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BEHAVIOURAL SCIENCES HOSPITALS IN INDIA

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Abstract

In healthcare planning, human interaction with built and open spaces should create experiences for users and service providers with a humane approach. In this paper, an attempt has been made to understand the experience of all providers and stakeholders by understanding the evolution of planning from the Vedic era to the present times. In the Vedic period, Ayurveda recognised the problem of mental health and provided inclusive healthcare treatment by allocating small areas in one's homes and religious buildings. The present approach to design needs to create an interface of formal and informal spaces for the healing process of patients. The environment of the behavioural science hospitals needs to respond to physical, psychological, and experiential quality of well-being for its users and stakeholders. Integrating landscape and natural environment into the built fabric provides for the holistic well-being of its users in accordance with a safe and secure environment.

Keywords: *human(e), healing, inclusive, behavioural science hospital, secure environment, experiential*

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INTRODUCTION

"We build the buildings that end up shaping us"- Winston Churchill

The built environment of the behavioural sciences hospitals needs to respond positively to the physical, psychological and emotional well-being of its users. A space in itself cannot completely cure the patients but it can stimulate a healing environment by helping in relaxing the patient, providing a sense of security and comfort. It is important to integrate open and built spaces through architectural elements like senses, colours, materials, form, the play of light and shadows, for creating a therapeutic environment. The architecture of behavioural sciences facilities should manifest itself in a subtle manner by providing a positive image of itself in the planning of cities.

MATERIAL AND METHODS

1. LITERATURE REVIEW

Maslow's hierarchy of needs and Ulrich's theory of supportive design are two theoretical approaches identified for this study.

Maslow proposes five stages necessary for human subsistence (Fig 1), the inability of having these met could prompt behavioural problems. Ulrich emphasizes the importance of creating a psychologically supportive, physical, social hospital environment by reducing stress (Fig 2).

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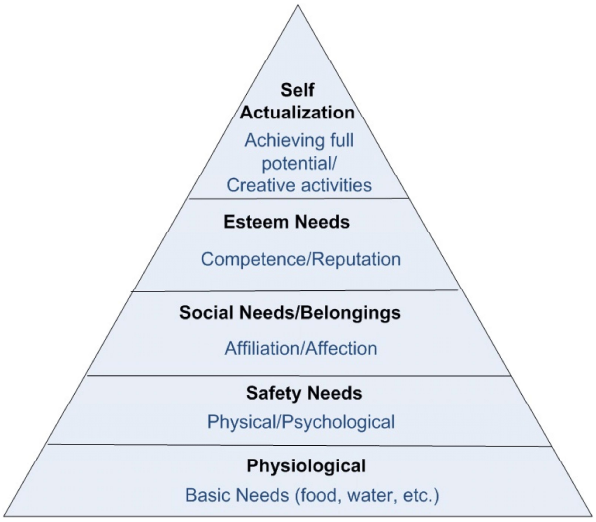
Figure 1

Maslow's Hierarchy of Needs



The spaces should exuberate physiological requirements like natural light, ventilation, ease of movement and a sense of comfort for a person. Physiological and physical needs have to be met to enhance the self-esteem of a person. Social support and love from close one's in a potentially unfamiliar environment can ameliorate stress and foster wellness. Maslow's theory is important as it emphasizes a patient-centric design for the hospital. The design needs to be inclusive of empathy, healing spaces for patients, attendants, doctors and healthcare workers.

Ulrich's theory emphasizes that humans have a strong need for control and lack of the same is associated with negative consequences and stress, which can be aggravated by poorly designed environments. Access to visual privacy, accessible gardens or open areas, setting to

