therapy, or other interventions to an individual's unique needs.
- **Brain imaging technology:** Advancements in fMRI, EEG, and other imaging techniques could provide deeper insights into the brain's activity during different mental states. This could inform the development of targeted interventions and help monitor treatment progress. (Inalhan, 2020)

Technological Innovations:

- **Digital therapeutics:** Apps, games, and other digital tools could offer accessible and engaging ways to manage symptoms, learn coping skills, and track progress. These tools could also facilitate remote monitoring and support from healthcare professionals.
- **Virtual and augmented reality (VR/AR):** Immersive VR/AR experiences could be used for exposure therapy, skills training, and mindfulness practices. This could potentially offer safe and effective ways to address specific challenges without needing real-world exposure.

Treatment Advancements:

- **New medications:** Research into novel medications with fewer side effects and improved efficacy is ongoing. This could lead to more personalized and effective treatment options for different mental illnesses.
- **Unlocking the mind's mysteries:** Our brains are intricate landscapes, brimming with hidden pathways and untapped potential. TMS and DBS offer a unique opportunity to explore these uncharted territories, shedding light on the complex mechanisms behind mental disorders. By deciphering the language of the brain, these methods could not only lead to groundbreaking treatments but also revolutionize our understanding of the human mind itself. (Emma Murray a, 2019) (GÜRBEY, 2020)

Social and Policy Changes:

- **Destigmatization of mental illness:** Ongoing efforts to reduce stigma and increase awareness could lead to more people seeking help and accessing treatment.
- **Improved access to care:** Expanding healthcare coverage and mental health services could make treatment more readily available and affordable for everyone.

- Focus on prevention and early intervention: Initiatives aimed at identifying and addressing risk factors early on could potentially prevent the development of mental illnesses or reduce their severity. (Magdalena Skipper, 2021)

Challenges and Considerations:

- Ethical considerations: Personalized medicine and new technologies raise ethical concerns regarding privacy, data security, and potential disparities in access.
- Cost and accessibility: Not everyone may have equal access to advanced treatments or technologies due to cost and availability limitations.
- Long-term efficacy and evidence: New therapies and technologies require rigorous testing and evaluation to establish their long-term effectiveness and safety. (Cemile, 2018)

Overall, the evolution of mental illness curing in the next decade holds both promise and challenges. While advancements in science and technology offer exciting possibilities for personalized and effective treatment, addressing ethical and accessibility issues remains crucial. Continued research, public awareness efforts, and policy changes will be essential in ensuring the future of mental healthcare prioritizes individual well-being and equitable access for all. (Matuszewska, 2019)

It's important to remember that this is just a glimpse into some potential trends. The field of mental health is constantly evolving, and it's impossible to predict with certainty what the future holds. However, by staying informed and engaged in the conversation around mental health, we can help shape the future of mental illness curing and ensure that everyone has access to the care they need. (Harris, 2020)

Designing for a Better Mental-Scape

- Imagine buildings that not only shelter us but actively uplift our mental well-being. That's the vision behind the AIA's six evidence-based approaches to design for overall health, focusing on environmental quality, nature, movement, safety, sensory experience, and social connection. (Think bright sunlight streaming through picture windows, calming greenery flanking a walkway, or inviting spaces encouraging interaction.) These principles pave the way for creating spaces that nurture our minds, and Ben Channon's "Happy by Design" delves deeper, offering a designer's toolkit for crafting mentally well buildings. Imagine buildings that not only shelter us but actively uplift our mental well-being. That's the vision behind the AIA's six evidence-based approaches to design for overall health, focusing on environmental quality, nature, movement, safety, sensory experience, and social connection. (Think bright sunlight streaming through picture windows, calming greenery flanking a walkway, or inviting spaces encouraging interaction.) These principles pave the way for creating spaces that nurture our minds, and Ben Channon's "Happy by Design" delves deeper, offering a designer's toolkit for crafting mentally well buildings. (Mais M. Aljunaidy, 2020) (Dissanayake, 2018)

