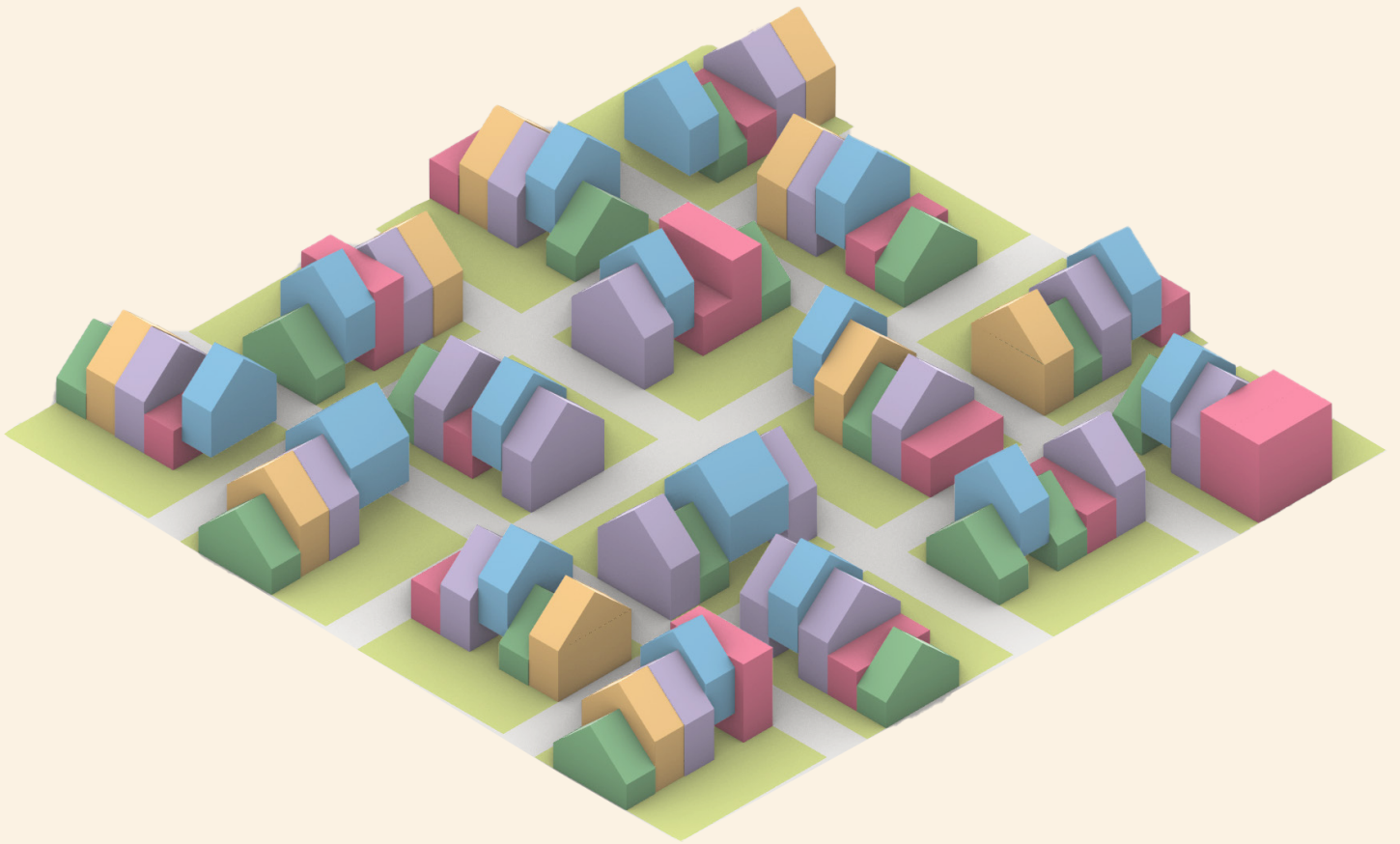


# Towards Normalization: De-Institutionalising Mental Healthcare and Catering the Youth



*Figure 1: Simplified vision of multiple districts with pink indicating the frequency of health care centers*

**Graduation Thesis**

**Rushil Raj Kapoor**

Towards Normalization:  
De-Institutionalising Mental Healthcare and Catering the Youth

Dwelling Graduation Studio AR3AD110  
Designing for Care in an Inclusive Environment

Architecture, Built Environment

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According to a study done by University of California San Francisco, 48% of young adults up to the age of twenty-five years, have mental health challenges (Berthold, 2022) . These numbers are a clear indication of how severe and sensitive the disease is and therefore it is important to recognize the root causes.

The pandemic and multiple lock downs have created a major imbalance in people's lives. Mental Health often has a direct correlation to societal burdens which include poor access to public services, system fragmentation, unemployment amongst parents which leads to lack of support and care for the children and uneasy transition to adulthood, which have become recurring factors due to the pandemic. These societal burdens lead to an increase of crime rates, substance abuse and mental distress among the young adults. Therefore, pandemics such as corona virus pandemic can be recognized as one of the root causes of the increase in mental illnesses in present day (Macdonald, 2016).

Another prevalent topic in present day is the digital world which has offered a lot of benefits to society but also has a string of drawbacks. The evolution of technology has made social media more accessible to the mass. On-line platforms such as Facebook, Instagram and Twitter have allowed people from every corner of the world to connect with one another. While social media is becoming an integral part of one's life, it is also highly associated to cause depression, anxiety, feeling of isolation and the fear of missing out amongst (FOMO) the young adults (Edmonds, n.d ) . FOMO is so prominent that according to Anxiety and Depression Association of America, it is now classified as social media anxiety disorder. A report issued by GlobalWebIndex (University of Nevada, 2019) states that people with the age between sixteen and twenty-four spend an average of three hours and one minute on social media per day. Interestingly, another report (Kim-Cohen et al., 2003) suggests that adolescents that use social media for more than three hours a day might be at heightened risk of mental health problems, particularly internalization problems. This shows how addictive different online platforms can be and therefore are another root cause of mental illnesses.

Stigmatization of mental illnesses is a major barrier and a leading cause to the expanding mental health gap. Throughout history, people with mental illnesses have experienced discrimination and the built environment has played a crucial role. From asylums to inhumane and unhygienic hospital facilities. The recognition of the severity at hand led to sanitary care facilities, yet the institutionalization of mental illnesses has played a key role in its stigmatization.

### 1.3 DEFINITION OF THE PROBLEM

References to mental illnesses are visible throughout history and the evolution has been rather cyclical. In the 16th century, the mentally ill, the poor, the homeless, the unemployed and criminals all fell under the same category and were confined to hospitals and asylums. Towards the 18th and 19th century there were concerns towards the living conditions of mentally ill people as the facilities were considered inhumane. The 20th century saw a rise in a more humanitarian view towards mental illnesses which eventually led to more hygienic and livable facilities. The 21st century has seen the beginning of a new cycle due to which mental illnesses are rapidly rising (Farreras, I.G., 2022) .

Whether it is social media, societal burdens or stigmatization, what is important to acknowledge is the fact that mental illnesses are omnipresent, even in countries that have taken conscious steps towards reduction. The Netherlands is a country with a very sophisticated educational system. They have successful programs for children with Special Needs (Mameren, 2017) and also have psychologists in most of the ordinary schools for the students to talk to (d’Uva et al., 2022) . Yet according to the NL Times, Dutch young adults have higher rates of mental illness than the rest of Europe (NL Times, 2021) . Dutch studies suggest that girls and young adults in particular were more likely to suffer from mental illnesses and nearly half of the youth were negatively impacted by the pandemic (Statistics Netherlands, 2022). The Netherlands is also known to have poor youth access, and this is due to the long waiting lines (Seveno, 2022) for youth and mental care that were a by-product of the corona virus pandemic. Hence there is a problem at hand that requires viable solutions to reduce the high number of mental illnesses in The Netherlands.

It is clear to say that mental health illnesses among the youth is on the rise. The new cycle of modern lifestyles and habits alongside additional influences such as social media, have a concerning impact on young adults. Current institutions and facilities lead to possible social exclusion and isolation for those afflicted. Certain design principles within the built environment can improve the approachability and attractiveness of mental health care facilities. It is important to analyze how these principles can be implemented in order to normalize visiting health care facilities especially for the youth that have mild to moderate mental illnesses, so that preventive measures can be taken at an early stage of the illness.

It is fictitious to say that edifices can cure mental illnesses, but it is true that the built environment curates and influences human behavior. Architects are the mediators of the interaction between humans and buildings, therefore design with certain characteristics can strive towards the normalization of mental health care and de-institutionalisation of mental illnesses.

### 1.4 AIMS

The primary aim of the research is to explore de-institutionalisation as theme and approach as an alternative architectural solution to current existing mental health facilities. Additionally, to determine how mental illnesses can be prevented through community centers alongside curation through communal based living done to promote social connectedness by the help of biophilic and natural design elements integrated in an urban context.



## 1.5 OBJECTIVES

In order to achieve the goals mentioned, the research aims at understanding multiple factors that would suggest certain solutions and also provide a guidance towards better design strategies. For example:

- a. **Understanding the current systems.** One must understand the current health care systems in place for the youth. It is important to indoctrinate the advantages and successful elements of current care facilities however one must be critical too. This would help in challenging the existing approaches with a goal of improving the programs in place.
- b. **Insight of the needs of the youth.** To really achieve the goal of reducing mental health illnesses, the design strategy must work. In order for it to work, it is critical to understand and meet the needs of the target group. Only once the target group is satisfied and comfortable with the design solutions, the goal would be attainable.
- c. **Spatial planning and its requirements.** With the main aim of understanding the current care systems as well as the needs of young adults, it is important to do a spatial analysis. From a neighborhood to a district scale in order to identify the potential locations which is key.

## **1.6 THEORETICAL FRAMEWORK**

The Theoretical Framework dives into the interesting and meaningful literature studies that would help in shaping the ideologies of the thesis framework. The literature studies can be divided into three main themes that have overlapping and common topics that indicate the relationship and interlink between topics. The three main themes are: Prevention is better than cure, Youth and Their Living Environments, and Impact of Nature.