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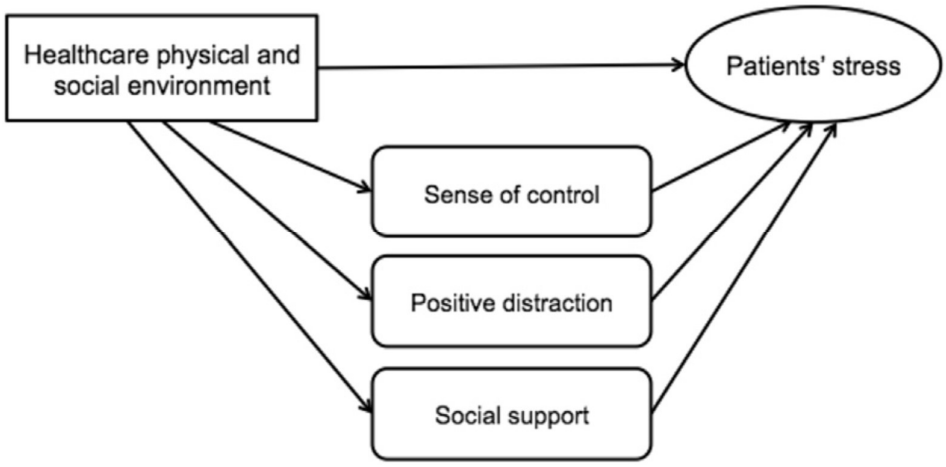
pursue personal interests and hobbies are examples of design interventions that promote a sense of control.

Figure 2

Adaptation of Ulrich's theory of Adaptive Design



Creating positive distractions in the physical environment is one of the most important factors in reducing patient stress. Positive stimulation focuses on the patient and promotes wellness. For example, lack of windows is associated with high levels of anxiety, depression, high rates of delirium and even psychosis. Happy laughing and caring faces, animals and natural elements such as trees, plants and water, de-stress the patient and are effective positive distractions.

Architectural interventions can ease the process of transition into the hospital and create a holistic healing space where the patients feel empowered, safe, independent, creative and

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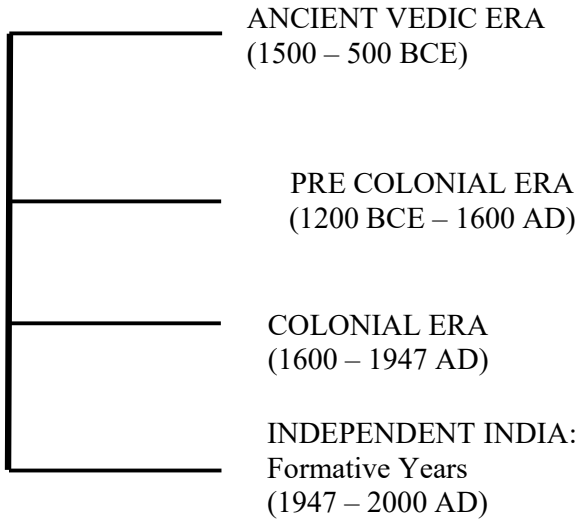
social. The two theories convey very similar concepts about the design requirements from the space but the perspective of both are varied. These design concepts have been kept in mind while doing the study on the evolution of such hospitals in India and on the same basis inferences have been gathered.

2. HISTORICAL DEVELOPMENT

There is a need to establish a relationship between mental illness and society and how it has changed/evolved over the decades. This has a direct impact on the spatial arrangement of the built environment and architecture and interior of the facilities. This development has been studied and analysed in India with relation to the architecture, further documented in the form of a timeline.

Figure 3

Historical Timeline



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3.1 Ancient Vedic Era (1500 – 500 BCE)

Table 1

Ancient Vedic Era historic development

Year	About the Era	Inference/Analysis
Ayurveda	The belief at this time was mental illness was a result of divine curses. Psychiatry was referred to as "Bhuta Vidya". Treatment included psychotherapy, shock, hypnotism and religious discourses. The sick individuals were usually **abandoned**. With the advent of Ayurveda, medicines derived from nature, began to be used for treatment. Now the ill were either chained or **secluded** and were considered outcastes from the society.	**Rejection** of the mentally ill, which led to **no space** being allocated to them. They usually wandered off into the forests and died with due time as no care was present for them. Ayurvedic medicines led to **identification and treatment** of the sick. Spaces in one's houses of religious areas were being separated for their treatment.
Unani	Najabuddin Unhammad, an Indian physician of this era recognized **seven mental illnesses** which are prevalent even today. Psychotherapy was known as Ilaj-I-Nafsani in Unani Medicine.	
Siddha	The great saga 'Agastya', one of the 18 Siddhas has contributed greatly to the Siddha system of medicine of the South. He formulated a treatise on mental diseases called as 'Agastiyar kirigai Nool in which 18 psychiatric disorders with appropriate treatment methods are described.	Mental illness was **recognized and identified** in these eras. Treatment procedures were developed and **isolated spaces** for the sick were observed. In certain places, **dedicated treatment centres** were also observed.