- 1. Lighten Up for Wellbeing: Bid farewell to gloomy corners and harsh shadows. Let sunlight dance through strategically placed windows, bathe workspaces in soft, diffused light, and create cozy nooks perfect for reading with warm lamps. (Imagine sunbeams dappling across a reading chair or a sunlit rooftop garden offering an oasis of calm.)
- 2. Beyond Sight: A Symphony of Senses: Walls whisper, floors murmur, and light sings - not just for poets, but for architects who know that touch, sound, and smell matter. Design with textured materials, calming water features, and natural ventilation to create a multi-sensory symphony that soothes and inspires. (Picture a textured stone wall offering a cool retreat on a hot day or the gentle trickle of a water fountain adding a calming melody to a busy space.) (Sustainable futures in the context of architectural design of hospitals, 2022)
- 3. Design to Empower, Not Confine: Ditch the "one size fits all" approach and embrace buildings that adapt to their users. Movable furniture, flexible spaces, and open layouts empower people to personalize their environment and feel in control. (Think sliding walls transforming a meeting room into a quiet corner or modular furniture rearranging to suit different activities.)
- 4. Nature's Embrace: Let the outside in! Wherever possible, weave plants, water features, and even glimpses of wildlife into your design. Indoor gardens, skylights framing a vibrant treetops view, or a soothing water wall can bring the calming power of nature indoors. (Imagine a lush vertical garden breathing life into an office hallway or a koi pond adding tranquillity to a courtyard.) (Alsawaf, 2021)
- 5. The Art of Joyful Aesthetics: Forget sterile walls and monotonous corridors. Unleash the power of design to spark curiosity and delight! Introduce pops of color, textured walls, playful murals, or unexpected design elements that create visual interest and a sense of wonder. (Think a vibrant staircase decorated with a whimsical mural or a library bookshelf shaped like a tree, sparking imagination and joy.) (özkan, 2019)
- 6. Colorscapes for Mood: Color isn't just decoration; it's a mood-altering maestro. Use warm tones in social spaces to encourage interaction, serene blues in calming areas, and pops of energizing yellow in creative zones. Play with color strategically to create the atmosphere that best suits each space. (Imagine a sun-kissed yellow kitchen fostering culinary creativity or a cool-toned meditation room painted in calming blues and greens.) (Wani, 2017)
- 7. Move it or Lose it: Buildings shouldn't be sedentary! Encourage movement and physical activity with cleverly designed stairs, inviting walking paths, and even playful design elements like climbing walls or interactive installations. (Think a spiral staircase that doubles as a fitness challenge or a hallway transformed into a vibrant hopscotch path for playful breaks.)
- 8. Escape Pods for Tranquillity: Amidst the hustle and bustle, everyone needs a haven. Designate quiet corners, secluded reading nooks, or even meditation rooms where

people can escape the noise and recharge. Think soft furnishings, muted tones, and natural light to create a sanctuary for inner peace. (Imagine a cozy reading nook tucked away in a library or a rooftop hammock offering a serene escape from the city below.) (Chrysikou, 2019)

- 9. Tidy Minds, Tidy Spaces: Clutter clutters your mind too! Ensure generous storage solutions, built-in shelves, and hidden compartments to keep things organized and minds serene. Think clever storage units disguised as walls, hidden drawers in furniture, or designated decluttering spaces for a clutter-free environment. (Imagine a kitchen with seamlessly integrated storage hidden behind sleek cabinet doors or a living room with built-in shelves showcasing treasures without visual clutter.)
- 10. Breathe Easy, Live Large: Open spaces with soaring ceilings are liberating, but don't forget human scale! Break down large areas with cozy corners, intimate seating arrangements, and thoughtful zoning to create spaces that feel both expansive and welcoming. (Think a cathedral-ceilinged library with reading nooks tucked away or a spacious office divided into smaller, personalized work zones.)
- 11. Comfort is King (or Queen): Buildings should be more than just shelter; they should feel like warm embraces. Use comfortable furniture, natural materials, and ambient lighting to create spaces that invite lingering and relaxation. Think plush armchairs by a crackling fireplace or a sun-drenched balcony adorned with cozy seating.) (srivastav, 2022)
- 12. Home Away from Home: A sense of belonging nourishes the soul. Incorporate design elements that evoke familiarity and comfort, whether it's warm lighting reminiscent of a hearth, natural materials that connect us to the earth, or even subtle nods to local cultural or architectural traditions. (Imagine a library with exposed wooden beams that create a feeling of warmth and coziness or a community centre adorned with traditional motifs, fostering a sense of belonging.) (Sidhpurwala, 2020)