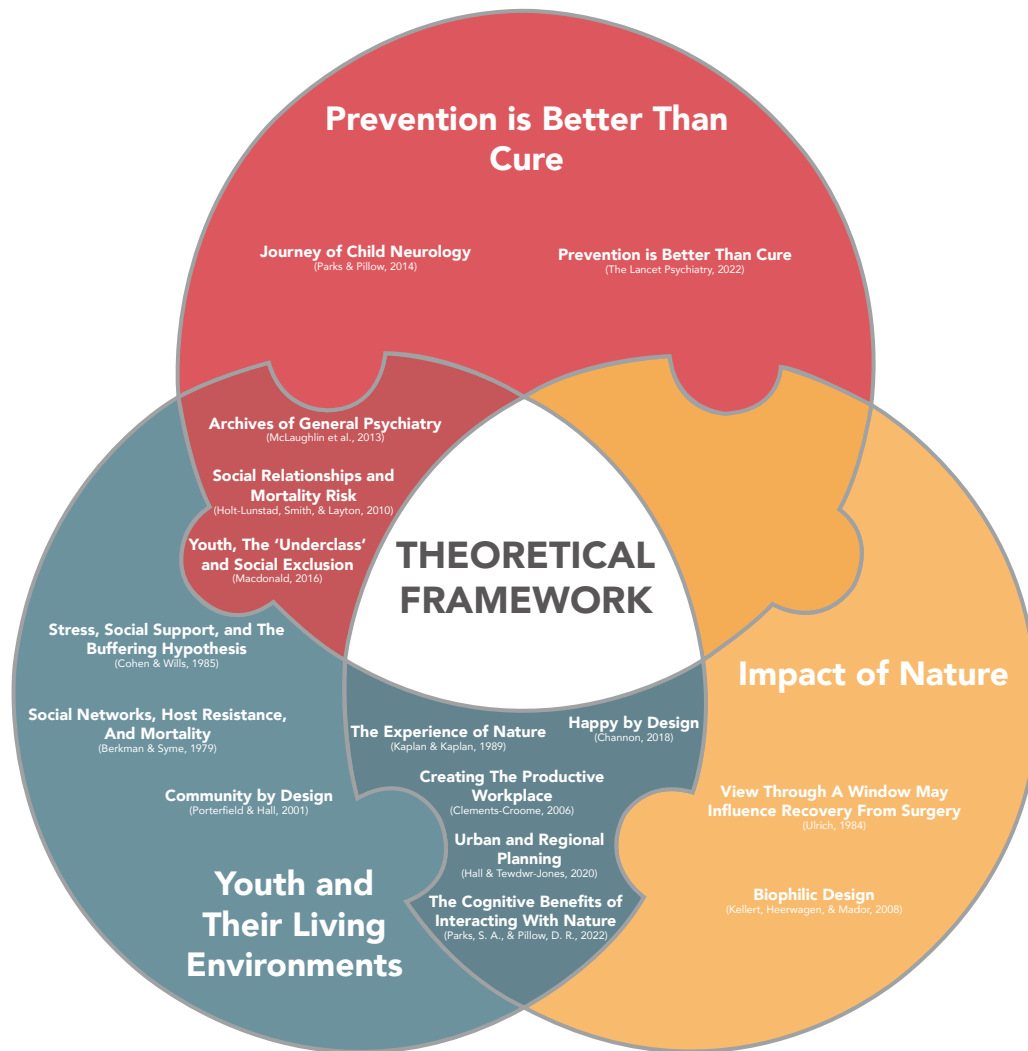


Figure 3: Theoretical Framework

### *1.6.1 Prevention is Better Than Cure*

A commonly used phrase that was first mentioned by the Dutch scholar, Desiderius Erasmus. The phrase speaks for itself as it follows the ideology of proactive awareness led by preventative interventions having more importance than a cure with remedy. This philosophy is crucial to the world of mental health in which early signs during adolescence are often ignored. Initiatives taken by organizations such as WHO under the Mental Health Gap Action Program have led to the recognition of the importance of early prevention. Governments and policy makers have been introducing interventions for the betterment of their citizens and this is visible in countries like UK and New Zealand which can be further incorporated in other countries such as Netherlands.

The slogan has empowered people to take self-initiatives to protect their fellow loved ones. While strategies exist to prevent mental and physical illnesses, the transition of a strategy into an action should not be left on the dependency of policy makers. Measures should be led by self realization as well as psychological and psychiatric advocacy. When threatened by fire in a town, Benjamin Franklin once told the citizens of Philadelphia that “An ounce of prevention is worth a pound of cure” (The Lancet Psychiatry, 2022) .

### *1.6.2 Youth and Their Living Environments*

With the focus of the target group being young adults, it is crucial to understand their needs and preferable living environments. Studies done by Channon, Clements-Croome and Cohen & Wills all suggest that the built environment plays an important role to enhance one’s mood as well as mental well-being. Design tailored to the needs of young adults with mental illnesses is the desired outcome and can be investigated through books like “Happy by Design”.

The target group of young adults was chosen as they are anticipated to be the most vulnerable to mental illnesses and this is due to several factors. In the book *Youth the ‘Underclass’ and Social Exclusion*, Robert MacDonald talks about the rise of youth known as the underclass, witnessed in Britain, United States of America and other western societies. The ever-changing socio-economic demographics of cities with urban sprawl have placed young men and women at the center of focus and label “underclass theories”. Commonly emerging themes among the underclass are unemployment, crime, homelessness, single parenthood etc. The book further goes on to mention that such situations require a shift in welfare and youth policy (Macdonald, 2016) .

What is important to take away from this book is that societies are ever- changing and this causes a lot of instability. Today it is a pandemic and tomorrow it might be an economic great depression. In these acute circumstances there is a rise in a certain category of people known as the underclass. This often includes young adults of affected families and due to the harsh environments and conditions, the youth go through mental health illnesses. Welfare reforms and youth policies such as care centers are crucial in such conditions.

Social media is often considered as controversial topic. While it has a lot of positives, it is often considered as a major cause of mental illnesses. The literature paper “Social Networks, Host Resistance, And Mortality” indicates the effects of social media on the youth and how it has led to the development of new identities and behavioral patterns that the built environment must adapt to.

### *1.6.3 Impact of Nature*

The importance of nature in one's mental well-being cannot be overstated. Many literature studies push towards the inclusion of natural elements in the built environment. That alongside the exposure to nature itself is crucial.

The literature paper "Biophilic Design" is based on the idea that humans have an intimate connection with nature and natural elements that can be fostered through design. Biophilic Design introduces these natural elements into the built environment in the form of natural materials, views to nature, water features and plants within the interiors. This importance of nature for healing was first experimented and discovered in 1984. A research paper written by Ulrich talks about the discovery and its benefits.

While this theme is not a new concept, it seems to be overshadowed by modern styles of architecture that focus on new materials, ways of construction and parametric design. Hence, this theme is a reminder of the importance of nature and will be further analyzed and considered while making design decisions.

### *1.6.4 Position*

The theoretical framework themes of Prevention is Better Than Cure, Youth and Their Living Environments, and Impact of Nature are crucial while designing programs for young adults with mental illnesses. It is important to understand the very particular needs of this population and architects can create spaces that foster independence, uplift people's moods and provide a sense of belonging that ultimately improves one's mental health. These themes will be adopted to create design solutions and the architectural principles will be shaped around these core values.

## **1.7 DESIGN HYPOTHESIS**

It can be hypothesized that in a dense urban setting of a Dutch city, a biophilic and nature integrated design might be possible, and moving from institutionalized mental health facilities to de-institutionalised communal based facility might be a better long-term strategy for mental health care. Therefore, a communal design would help in fostering connections and social interactions between the patients making them raise awareness about mental illnesses and promoting the de-stigmatisation of seeking for help. This process would also potentially help the prevention of mental relapse and would encourage the patients to reintegrate with society and its norms.

# 2. RESEARCH QUESTION

## 2.1 RESEARCH QUESTION

*What architectural and built environment solutions can support the prevention of mild to moderate mental health illnesses among young adults, in The Netherlands?* In order to answer this research question, one must investigate the following sub questions:

1. Can design choices in the built environment prevent mental health illnesses among young adults?
2. What are the needs of young adults with mental illnesses, in the context of The Netherlands and how does the built environment cater them?
3. What architectural and built environment solutions lead to improved mental health?
4. How do current facilities accommodate young adults with mental illnesses?

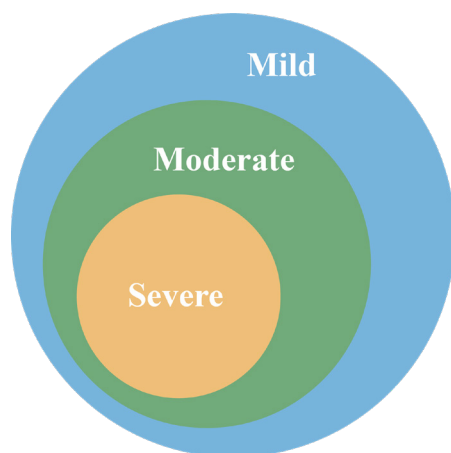


Figure 4: Degrees of Mental Illnesses

Mild Mental Health problem is when a person has a small amount of symptoms that have a limited effect on their daily life

Moderate Mental Health problem is when a person has a more symptoms that can make their daily life much more burdensome

Severe Mental Health problem is when a person has extreme symptoms that can make their daily life very problematic

## 2.2 DEFINITION OF TERMS

- Mental Illnesses:** Disorders that affect your mood, thinking and behavior (Mayo Clinic, 2019)
- Adolescents:** Classified age range of ten to nineteen, by the WHO (World Health Organization, n.d)
- Youth:** Classified age range of fifteen to twenty-four, by the UN (United Nations, n.d)
- Young Adults:** The target age group within the thesis, consisting of people in the age range of twelve to twenty-five
- Stigmatization:** The act of treating someone or something unfairly by publicly disapproving of them (Cambridge Dictionary, n.d)
- Normalization:** The return to the usual or generally accepting a situation (Cambridge Dictionary, n.d)
- De-Institutionalisation:** The process of replacing long-stay psychiatric hospitals with less isolated community mental health services for those diagnosed with a mental disorder or developmental disability (Wikimedia Foundation, 2022)
- Therapeutic Design:** Architecture that can be described as the people- centered, evidence- based discipline of the built environment, which aims to identify and support ways of incorporating those spatial elements that interact with people physiologically and psychologically into design (Chrysikou, 2014)
- Biophilic:** Relating to, showing, or being the human tendency to interact or be closely associated with other forms of life in nature (Merriam- Webster, n.d)

## 2.3 STATING THE ASSUMPTIONS

What is written in this thesis is based off some assumptions that were made at the beginning. One such assumption is that the existing facilities in Netherlands do not consider preventive measures or holistic treatment methods such as the biophilic and natural setting of a care facility while treating the patients, to a large extent. Instead, the patients are placed in an institutional looking building or a hospital and are treated with medicines without fully addressing and solving the root causes of the illness which might even be a societal problem. This hints towards the relapse of patients, making them return to their old customs which caused the mental illness in the first place. One can also assume that the thesis does not lead to any medical discoveries and neither does it hint to new and breakthrough technologies. At last, an assumption can be made that design choices do not fully prevent and solve mental illnesses however, they do play a crucial role in the experience.