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3.2 Pre-Colonial Era (1200-1600 BCE)

Table 2

Pre-colonial historic development

Year	About the Era	Inference/Analysis
Ashoka Dynasty **(273-223 BCE)**	According to the Ashoka Samhita, hospitals were built with separate enclosures for various practices, including keeping the patients and dispensing treatments that prevailed at that time.	With evolution of time, mental illness was being **recognized as a sickness** and not a social taboo. The process of **diagnosis** and **treatment** slowly came into existence. Majorly the treatment process included the separation of the patients from the public.
Gupta & Chauhas **(200 BCE-600AD)**	Evidences of propagation of alienation of mentally ill patients. The violent ones were identified and abandoned.	Idealism in the society led to the abandonment of the ill or they were kept in certain areas of the temple to heal. Hence the **definition of spatial distribution** for these people came into being. A certain space in the society was separated for them. A room in a temple or ashrams. From this era **allocation of space** began for the mentally ill.
Mughal Period **(1400-1600AD)**	Presence of less evidence of development of psychiatry in the Mughal period. There are references of some asylums in the period of Mohammad Khilji (1436-1469). A pattern of mental sickness can be observed through readings of history among the Mughal men. Due to the wars, they suffered from hallucinations, depressions and other various diseases. The cutting of hands of the artisans of	No major leap was experienced in the field of psychiatry in the coming eras, though area allocation for the mentally ill grew. There were still no signs of a fully developed hospital, but **guarded open areas** were observed. This led to the realization of an open space for them. These people could not heal by just being locked up in prisons or closed rooms. The idea of

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	Taj Mahal can also be taken as a sign of mental sickness.	**community care** in small scale was observed.
Political Instability	Before the arrival of the British East India Company in 1600 - there were no properly developed institutions for the mentally ill. The **traditional orthodox treatment** methods were continued of segregating the diseased.	

3.1 Colonial Era (1600 – 1947 AD)

The colonial period is further subdivided into three time periods:

Early Colonial Period (1745-1857): The Period of Establishment

Table 3

Early Colonial Period historic development

Year	About the Era	Photos/Sketches	Inference/Analysis
1745	Earliest mental hospital established at **Bombay** accommodated **30 patients.**		This period saw the establishment of **proper facilities** for the patients. Land was dedicated specifically for this cause; built mass became a **planned project.** The guiding principle was to **separate** the mentally ill from the mainstream of the society; build to protect the community and not the insane.
1787	Surgeon Kenderline started one of the first asylums in **Calcutta** which was later rented out to the East India Company.		
1794	First mental hospital in South India in **Kilpauk, Madras** by Surgeon Vallentine Conolly for **20 patients**.		

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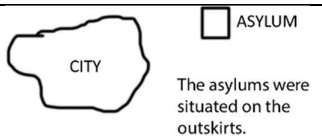
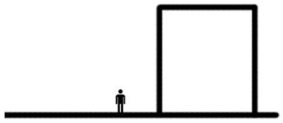
<table>
<tr>
<td>1795</td>
<td>First government run asylum opened on 17th April at Monghyr, Bihar for insane soldiers.

During this period excited patients were treated with opium, morphia and were given hot water baths with sometimes leeches applied to suck their blood. It was found that the blisters were useful for chronic patients and also helpful in controlling the periodic excitement.</td>
<td rowspan="3"> 
Source: www.indianjpsychaitry.org

KILPAUK, MADRAS</td>
<td rowspan="3"> 

These asylums were constructed away from cities with high enclosures in either dilapidated buildings like barracks left by the military.

 
Built structure was highly disproportionate to human scale

Initial mental asylums in British India catered mostly to European soldiers stationed in India at that time.
European and Indian patients were segregated in separate asylums (eg., Dulland for Indians and Bhowanipore for Europeans)

Built mass with better planning and defined open spaces (gardens) came into existence.