By most estimations, 80% of our time is spent in buildings, and this can affect our mood both positively and negatively. Those social, cultural, and environmental influences, or psychosocial factors, in the places where we live, work, and study, therefore impact our happiness significantly. “Happiness is an incredibly important but often overlooked aspect of our lives,” says Channon. It can result in improved productivity in the workplace and better learning in students; and most importantly, it can drastically improve people’s quality of life and physical and mental health.”⁷ (Jakub S. Bil, 2016)

Theoretical Underpinnings:

The relationship between architecture and mental health is supported by several theoretical frameworks. Environmental psychology posits that our physical surroundings significantly

impact our cognitive, emotional, and behavioural states. Biophilic design emphasizes incorporating natural elements like sunlight, greenery, and ventilation, which have been shown to reduce stress, improve mood, and enhance cognitive function. Therapeutic architecture focuses on designing spaces that promote healing and recovery, using elements like wayfinding, sensory stimulation, and social interaction to support patients' needs. The concept of sustainable architecture encompasses a range of design principles that aim to minimize the environmental impact of buildings while maximizing their positive impact on occupants' health and well-being. These principles include: (Raz Gross, 1998) (gashoot, 2022)

- **Biophilic Design:** Integrating natural elements such as daylight, greenery, and natural materials into the built environment to create a connection with nature, which has been shown to reduce stress, promote relaxation, and improve mood.
- **Daylighting and Natural Ventilation:** Utilizing natural light and ventilation to create comfortable indoor environments while reducing reliance on artificial lighting and energy consumption.
- **Thermal Comfort:** Maintaining optimal temperature and humidity levels within buildings to ensure occupant comfort and productivity.
- **Noise Control:** Implementing strategies to minimize noise pollution within buildings, promoting tranquillity and reducing stress.
- **Sense of Control and Community:** Design that empowers occupants to personalize their spaces and fosters social interaction can contribute to feelings of control, belonging, and community, all of which are protective factors for mental health. (Pierson, 2022) (chitranshi, 2017) (Bensalem, 2023)

Evidence-Based Approaches:

Research has demonstrated the positive impact of therapeutic design principles on various mental health conditions. Studies in hospitals have shown that patients in rooms with natural light and views of nature experience shorter hospital stays and lower pain levels. Additionally, access to green spaces has been linked to reduced stress and improved mood in individuals with depression and anxiety. (Paula Barros, 2019)

Real-World Examples:

Examples of therapeutic architectural interventions in different contexts can provide valuable insights for implementation in India:

- **Siddhivinayak Temple, Mumbai:** This temple incorporates natural ventilation, water features, and calming colour palettes to create a serene atmosphere conducive to prayer and meditation, potentially offering mental respite for visitors.
- **Greenway of Hope, Chennai:** This community garden project provides a green space for residents to engage in physical activity, social interaction, and nature connection, all of which contribute to mental wellbeing.
- **The Healing Garden, Ahmedabad:** This garden within a mental health facility offers patients a safe and stimulating environment for relaxation, reflection, and social

interaction, promoting recovery and well-being. (Natalia Olszewska, 219) (Healthcare spaces: The intersection of design, health and well being, 2023)

Adapting to the Indian Context:

Implementing therapeutic design principles in India requires consideration of specific cultural and environmental factors:

- **Climate:** Adapting biophilic design elements to India's diverse climatic zones is crucial. For example, incorporating courtyards and water bodies for cooling and natural ventilation in hot regions.
- **Cultural sensibilities:** Design elements should resonate with Indian cultural values and traditions to create familiar and comforting spaces. For instance, incorporating sacred symbols or incorporating spaces for traditional practices like yoga or meditation.
- **Community integration:** Designing mental health facilities that are accessible and integrated into existing communities can reduce stigma and encourage utilization.
- **Cost-effectiveness:** Utilizing locally available materials and vernacular construction techniques can ensure affordability and sustainability. (Kathleen Connellan, 2013) (Householder, 2016) (Li, 2018) (Vavili, 2019)

Mental health in Pune: Raising awareness and seeking support

Pune, a vibrant city known for its cultural heritage and educational institutions, is also facing a growing concern regarding mental health. Studies suggest that a significant portion of the population in Pune experiences mental health issues, with depression and anxiety being particularly prevalent.