# 3. RESEARCH METHODS

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The following research has been predominantly qualitative in nature alongside minor quantitative data. The thesis is written with the help of information gathered by both primary and secondary sources. The primary sources include first-hand knowledge acquired through fieldwork by the help of observations, conversations, interviews and surveys. The secondary sources include extensive literature research of publishes that contribute to the topic of architectural and built environment solutions that can support the prevention of mild to moderate mental health illnesses among young adults, in The Netherlands. The research also includes case study analysis relevant to the thesis' theme and all put together, integrating the research provides a holistic understanding with viable solutions for the problem at hand.

The initial and most predominant form of research is conducted through literature research. With the help of data bases such as the TU Delft library as well as online scholar platforms such as Scopus, a compilation of research papers, scientific articles, books and additional publications have been determined. The literature review has helped in establishing certain factors that directly influence the outcome. Rapid globally changing conditions have imposed challenges such as migration, war, violence etc. The book 'Mental Health and Illnesses of Children and Adolescents' talks about these challenges and its impacts on young adults (Taylor & Verhulst, 2020) . This has helped in understanding a fundamental issue that has led to the overarching problem of mental illnesses among the youth. A study done by Aditi Desai suggests that physical environments can be conducive towards mental health recovery and factors such as exposure to ample day light has proven to reduce cortisol levels. High cortisol levels are an indicator of excessive stress levels (Desai, 2015) . Additional key themes that emerged through literature review suggests that therapeutic design has great benefits. With an eye towards interior details, patient rooms, nursing stations, security and privacy, the patient and staff well-being are catered to, directly effecting the occupancy levels. All the literature sources lean towards certain design choices to elevate the atmosphere and help the ones in need. Some of these design elements include maximizing daylight penetration, creating coherent and friendly corridors and staircases, prominent display of biophilic elements, use of specific colors etc. With the intention of reducing mental health illnesses among young adults, the design strategies must adhere to the factors mentioned in order to create a healthy and inviting aura. Hence, the literature review was categorized into three main themes mentioned in the theoretical framework: Prevention is Better Than Cure, Youth and Their Living Environments, Impact of Nature.

In addition, to find the applicable data, several combinations of keywords such as Mental Health AND Youth AND Social Media have been used. Another combination of keywords being used are Youth AND Care AND Services. These combinations have given a large amount of results out of which relevant references have been discovered. Countries like Canada and New Zealand already have established systems in place that are similar to the goal of the thesis. Concepts such as "Community-Based Youth Service Hubs " (Henderson et al., 2022) and "One-Stop Shops " (Hetrick et al., 2017) are also relevant references. The organization called Foundrybc (Foundry, n.d) is an example of a community-based youth service hub, with ample online data such as videos and user experiences that could help and understand the already established systems. Additionally, two case studies have been used and analyzed due to their relevance to the topic and due to their important design features. The two case studies are



Trillium Secure Adolescent Inpatient Facility and Health Nursery School in Orkelljunga. Studying about these programs is important to inspect the potential in a Dutch context. It is also crucial to compare these programs to already existing mental health facilities in the Netherlands, to then list down the advantages and disadvantages of each kind.

At last, the research includes primary sources such as site visits to care centers with the specific target group, interviews and surveys. This first-hand knowledge has been attained through observations and general conversations to get a personal understanding of the user needs and requirements. Additionally, interviews with the caretakers have helped in understanding the correct use of spaces, undesired obstacles and preferred design outcomes which is noted and sketched. Interviews with architects and psychologists have given an insight from professionals relevant to the topic, giving a realistic approach to the solutions presented. Lastly, survey results from the target group itself helped in understanding their needs, requirements as well as the causes of the illnesses.

The end result of these exercises have helped in creating design strategies. The literature research, architectural research and anthropological research have been used to answer the main research question as well as the additional sub-questions. The desired outcomes would elevate the current mental health systems for the youth, with the goal of encouraging the youth to seek for help and at the same time, to reduce the number of illness cases through prevention and curation with the help of communal based living, incorporating biophilia and natural elements in the design in an urban context.

# RESEARCH SCHEME

WHO

Young Adults with Mild to Moderate Mental Illnesses

WHY

Due to societal changes, mental illnesses among the youth is on the rise. The new cycle of modern lifestyles and habits alongside additional influences such as social media, have a concerning impact on young adults. Current institutions and facilities lead to possible social exclusion and isolation for those afflicted. Therefore, reformed design principles within the built environment that can improve the approachability and attractiveness of mental health care facilities is required.

WHAT

## RESEARCH AIM

The primary aim of the research is to explore de-institutionalisation as theme and approach as an alternative architectural solution to current existing mental health facilities. Additionally, to determine how mental illnesses can be prevented through community centres alongside curation through communal based living done to promote social connectedness by the help of biophilic and natural design elements integrated in an urban context.

GOAL

Understanding the current health care systems in place for the youth to implement the successful elements and principles.

GOAL

Meeting the needs of the target group. Once this is satisfied with the design solutions, the goal would be attainable.

GOAL

Spatial planning from a neighbourhood to a district scale to identify the potential locations which would attract the youth.

WHAT

## RESEARCH QUESTION

What architectural and built environment solutions can support the prevention of mild to moderate mental health illnesses among young adults, in The Netherlands?

SUB QUESTION

Can design choices in the built environment prevent mental health illnesses among young adults?

Literature Review  
for preventive measures

SUB QUESTION

What are the needs of young adults with mental illnesses, in the context of The Netherlands and how does the built environment cater them?

Literature Review  
for the needs and living environments of the youth during the illness

SUB QUESTION

What architectural and built environment solutions lead to improved mental health?

Literature Review Conclusions  
by providing a list of design tools

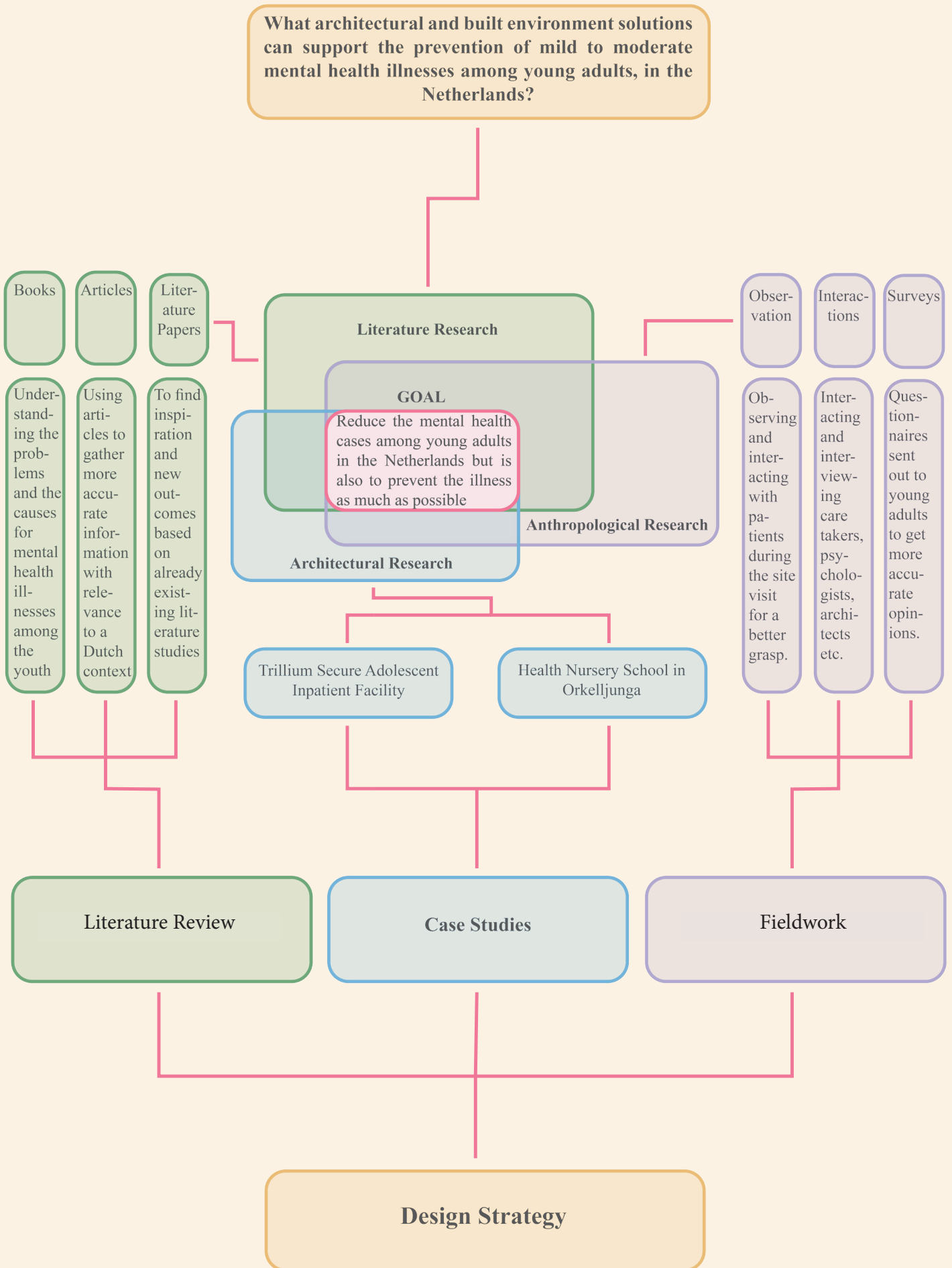
SUB QUESTION

How do current facilities accommodate young adults with mental illnesses?

Case Study Analysis  
of two projects that are relevant to the thesis topic

HOW

# WORKPLAN DIAGRAM



# 4. LITERATURE REVIEW

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## 4.1 PREVENTION OF MENTAL ILLNESSES THROUGH ARCHITECTURAL AND BUILT ENVIRONMENT SOLUTIONS

A key theme that plays a fundamental role in the thesis is the idea of prevention is better than cure. A famous phrase that is attributed to the Dutch scholar Desiderius Erasmus, suggests that proactive awareness and preventive interventions are better and more fruitful than cure through medication (The Lancet Psychiatry, 2022) . This is an important topic in the realm of mental health and will be discussed in this chapter.

Most experts agree that preventing mental health problems at an early stage in the youth is preferable over treatment when the problems become more severe. Even though the target group contains mild to moderate illness cases, yet it must not be taken lightly, and early action is beneficial for a number of reasons:

1. Early interception and active engagement to treat the illness is highly effective. The likelihood of a complete recovery is significantly increased when mental illnesses are discovered and addressed early. This is particularly relevant for problems such as depression, which can cause severe long-term problems if left untreated (Mental Health Foundation, 2019) . Mental health conditions are known to worsen over time and treatment procedures might get more complex, therefore early intervention is key (Substance Abuse and Mental Health Services Administration, 2019) .
2. Prevention can be less of a financial burden. The cost of treating mental health problems can be high, particularly if the patient needs long-term care or hospitalization (World Health Organization, 2017) . In fact, it can be significantly less expensive to prevent mental health problems from occurring in the first place. This can be achieved by indulging in inexpensive treatments such as therapy or by making certain lifestyle choices such as increasing social interactions (Mental Health Foundation, 2019) and other means that will be further discussed.
3. In a fast-paced world, societal changes can cause instability that leads to burdens such as mental illnesses, on people. Global events like the corona virus pandemic or the great economic depression create acute circumstances that often affect families and the youth (World Health Organization, 2017) . Preventive measures such as care centers and welfare reforms help in minimizing mental illness cases which could cause societal problems (Mental Health Foundation, 2019) , if not taken care of.