There’s a rise in the size of the hospitals gradually. The number of bed intake increases over the years.</td>
</tr>
<tr>
<td>1806</td>
<td>Along the Western coast, first mental hospital was started at Colaba, Bombay. European and Indian patients were segregated in separate wards.</td>
</tr>
<tr>
<td>1817</td>
<td>Surgeon Breadmore tried to improve the conditions of the hospital at another site behind the Presidency General Hospital, Calcutta. It accommodated around 50-60 European patients with clean surroundings and a garden.

A private asylum for Europeans opened in Bhowanipore, replacing the poor</td>
<td> 
Source: Fiebig Federick (Photographer)

CALCUTTA (Courtyard View)</td>
</tr>
</table>

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	facilities of the government institution.	 *Source: www.rinpas.nic.in* PATNA	The function of mental asylums was more custodial and less curative in nature.
1821	The mental asylum at Munghyr was shifted to **Patna** on Lower Road.	 *Source: www.wikimapia.org* DACCA	The large masses of the local population were mostly left unattended and uncared for. The mentally ill from the general population were taken care of by the local communities and by traditional Indian medicine doctors, qualified in Ayurveda and unani medicine. The built mass in village area did not change much from earlier era.
1847	**Dallunda** Lunatic Asylum opened for **Indian patients.**		
1855	In **Dacca**, currently Bangladesh, a lunatic asylum opened at the **back** of the **central jail**. It consisted of **2 tile sheds** and **3 single story buildings** accommodating 278 males and 45 females.		

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Mid Colonial Period (1858-1918): The Period of Growth

Table 4

Mid Colonial historic development

Year	About the Era	Photos/Sketches	Inference/Analysis
1858	Enactment of the **First Lunacy Act** (Act no. 36); gave **guidelines** for the establishment of mental asylums. Asylum in Agra was started with the administration handled by the Inspector General of Prisons. Mostly **custodial care** was provided in **mud houses.** The wards and living conditions of the inmates were very poor and unhygienic. Lice were seen on the walls also and many patients died because of diarrhoea.	 *Source: Indian J Psychiatry* AGRA (Old Infirmary Ward)  *Source: Indian J Psychiatry* AGRA (Single Cells)	This period witnessed steady growth in the development of mental asylums as well as the **improvement of their built mass.** There was segregation of building and supervision in India. In comparison to earlier periods, the number of beds had a major increase, hence the **built mass increased** in size.
1871	In May, in **Madras** city, a new hospital was opened for **145 European and Indian patients.**	 *Source: Indian J Psychiatry* MADRAS	In this phase, there was a **discernible growth** in the number of mental asylums, located away from the major metropolitan cities in the provinces, and the **local population** was also permitted to **avail these facilities**.
1872	Asylum in **Colaba** mainly for European with 285 beds and the asylum in **Ahemdabad** had 180 beds. *By 1874, in Eastern part of India which included Bengal, Bihar, Orissa,*		This shows that a **humanistic approach** was adopted. The developments of this phase

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	at least six asylums opened, Techniques of 'moral management' systems were adopted. Drug treatments were introduced to control patient behaviour by putting them to sleep.		were characterized by a more humane handling of mental health issues
1876	A new asylum was opened at **Tezpur** to cater to the need of the mental patients of **Assam**.		
1905	The **control** of mental hospitals was transferred from **the Inspector General of Prisons to The Directorate of Health Services.**		
1912	This year is significant, as the capital of India as shifted from Calcutta to Delhi. Under the **Indian Lunacy Act 1912**, a central lunatic asylum was established in **Berhampur** for **European** patients, which later closed down.	 *Source: www.indiaplacesmap.com* BEHRAMPUR	Despite establishing so many asylums, the number of lunatics admitted to these institutions was very large and increased further in the following years. Consequently, there was deterioration in the public health and hygiene of the hospital. By the end of the second phase, most of these buildings were in **a bad state, in constant need of repair and renovation.**
1918	This was closed after the establishment of Central European Hospital at **Ranchi** on 17h May by **Col Owen A R Berkeley Hill**, who was deeply concerned with the improvement of mental hospitals in India and made the Ranchi institution as the	 *Source: www.cipranchi.com* RANCHI	

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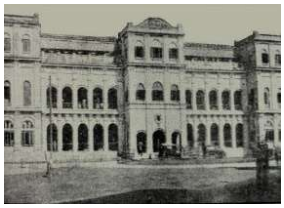
	foremost in India at that time.		