Combating stigma and raising awareness is crucial in addressing this challenge. Fortunately, Pune has seen a positive shift in recent years, with increased efforts to break the stigma surrounding mental illness and promote open conversations about mental health. (Beirut, 2019)

Here are some key points to consider:

- **Prevalence:** Studies indicate that up to 85% of women and 70% of men in Pune have experienced mental health distress. This highlights the widespread nature of the issue, emphasizing the need for accessible and effective support systems.
- **Destigmatization:** Initiatives like mental health awareness campaigns and celebrity endorsements are helping to normalize conversations about mental health and reduce the stigma associated with seeking help. (Ramdas Ransing, 2021)
- **Support resources:** Pune boasts a diverse range of mental health resources, including government hospitals, private clinics, mental health NGOs, and support groups. These facilities offer various services like

therapy, counselling, medication management, and rehabilitation. (Marcia Gibson, 2010) (Singh, 2021)

Seeking help is a courageous step, and it's important to remember that mental health issues are treatable. If you or someone you know is struggling, here are some resources that can help:

- Maharashtra Institute of Mental Health (MIMH): A premier government mental health institute offering comprehensive psychiatric care and research facilities.

Maharashtra Institute of Mental Health (MIMH)

- Centre for Mental Health: A private clinic providing a range of mental health services, including therapy, counselling, and workshops.

Centre for Mental Health Pune

- The Samaritans: A non-profit organization offering emotional support and suicide prevention services.
- Manas Foundation: A mental health NGO working to promote mental well-being through education, advocacy, and support services.

Remember, you are not alone. Reaching out for help is a sign of strength, and there are many resources available to support you on your journey towards mental well-being. (Mokhtar, 2021)

Additionally, here are some ways to promote mental health in Pune:

- Encourage open conversations about mental health: Talk openly about your own experiences and struggles, and create a safe space for others to do the same.
- Challenge stigma and discrimination: Speak out against harmful stereotypes and misconceptions about mental illness.
- Support mental health organizations: Volunteer your time or donate to organizations working to improve mental health care and awareness in Pune.
- Practice self-care: Prioritize your own mental health by getting enough sleep, eating healthy, exercising regularly, and engaging in activities you enjoy.

By working together, we can create a more supportive and understanding environment for those struggling with mental health in Pune.

LITERATURE REVIEW

According to Lesley University The Effect of Architecture and Design on Mental Health and Implications for Open Art Studios, This is an article about the effect of architecture and design on mental health. It discusses the history of design in mental health facilities and the importance of considering the physical and social environment in creating a therapeutic space. The author examines the Krankenhauslandschaft approach, where mental health care facilities were designed to be self-sufficient and beautiful, and the Kirkbride Model, which focused on fresh air and natural light. She also explores the deinstitutionalization movement and the rise of community care facilities. Open art studios are a specific type of therapeutic environment that can benefit from thoughtful design choices, such as access to nature, open spaces, and a variety of art materials. (Newton, 2018)

- According to article on archdaily explores the potential of architecture to help prevent suicides by examining the connection between physical and mental health.
- It argues that the design of buildings can have a significant impact on people's emotions and overall well-being.
- The article provides specific examples of how architectural elements like plants, natural light, and scenic views can be incorporated to create spaces that foster positive mental health.
- It also emphasizes the importance of prioritizing the subjective experiences of individuals when designing spaces.
- Ultimately, the article suggests that architecture can play a crucial role in suicide prevention by shaping spaces that promote feelings of belonging, safety, and well-being

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