While it is important to acknowledge the importance of prevention of mental illnesses, it is also crucial to understand the strategies that can be used to prevent these illnesses among young adults. Encouraging positive and good mental health through social bonding and emotional learning programs is key. This can be done by integrating it in school curriculum (Jollant et al., 2013) as well as through youth community centers that are accessible in an urban setting. These initiatives give young people the tools they need to deal with stress and face obstacles in a healthy manner, including self-awareness, self-management and social interaction skills. Prevention of mental health problems can also be achieved by offering help to the youth that are in need. People come from diverse backgrounds and all have been brought up in different ways, some young adults experience childhood trauma and family imbalances that lead to mental illnesses and hence, they require attention and help (McLaughlin et al., 2013) .

Prevention of mental health illnesses among the youth can also be done by increasing availability and accessibility to treatments such as counseling or therapy. These services help in directing young adults towards the right path by making them experience and develop coping mechanisms to manage with stress, anxiety and other problems. Studies also suggest (Centers for Disease Control and Prevention, 2002) that living a balanced life that includes healthy eating and exercise habits, maintain a good mental health condition.

The built environment plays a crucial role in prevention of mental illnesses. It not only helps in hosting and facilitating preventive programs but also the design and layout of buildings and neighborhoods can promote the mental wellbeing of people that live and work in it (Centers for Disease Control and Prevention, 2019) .

By providing access to facilities such as green spaces and natural environments, the built environment can help in improving the mental health of people. Literature suggests (Berman, Jonides, & Kaplan, 2008) that being around nature can improve mental health by lowering stress and anxiety levels and at the same time it elevates people's mood. Access to green spaces also encourage exercise and other forms of physical activity that have a positive effect on mental health (Parks & Pillow, 2014) .

Social interaction and connections are key behavioral patterns to maintain a healthy mental wellbeing and this is often facilitated by the built environment. While strong social ties help in boosting mental health, social isolation and loneliness can have negative impacts according to studies (Holt-Lunstad, Smith, & Layton, 2010) . These social interactions and connections can be encouraged through specific design principles and elements such as the addition of public spaces, parks, libraries, activity centers, multiple living rooms, gaming rooms etc. A lot of these activities can be coupled and placed in a community center which is accessible by the youth.

Other than green spaces and social interactions, the built environment also helps in making mental health services more accessible. Correct design choices make care facilities more approachable and accessible, which is crucial. The design choices will be further discussed in the thesis.

In conclusion, prevention is considered to be more effective than cure for the mental health of young adults. The built environment plays a critical role in the prevention by offering access to green spaces, fostering social interactions and facilitating the approachability and accessibility of care centers. All of these key features can be integrated in the form of community centers spread across a district or city.

## 4.2 BUILT ENVIRONMENT NEEDS OF YOUNG ADULTS WITH MENTAL ILLNESSES

Numerous difficulties confronted by young adults with mental illnesses might have a major impact on their daily life. The consequences could be both physical and psychological in nature and therefore youth care centers are needed to support young adults with mental illnesses.

Accessible and suitable housing is a major requirement for young individuals with mental health problems. Many young adults with mental illnesses find it difficult to locate and stay over an extended period of time in an accommodation. A big reason for this is due to the stigma and prejudice they face because of their illness conditions (National Coalition for the Homeless, 2016). The Netherlands is known to have a severe housing crisis and while the youth is still recovering from post pandemic mental illnesses, the inability to find an accommodation has worsened the mental state of a large population (Statistics Netherlands, 2022). Therefore, it is important for youth mental care centers to provide the patients with proper housing conditions for a better and faster recovery.

When mentioning youth mental care centers, it is also crucial that young adults do get proper access to high quality health care. Numerous challenges, such as lack of information, stigma and difficulties navigating the health-care system, make it tough for many young adults to receive care (Substance Abuse and Mental Health Services Administration, 2018). As mentioned previously, Dutch young adults face the challenge of long waiting lines especially after the corona virus pandemic, making healthcare during a mental crisis an even bigger challenge (Seveno, 2022). Making sure that these people have easy access to prompt and effective treatments will improve their quality of life and will also prevent them from being admitted to a hospital or any similar institutional facility.

Natural environments and social connectedness alongside communal living are themes that are being brought up frequently, it is also critical for young adults with mental illnesses to receive assistance with aspects of day life. These include education, employment, physical and mental health needs. When designing a youth care center, it is important to integrate these aspects in the building program in the form of vocational training, academic lessons, physical activity and counseling. By doing so, the patients would receive daily assistance which would allow them to eventually live independently after treatment without any relapse, improving their livelihood (National Institute of Mental Health, 2020).

In conclusion, young adults with mental illnesses have several needs that can be catered to them by implementing certain design choices to satisfy their needs in order to improve their lives. These needs include access to proper housing, high quality mental health care and life skills programs such for educational and employment purposes. By accommodating the program of functions in care center with these needs, it is possible to significantly improve the quality of life for young adults with mental illnesses and help them lead more independent lives.

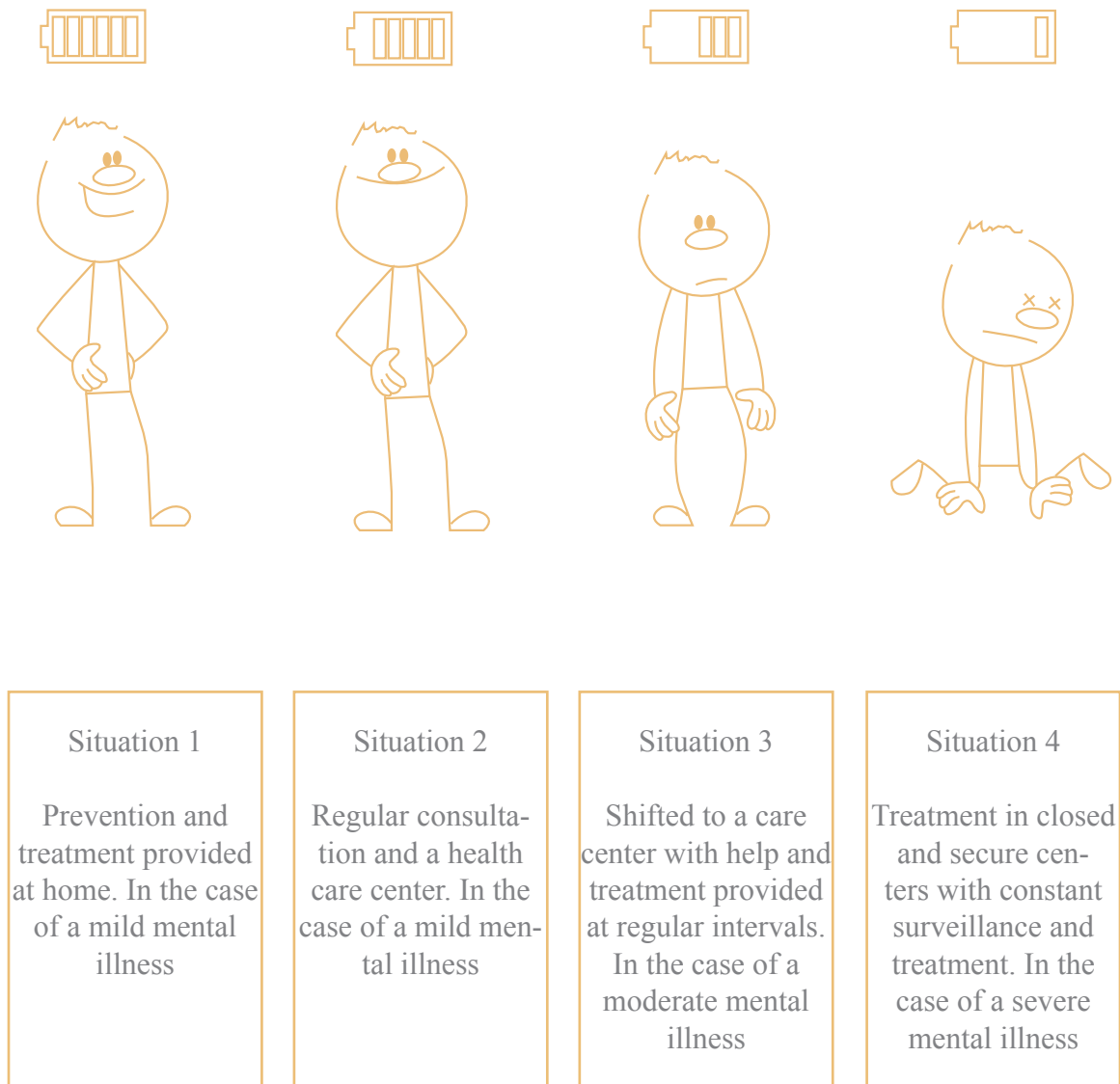


Figure 5: Degrees of Mental Illnesses and treatment in The Netherlands

## **4.3 DESIGN PRINCIPLES IN ORDER FOR YOUNG ADULTS TO TAKE PREVENTIVE MEASURES TOWARDS THEIR MENTAL HEALTH**

The built environment has a significant impact on people's behavior and well-being. The design and layout of edifices, spaces and neighborhoods can influence how people interact with their environment and as a result, it helps in shaping their physical and mental health. Le Corbusier's book 'Towards a New Architecture' also talks about the importance of human experience in a building and the significance of this impact on one's mood (Chanon, 2018). Therefore, it is important to set architectural and built environment solutions in the form of fundamental design principles that would stimulate the users to take preventive measures as well as help in improving their mental health. Based on the literature research done, a multitude of design principle categories can be made however, the author has chosen to create certain preferable groups of principles that are more relevant to the thesis. These principles are subdivided as tools or guidelines under the themes of Natural Systems, Physical Activity, Environment Quality & Micro-climate, Privacy & Control, Sensory Environments and lastly Patient Interactions. These themes will be further explored in this chapter.

### **4.3.1 Natural Systems**

Nature has repeatedly been a source of inspiration and rejuvenation for architects and designers. While there are several health benefits from incorporating natural elements and systems in architecture, it just so happens to be that a majority of the world population now lives in cities and are gradually losing an important connection with nature (Kaplan & Kaplan, 1989). Hence, implementing natural systems in a design is vital.