Late Colonial Period (1920-1947): Movement away from Mental Hospitals

Table 5

Late Colonial historic development

Year	About the Era	Photos/Sketches	Inference/Analysis
1920	The efforts of Dr. Berkeley Hill helped to raise the standard of treatment and car at the mental hospital at Ranchi. Persuaded the government to **change the term from 'asylum' to 'hospital'.**	 *Source: www.thewirehindi.com* CIP, RANCHI	The emphasis shifted from custodial care to curative approach. An observed change in the typology of the built mass: focus more on outpatient units, the planning and architecture aspects change drastically.
1922	**Occupational therapy** was recognized as a part of the treatment given and its unit was set up in Central Institute of Psychiatry in Ranchi.		
1933	The **first psychiatric outpatient service,** was set up at the R.G. Kar Medical College, Calcutta.	 *Source: www.thewirehindi.com* R.G. KAR MEDICAL	
1938	The second such unit was organized by Dr. K. R. Masani at the J.J. Hospital, Bombay.		

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1939	Dhunjibhoy opened **one day weekly clinic** at Prince of Wale Medical College (now Patna Medical College).	COLLEGE, CALCUTTA	
1940	During this time the emphasis was more towards **improving** the conditions of **existing mental health care** and treatment programs.		
1946	'Bhore Committee' a health survey and development committee surveyed mental hospitals. **Observations:** Majority of hospitals were out of date and designed for detention in safe custody without regard for curative treatments. Hospitals in Punjab, Thane, Nagpur, Bombay, Agra were observed to be savour of the work house at prison, should be rebuilt. The rest of the hospitals should be improved and modernized.		

3. SITE AND ITS CONTEXT

Corrigon P. (2004) remarks patients with mental illnesses often face prejudices, stereotypes, discrimination as well as social ostracism, leading them to avoid treatment in a psychiatric facility. There is a deep-rooted stigma attached to these facilities and, they are associated with a place of isolation by society.

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It is important for these healthcare facilities to have easy accessibility, strong imageability with a visual connection, and to be inclusive in the city planning.

Domesticity and Physical Milieu

Historically, areas of rehabilitation were placed outside the urban fabric with high enclosures and the built mass was highly disproportionate to human scale, thus instilling a sense of trepidation, fear, and anxiety. This image projected by the infrastructure of these healthcare buildings reinforces the prejudice and stigma associated with it.

The physical presence and integration with the surroundings can shape its image in society and contribute to combating stigmatisation. The earlier practice of withdrawing patients from the complexities of urban lifestyles posed a challenge to the permanence of the treatment process. The inclusive approach is to amalgamate these facilities within the urban fabric to normalise their presence by easy accessibility, visual connectivity, imageability, and last-mile connectivity. There's a need to de-institutionalize the space and shape its character to resemble a domestic space that instils a sense of comfort and welcomes the onlookers.

Domesticity and normalisation in the built environment and spatial organisation would contribute greatly to the healing process. Architectural response to domesticity includes:

- Shifting the location of the facility to a nearby local community
- Reducing the overall scale and massing of the building

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- Designing facades that include references to the local residential environments and are relatable.

Privacy, Personalization, and Choice

The spaces designed should ensure self-dignity, privacy, and intimacy. The built environment should provide the patients with maximum autonomy, homely interior arrangements, and freedom while ensuring surveillance and safety requirements. The interior arrangements should provide for privacy, acoustical isolation, adequate lighting levels, light music, seating options, and access to eatery facilities to instil a sense of control and competence within the patients.

Safety and Security

The spatial organisation should provide simple building layouts, obvious travel paths, clear signages, ease of movement, a sense of security, natural light and ventilation, orientation in time, and information by integrating the internal and external layouts.