Global events such as the corona virus pandemic has shifted patterns in human behavior making people spend more time inside the house. The concept of introducing greenery in the form of flora also coined as 'Biophilia' is therefore vital. Plants offer a number of benefits such as uplifting moods and also improve productivity (Li & Sullivan, 2001). Biophilia can be done in the simplest form by adding plants to rooms but can also be advanced by implementing green walls, live trees to the interiors and flowers as a decor.

Constant views to nature should be highly encouraged throughout a building. Humans enjoy appreciating picturesque views of nature and in the modern era, it also helps in taking some time away from screens. Natural views from windows also have health benefits as a study conducted by researchers at the University of Illinois found that hospital patients with a view of nature through a window recovered more quickly and required less medication than those without such a view (Ulrich, 1984). Views can be in the form of a water body, forests, trees or even a simple garden.

Green roofs are gaining more popularity in recent times. They are a great way to create more green space on roofs that are often considered wasted space. Green roofs have great benefits such as they help in providing cleaner air, reduce noise levels, improve a building's insulation and also provide better views to neighbors at higher levels



Living in a dense urban location could be the cause of a lot of noise and stress therefore parks are important to escape the urban life. Large green areas such as parks with trees and plants help in calming people down and taking a break from a daily hectic schedule (Brenner & Sundqvist, 2010) .

Gardening is a great tool that is implemented as a program in many mental health care centers. It has helped in improving the patient’s happiness, self-confidence and routine. It has also proven to combat illnesses such as depression while energizing them. It is also a great educational tool. It helps in connecting people with nature and is a great vocational training program that could benefit the well-being of the youth (Dudley & File, 2018) .

In conclusion, incorporating elements of nature into architecture can provide numerous benefits from physical to mental well-being. It can improve the energy efficiency of buildings and also make them look aesthetically pleasing. Implementing natural elements into design can create a sense of harmony and balance for the patients suffering from mental illnesses.

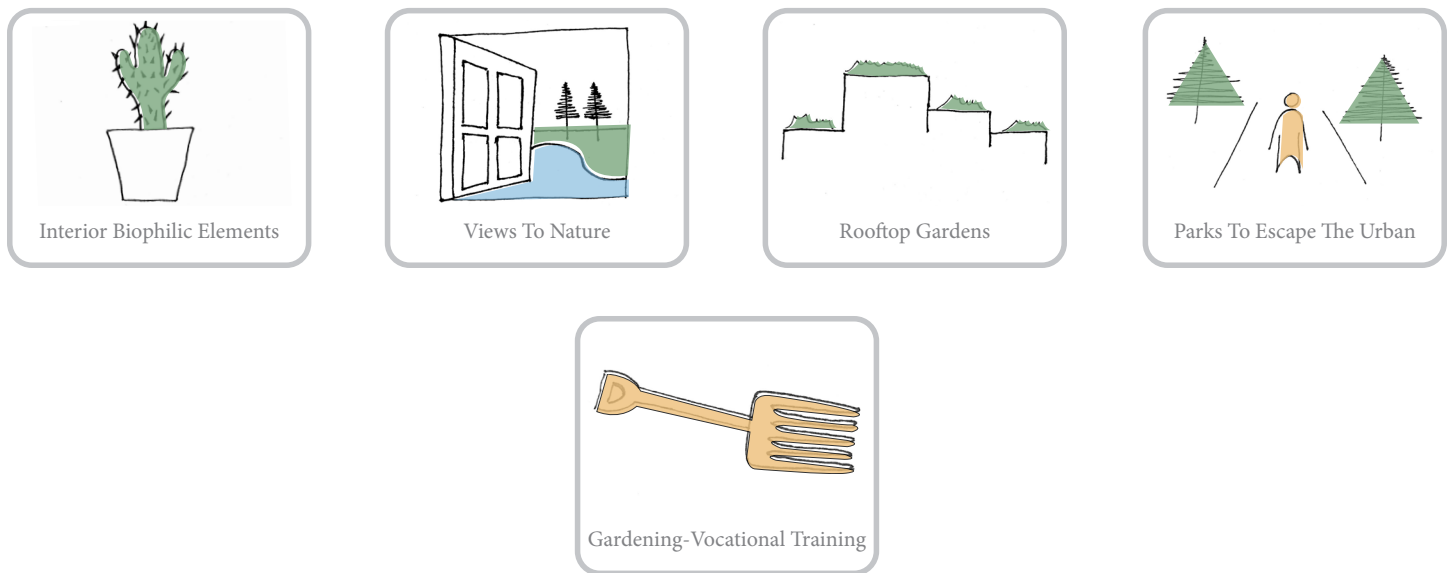


Figure 6: Natural Systems

### **4.3.2 Physical Activity**

Indulging in regular physical activity has a lot of benefits and positively impacts one’s mental well-being. Participating in physical activity helps in cardiovascular health, mental health and also encourages social and psychological improvements (World Health Organization, 2018) . People often tend to find excuses not to do physical activities therefore it is the duty of a designer to encourage this through design.

It is not only important to design a building carefully but is also crucial to give enough attention to its surroundings. An intricate playfulness between indoor and outdoor spaces is key in order to encourage patients to step out and exercise. Playgrounds, sports facilities and parks attract the youth to socially bond over outdoor activities (World Health Organization, 2010) .

Exercise spaces should be made easily accessible. In the times of weather restrictions, it is important to continue physical activity as per routine. Therefore, the addition of indoor gyms definitely helps. It promotes exercise,

social interaction as well as helps in brain development for the youth (Rovniak and Bauman, 2010) .

Being confined to the space of a bedroom is a sign of depression and patient movement from space to space can be encouraged by designing wider streets. Streets often tend to be the heart of multiple activities and social interactions (Kaczynski, Henderson, and Potvin, 2007) . Carefully designing wider streets can help in making it possible and at the same time increases daylight into interior spaces. All of these help in improving happiness and mental well-being.

Another important factor is the connection to nearby facilities. Good access to supermarkets, pharmacies, sport facilities and more through well connected public transport is also a great encouragement for patients to step out and indulge in a form of physical activity (World Health Organization, 2010) . Therefore, it should be an important factor while deciding a site location.

In conclusion, participating in regular physical activity should be an essential daily ritual. It boosts the overall health and well-being of a person and is very important for young adults with mental illnesses for their recovery.

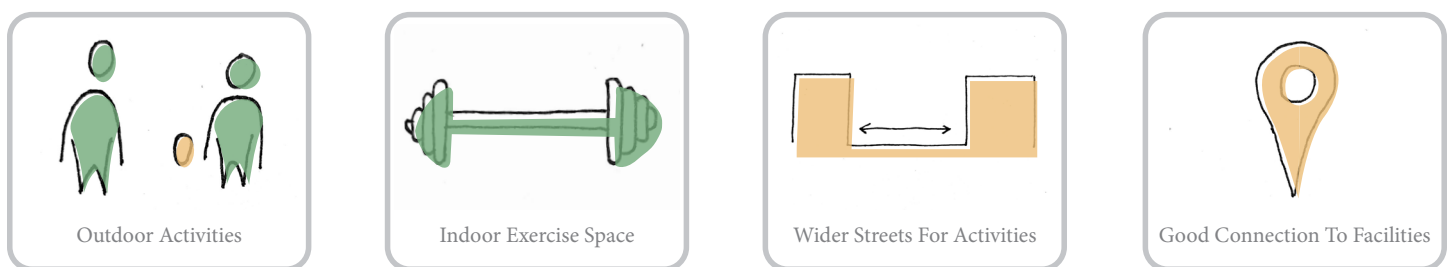


Figure 7: Physical Activity

### **4.3.3 Environment Quality & Micro-climate**

A fundamental aspect of one's life is regular exposure to natural light as well as maintaining a favored micro-climate and buildings help in facilitating that. Buildings must be designed carefully keeping sunlight in mind as it has several health benefits. It assists in regulating the circadian rhythm and also elevates one's mood, productivity and mental health (Bullough and Janssens, 2018) .

The shape and orientation of a building helps in defining the daylight penetration. Rooms that have maximum activity and usage should be placed to the south which receives the most daylight whereas toilets and staircases should face the north that receives minimum daylight (Mathew and Nair, 2018) .

When provided with a large site area, it is crucial to maintain a certain distance between buildings to avoid large casting shadows. Deep rooms tend to reduce natural light and cast more shadows and therefore should be avoided. Shadows are also dynamic and change throughout the day and could be used as a playful design element in the project.

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Window sizes are also important in determining the amount of light entering the rooms. Larger windows naturally allow more light to enter but also lead to more thermal gains. It is thus important to find the right balance between surplus daylight and discomfort (Wilkie and Cheung, 2018) . If material costs and project budgets are to be considered, it is useful to use glass alternatives that have similar transparency functions and could also provide privacy elements.

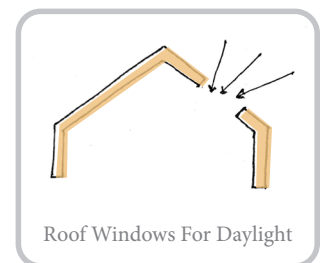
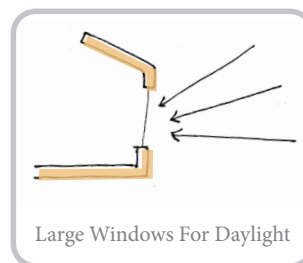
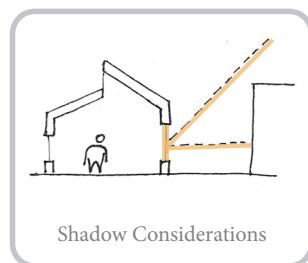
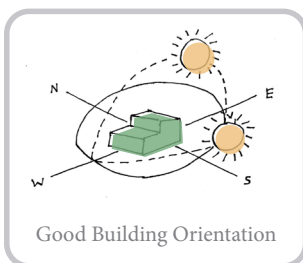
There are often times when views to the outside are not attractive and placing traditional windows might ruin the aura of the interiors or reduce privacy for the patients. Roof lights are a great replacement in such situations as they still offer abundant natural light to the interiors while hiding the immediate outdoor surrounds of the room.

While natural day light uplifts moods and is good for mental health, one must not overlook the correct usage of artificial lights. The correct hue and placement of light can help in creating pockets of calm and sense of privacy for patients. A glare-free and uniform lighting also helps in reducing headaches, improves productivity and boosts one's mood (Bullough and Janssens, 2018) . Hence, it also plays an important role for positive mental health.

Indoor temperatures help in creating comfort for the users. The ideal indoor temperature is between 21C and 25C, this should be maintained throughout the year to create ideal indoor environments (ASHRAE, 2017) . The right choice of materials and the orientation of the buildings can help avoiding extreme temperatures that could be health hazards and also cause mood swings.

Fresh air is a necessity on a daily basis. Studies suggest the importance of clean and fresh air that have huge health benefits. Fresh air is good for the physical health and also for mental well-being as it increases energy levels (Sepänen et al., 2011) .

In conclusion, lighting and indoor climate are vital elements of a functional and comfortable living space. Appropriate natural and artificial lighting alongside micro-climate conditions enhances productivity, uplifts the mood and has a lot of health benefits which would help young adults to be on the right trajectory towards mental health cure.



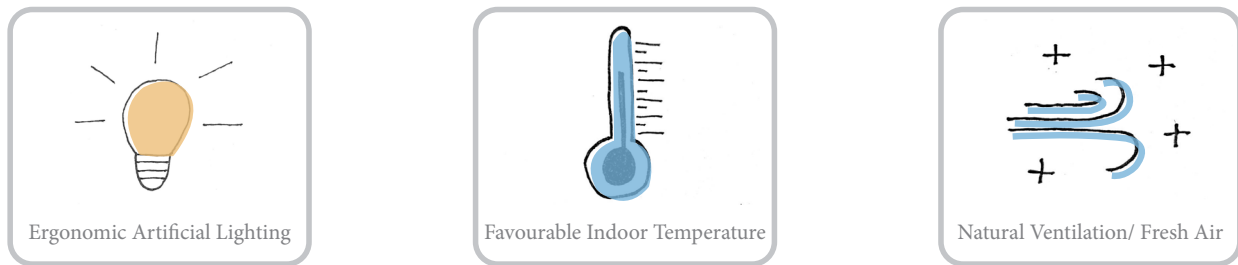


Figure 8: Environmental Quality & Micro-climate

#### **4.3.4 Safety & Control**

Safety and control are prominent aspects for one's happiness. Studies suggest that the more in control one is, the more satisfied they are (O'Connor & Dyck, 2016). The inability to be in control of one's environment causes a lot of stress and mental discomfort. The built environment can help in giving the users this luxury of control and a feeling of safety for better health development.

Open floor plans and the ability to adapt and change spaces gives a resident happiness. Especially in a care center, the residents would get a sense of belonging if the personal spaces can be adaptable, making it unique and different than other rooms. Adaptable furniture is also an interesting design element that multiplies the functions of a space, a design feature prominent in Aldo van Eyck and Herman Hertzberger's designing (Van Eyck & Hertzberger, 2006).

It is important for patients to get privacy during the day. With a fluctuation in mood due to different mental illnesses, patients prefer to be in private spaces in those moments of difficulty (Sánchez & Mahugo, 2015). Rooms should be designed in ways that it can be accessible at all times and gives the patients enough privacy. Certain guidelines also suggest that rooms with similar functions should face each other for example, a bedroom should face another bedroom instead of a living room which might cause mental distress for a patient.

Personalization of spaces and rooms are crucial. If all rooms are designed in the same way, it causes monotony and dullness which is undesirable. Similarly, if all bedrooms have the same design then it feels very institutional, something that should be avoided. Allowing personalization of spaces creates comfort for the residents and provides them a home like feeling (Baumeister & Leary, 1995).

To conclude, safety and control gives humans a sense of satisfaction and this can be done by design implementations such as adaptable spaces, privacy and personalization of rooms. These factors help in providing one's health and the patients with mental illnesses can really benefit out of these design tweaks.

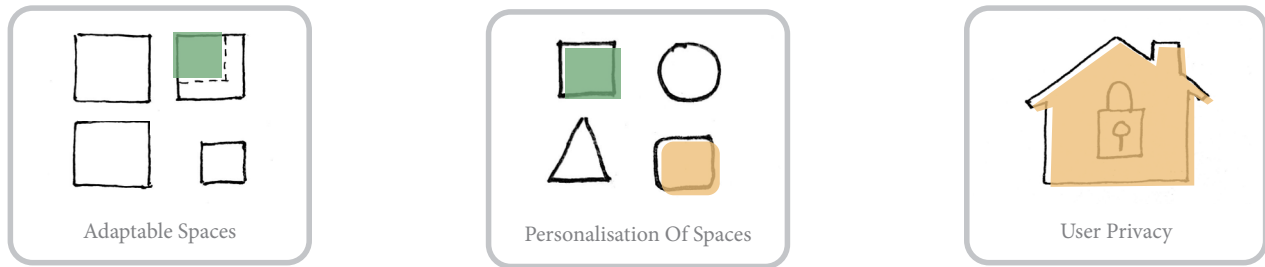


Figure 9: Safety & Control

#### 4.3.5 Sensory Environments

Creating visual harmony is vital to provide patients with mental illnesses a feeling of fulfillment and joy. Irregularities in design can cause visual tension which can have effects on people that are ill (Lea, 2015) . Sensory environments both to the inside and outside should help in the healing process of a patient and are dependent on architectural choices.

As a designer, the appropriate use of colors is a must. Color psychology suggests that colors have different mental effects on humans therefore room interiors and common spaces should be designed keeping that in mind. For example, yellow is associated to happiness and sunlight, green is a calming color and colors like red can have very contradicting meanings and therefore should be chosen carefully (Robertson, 2015) .

With the target group being young adults, creating a playful design with moments of joy helps in uplifting the mood and atmosphere of the area. The Children’s Center for Psychiatric Rehabilitation by Sou Fujimoto Architects implement this in their design by making curious yet cozy corners between buildings, making it very popular parts of the site for the children (Fujimoto, 2013) . The interplay of window sizes is another example of showing childish and friendly geometry.

Use of consistent design features can often lead to visual monotony which is undesirable. Monotony can lead to boredom and an institutional effect which must be avoided in a care center. An interplay of colors, furniture and architectural elements can help in creating friendly architecture which brings a positive mood to the mentally ill.

Ratios of widths, heights as well as other proportions can affect things such as day light penetration, visual harmony and more (Van der Laan, 2012) . Therefore, use of right proportions is a must. Throughout history, proportionality was used to bring satisfaction into design. The use of golden ratio was experimented by many architects such as da Vinci, Le Corbusier, Mondrian and Dali. Recognizable and satisfactory proportions make people happier.

Therefore, to conclude, visual harmony and proportionality is vital for the sensory environments. It brings feelings such as satisfaction, happiness and joy to the patients and is crucial for mental health.

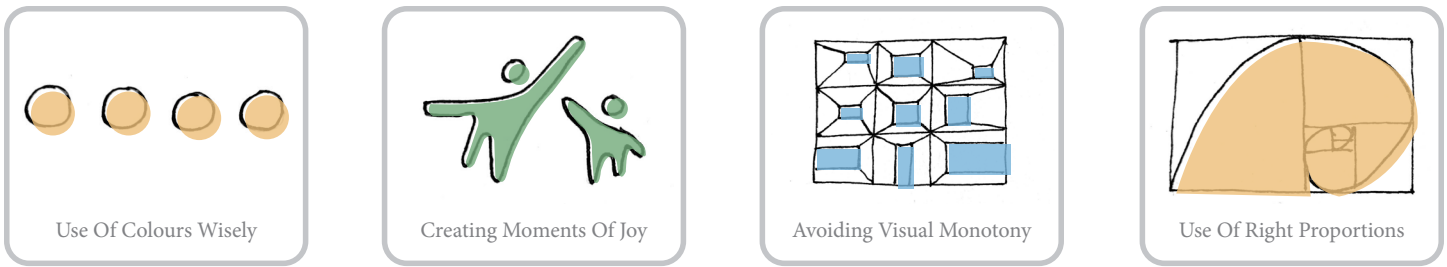


Figure 10: Sensory Environments

### 4.3.6 Patient Interactions

Interactions are an important element for improving mental health. Humans rely on social connections both for survival and well-being (Holt-Lunstad, Smith, & Layton, 2010). Being lonely can lead to a lot of mental illnesses and hence it is important for the built environment to promote interactions (Peplau & Perlman, 1982).

Open plans help in preventing isolation and builds connections when people transition between spaces. It also allows larger gatherings to take place as the space psychologically feels bigger and public. Open plans also benefit the residents with more daylight and put together with interactions, it helps in improving mental health (Hasson & Tzucker, 2019).

Several care centers allow the customization of room entrances which sparks a lot of conversations. Patients often show their personalities or give hints of their lives through their customized doors (Hasson & Tzucker, 2018). The conversations between patients about these entrances promotes social interactions and connectedness.

Using textured materials for furniture in living rooms builds on comfort. Living rooms often tend to be some of the most important spaces in a care facility as it tends to be the center of activity. Comfort must be created by used textured materials for furniture such as couches and cushions to make it a space in which people do not mind spending long durations of time in.

While complete silence can be daunting, excessive noise can be very chaotic. Open plans are desirable for common spaces, yet they should be designed to prevent noise. Noise is a barrier for conversations and interactions. It can also create a lot of stress therefore it must be avoided especially in a social set up to avoid mental disturbances (Mestayer, 2022).

In conclusion, patient interactions are a must in a care center. It helps in providing people with a sense of belonging and purpose. Bonds and connections built within a care facility gives a feeling of family and support that is often wanted, and these attributes are key for a positive mental state.

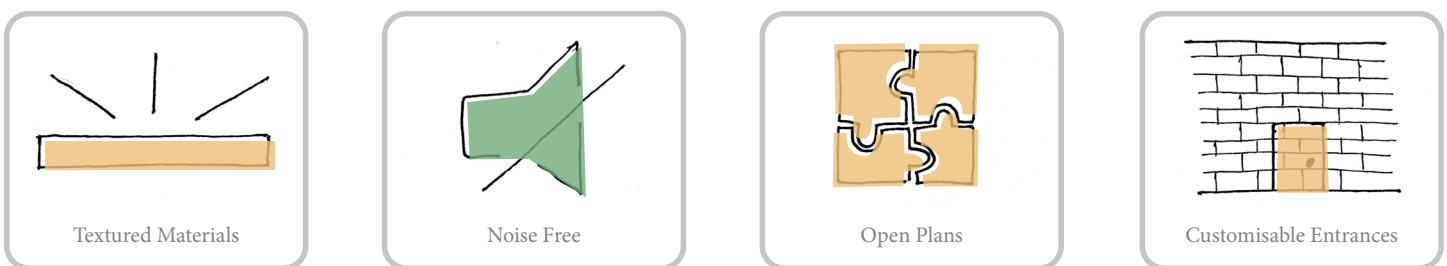


Figure 11: Patient Interactions

One can therefore suggest that the built environment has a significant impact on people's behavioral patterns and mental states. Architecture plays a vital role in promoting people's interaction with their environment and as a result, it helps in shaping their physical and mental health. In an ideal world, all the design principles mentioned could be added to a care center design proposal however, it might not be completely possible. Clusters of the design principles can be made and implemented into the architecture in order to maximize the satisfaction of the mentally ill.

## 4.4 CASE STUDY ANALYSIS

The following segment analyses two case studies such as The Trillium Secure Adolescent Inpatient Facility and The Health Nursery School in Orkelljunga. Both case studies have similar target groups of young adults with mental illnesses but have slightly different functions. One is an inpatient psychiatric facility and the other is a school respectively. However, it is crucial to understand the design and programs used to cater to their specific target groups and can be used as an inspiration for the design considerations of the thesis.