The crucial element of safety is observability and visibility which is of paramount importance in the design of healthcare facilities for the prevention of suicidal and violent behaviour of patients. Two different approaches for dealing with such a target group has been discussed by (Chrysikou, 2014).

- One approach provides for the availability of a sacrificial layer, for the purpose of controlled destruction.
- The second is leaving fewer opportunities for destruction by eliminating the possibilities of damage.

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Outdoor Areas

Outdoor areas in healthcare are related to therapeutic, psychological, and socio-financial benefits. The user group of the hospital: patients, visitors, and hospital staff members, spending long hours or days in a hospital can relate to a stressful experience. People's ability to deal with stress is enhanced with access to a natural landscape or gardens and thus potentially improving health outcomes (Schütz, 2011).

Historically, greenery, sunlight, and fresh air were regarded as essential components of the healing process. With time the therapeutic value of access to nature disappeared from behavioural sciences hospitals. The air conditioning replaced natural ventilation, outdoor terraces and balconies disappeared, the open gardens and parks succumbed to parking lots, and indoor spaces were institutionalized and became stressors for patients, visitors, and staff. Significant research by Roger Ulrich supports that views of green areas or nature have a positive influence on health and therapy outcomes. Also, strategically planned green spaces can reduce the overall energy costs of the built envelope.

RESULTS

Analysis of the Historic Development

Society was fogged with ignorance and prejudice against the understanding of the ill up till the Vedic era. It was inferred that in the Vedic era, mental illness was considered a divine curse with no space allocation for the sick. They were left to themselves and to god's mercy. With the advent of Ayurvedic and Unani medicines in 1500–500 BC, mental illness was

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recognised and isolated small spaces were provided in their own homes or religious places for the treatment of patients.

In the Ashoka and Gupta period, there was recognition of mental illness and the process of treatment and healing was carried out in the religious places on the outskirts of the city. In the Mughal era the idea of community care and large areas for housing. The Mughals provided open guarded spaces in residential setups so as to encourage community care for the healing of patients.

The early colonial period saw an establishment of proper dedicated built mass for these patients. The disease was recognised and the patients were isolated in separate vicinities on the outskirts. The asylum planning was structured with defined built and open spaces but was more custodial and less curative in nature.

The mid colonial period saw an integration of asylums with a larger number of beds in the outskirts of the city as a part of healthcare planning. The number of patients increased as the acceptance of this disease was realized which led to deterioration in public health and hygiene of the hospital. The awareness and acceptance of this disease by medical practitioners and the general public the behavioural healthcare facilities with a humanistic approach became an inclusive and integral part of mainstream healthcare.

In the late colonial and post-independence era, behavioural sciences hospitals became a part of the regional and master planning of a city with an identified budget allocation in healthcare planning. The emphasis shifted to a curative approach from custodial. There was an observed change in the typology of built mass shifting the focus more on outpatient units.

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DISCUSSIONS

The traditional approach of placing behavioural hospitals on the outskirts in custodial settings need to be eradicated. The inclusive approach to bring these facilities into the urban fabric along with some natural elements of countryside environs needs to be employed. Regional and Master Plans should cater for more behavioural science hospitals based on the demographical and healthcare profile of regions. These facilities should be integrated at the community centre, Sub District, District and multi-speciality hospitals and should preferably be near the General hospitals with easy accessibility, last-mile connectivity etc. This is important to normalise the presence of these facilities in our everyday lives to combat the stigma attached to them.

Usage of locally available materials should be integrated into the design process to strive towards the use of less embodied energy. Institutional feeling and a sense of enclosure should be combated with a humane and reassuring approach. The integration of greenery and nature into the built fabric is important in the planning of the behavioural sciences hospital for the holistic wellbeing of users.

CONCLUSION

The architectural design and planning of the hospitals should convey the harmony of proportions and colours to create a comfortable patient-friendly environment and alleviate the mood. The combination of formal and informal spaces should result in the creation of organic fluid spaces fostering a human (e) approach.

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The architecture of a space also influences the relationships and interactions of the users greatly. A space should be designed intricately where society and psychiatry meet naturally and are not forced upon each other.

LIST OF TABLES

LIST OF FIGURES

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