Both case studies are analyzed based on a few themes such as Program and Functions, Routing and Circulation, and Natural Environments and Biophilia. The author considers these themes as the most crucial when understanding the relevance of the project to the thesis and is also a way to make comparisons between both the projects on similar grounds.



#### 4.4.1 Trillium Secure Adolescent Inpatient Facility



Figure 12: Image of Case Study (ArchDaily, n.d)

**Location:** Corvallis, United States of America

**Year:** 2015

**Architects:** TVA Architects

**Area:** 1200m<sup>2</sup> + 900m<sup>2</sup>

The Trillium Psychiatric Residential Treatment Facility is an inpatient psychiatric care center for adolescents suffering from behavior and mental health issues. Located at a children's farm home near Corvallis, the campus was originally designed as an orphanage that was later converted into a psychiatric care center. Built in the year 2015, the phase 1 of the site covers approximately 1,200 m<sup>2</sup> of land and the extension under phase 2 will take up approximately 900m<sup>2</sup>. The facility consists adolescents with healthcare requirements, medical staff as well as consulting groups (Leiva, 2017) .

The original facility was made up of concrete blocks and walls giving it a very institutional finish, therefore much renovation was required for the project. In order to abolish the institutional look, the new building masses had more traditional and vernacular forms similar to a house making the overall design more warm and welcoming (idem).

## Program and Functions

The building is divided into five main zones: residential buildings, therapy rooms, an educational building, a large common area and outdoor play areas (idem). The location of these zones can be seen in the figure below.

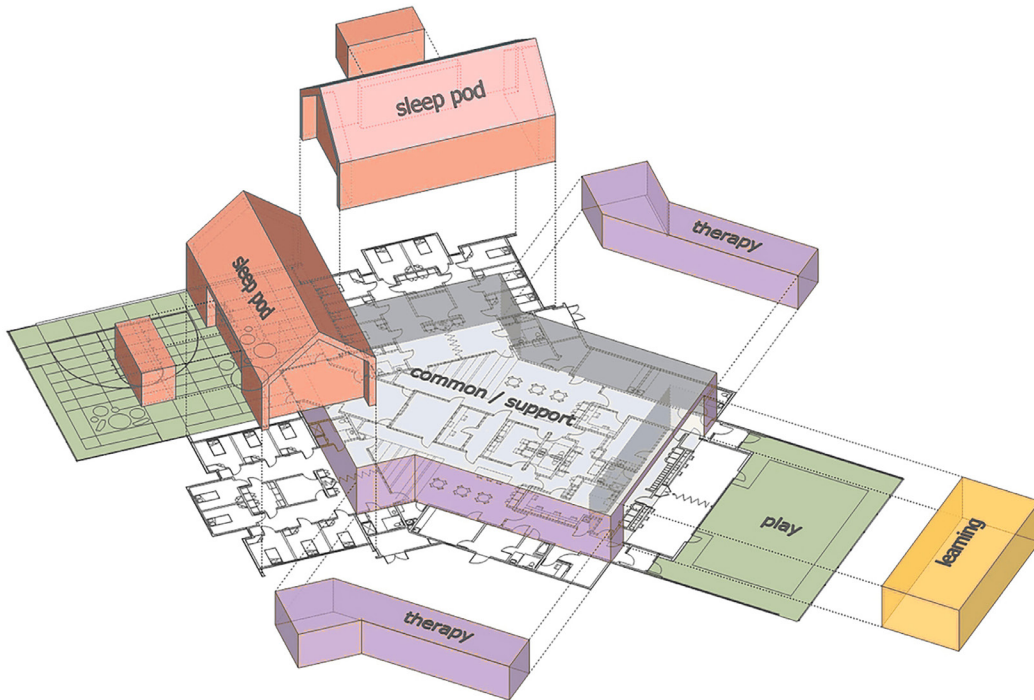


Figure 13: Axonometric View of Case Study Functions (ArchDaily, n.d)

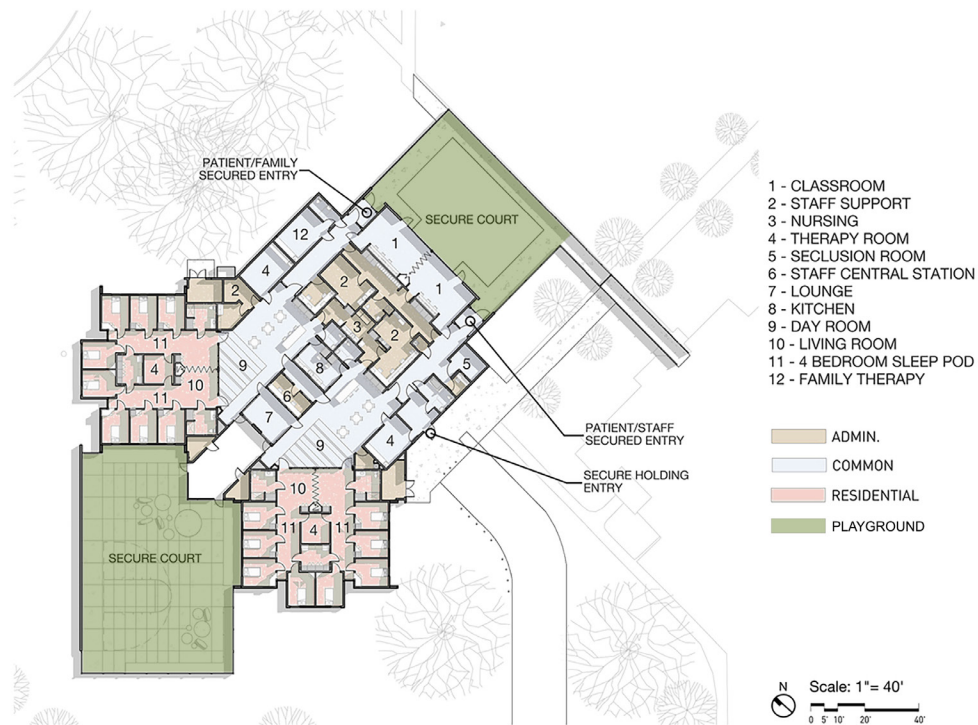


Figure 14: Plan View of Case Study Functions (ArchDaily, n.d)

The common spaces such as the communal living rooms and play areas are placed in the core and center of the program creating a sense of community to the inside. The more private and medication functions such as the residential pods, therapy rooms and educational building are all placed to the outskirts of the common areas. These spaces, therefore, have a feeling of privacy and intimacy while having views of the surrounding nature.

The design of the buildings also has a very interesting scalability factor incorporated. The structure expands from a single bedroom unit into a four-bedroom cluster with attached bathrooms and a living room. An identical cluster is mirrored and symmetrically adjoined to the first cluster to then form one residential building. Each residential building is then extended by having a day care area alongside a centralized staff room. This conglomerate is once again mirrored and placed symmetrically. At last, the addition of the outdoor play areas and a separate educational building forms the entire program of the building (idem). This set up can once again be scaled if required, to form a bigger care center.

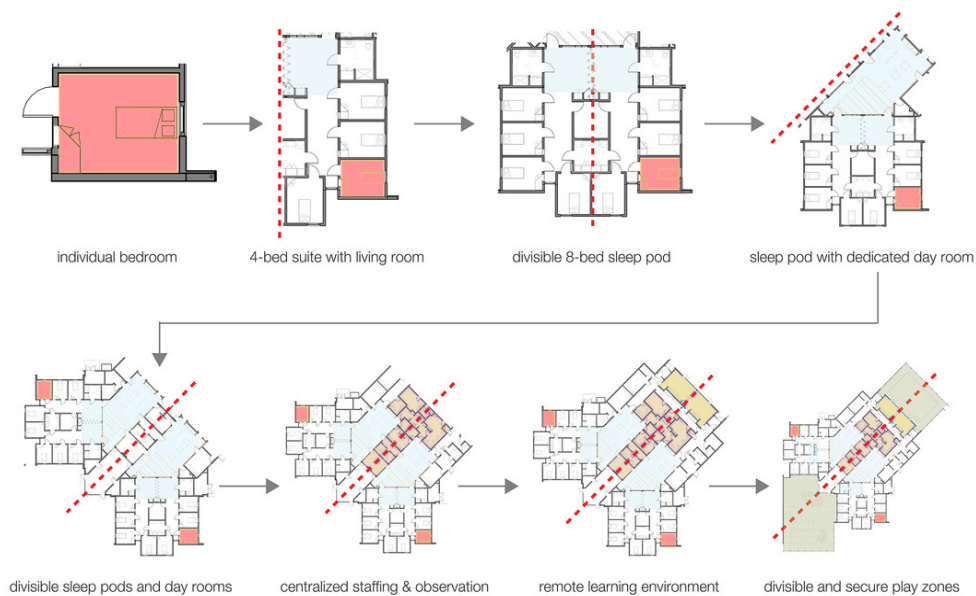


Figure 15: Plan View of Case Study Functions (ArchDaily, n.d)

## Routing and Circulation

Due to security reasons, the routing and circulation is limited to within the boundaries of the buildings. A very interesting design element incorporated in the project is that most of the site boundaries do not have fences and are instead defined by the buildings themselves. By doing so, it does not give the site a prison and institutional like feeling which is vital. Another design element worth noting is that the bedrooms only have a single bed and desk. One can suggest that this was done on purpose to motivate the adolescents to spend more time in the common and outdoor spaces. By doing so, the circulation is maximized in the common spaces. As mentioned previously, the staff rooms are placed very centrally, allowing easy access for them to any part of the site in case of an emergency.

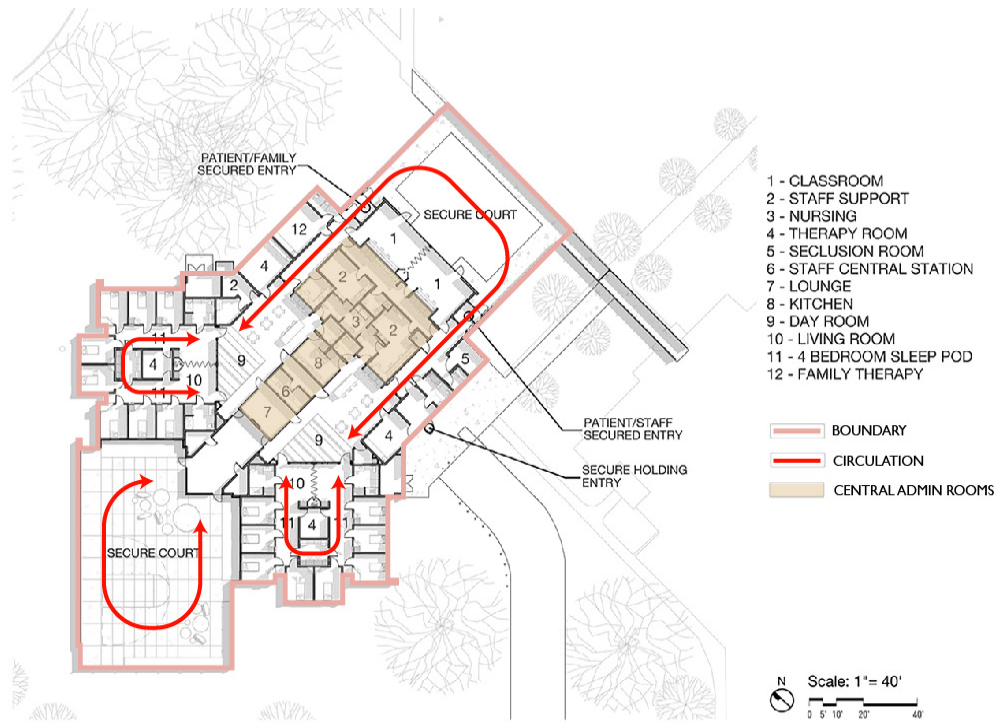


Figure 16: Plan View of Case Study Routing (ArchDaily, n.d)

### Natural Environments and Biophilia

Natural environments and biophilia are crucial for mental health care centers and are factors that come up repeatedly in literature research. The Trillium Psychiatric Centre is surrounded by a lot of trees and greenery. The plot is also located in a very open area that does not have a lot of buildings in the vicinity therefore, no external shadows are casted. The view is very picturesque and is constantly visible due to the large number of windows that are placed in each building. The addition of roof openings ensures a lot of daylight to penetrate the interiors of the building making it a good design factor.

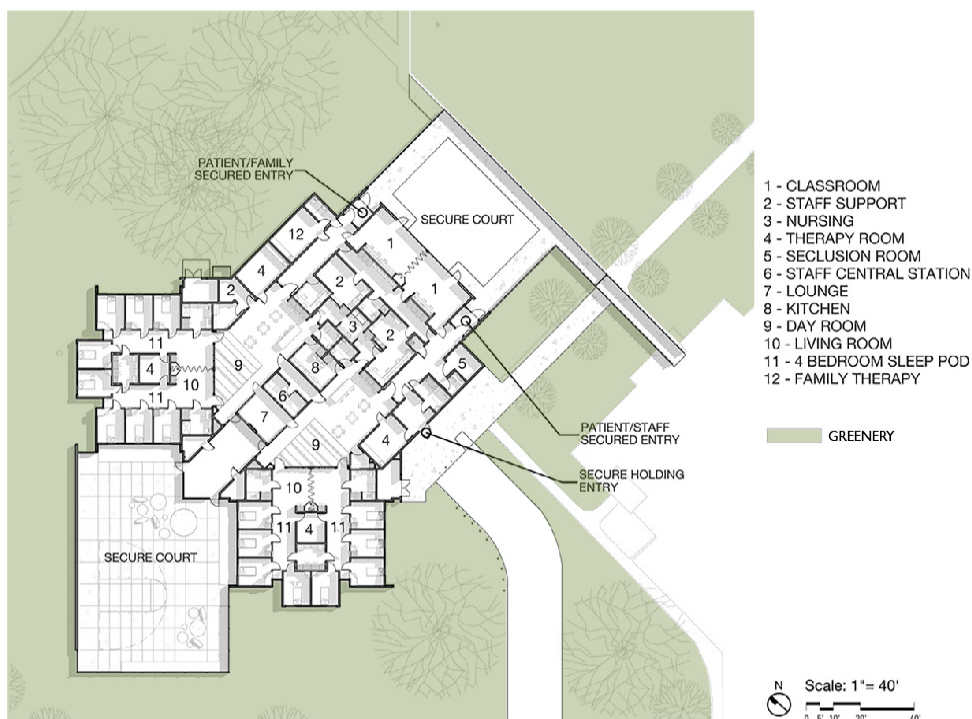


Figure 17: Plan View of Case Study Greenery (ArchDaily, n.d)

While there is surplus nature in the surrounds and a lot of day light within the interiors of the building, it however lacks biophilic elements. The combination of brown and white within the interiors gives it some richness however, there is no sign of plants and flowers. This is something lacking in the building as literature suggests the importance of having biophilia in a mental health care center.



Figure 18: Image of Case Study (ArchDaily, n.d)



Figure 19: Image of Case Study (ArchDaily, n.d)

Overall, the Trillium Psychiatric Centre has a holistic and good design and is therefore chosen as a case study. The vernacular and traditional roof structure of the buildings give it a home like feeling. The functions and programs of the project are well defined and distinct. The interesting idea of using the buildings as a boundary instead of a fence and the large open greenery in the vicinity removes an institutional feeling. The scalability of the clusters and the orientation of the buildings promote a communal feeling to the inside, while having room for further expansion of the design. One of the elements lacking in the project is the use of biophilia however, the use of multiple windows allow more light to penetrate while providing the residents with great views. To conclude, multiple design philosophies can be used from this case study and be applied into the design of the author's project.



*Figure 20: Image of Case Study (ArchDaily, n.d)*



## 4.4 CASE STUDY ANALYSIS

### 4.4.2 Health Nursery School in Orkelljunga



*Figure 21: Image of Case Study (Luco, 2022)*

**Location:** Orkelljunga, Sweden  
**Year:** 2019  
**Architects:** Chroma Arkitekter AB  
**Area:** 1880m<sup>2</sup>

The project is a preschool designed to promote health and create good growing conditions for children. This health preschool aimed towards children with obesity and other health problems from the municipality. While the school did not have a fixed program, it did have a vision of capturing ideas and hosting workshops for health research. The building was built in 2019 and covers an area of 1800m<sup>2</sup> (Luco, 2022) .

The project faced a small challenge as the allotted time for design and construction of the building was only 2.5 years. The site also had existing structures such as a safe room that had to be retained. The theme of social connectedness and community was introduced at a very early stage as the building was a pilot project that engaged researchers, university students, children, parents and local residents of the city (idem).



## Program and Functions

The school consists of 6 different departments that are accommodated into 3 main buildings. The 3 buildings are connected through a repetitive glulam wooden facade that forms one large conglomerate. The 3 buildings are also bound together by a central common room named Agora. This space has multiple functions including a lounge, a space for movement between buildings, play area as well as a central assembly space. Each building also has a very similar set up consisting of classrooms, lecture halls, study spaces, staff rooms and toilets (idem).



Figure 22: Plan View of Case Study Functions (Luco, 2022)

## Routing and Circulation

The circulation and routing of the building has been done in a way to maximize the utility of the common space. The entrance of the building is through this common space that connects the three academic building and the access to these buildings can only take place from within this common area. The program of classes is scattered between the 3 buildings and therefore each time a student exits one building, the entrance to the other is through the common space. This, therefore, fosters a lot of social interaction and enforces a community feeling within the site. There is also a clear hierarchy of movement through this architectural experience. A user starts from a very urban parking lot setting that does not have a lot of natural elements. After entering the building, there is a sudden switch to an academic world with the intension of circulating people to classrooms. The common space also captures the attention of the building users and direct them to a lush green outdoor playing area that is completely hidden from the main entrance. It almost suggests that the building is the mediator between man made and natural space.

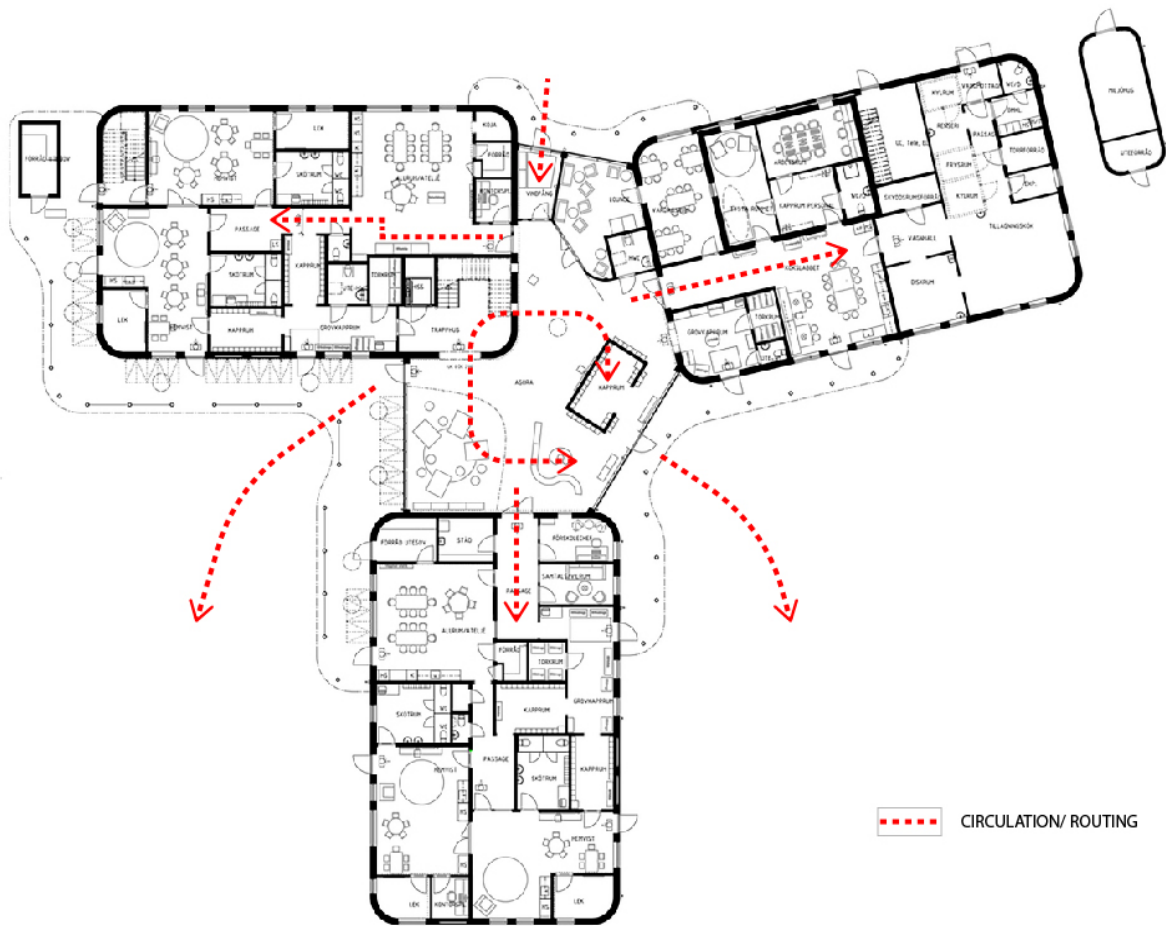


Figure 23: Plan View of Case Study Routing (Luco, 2022)

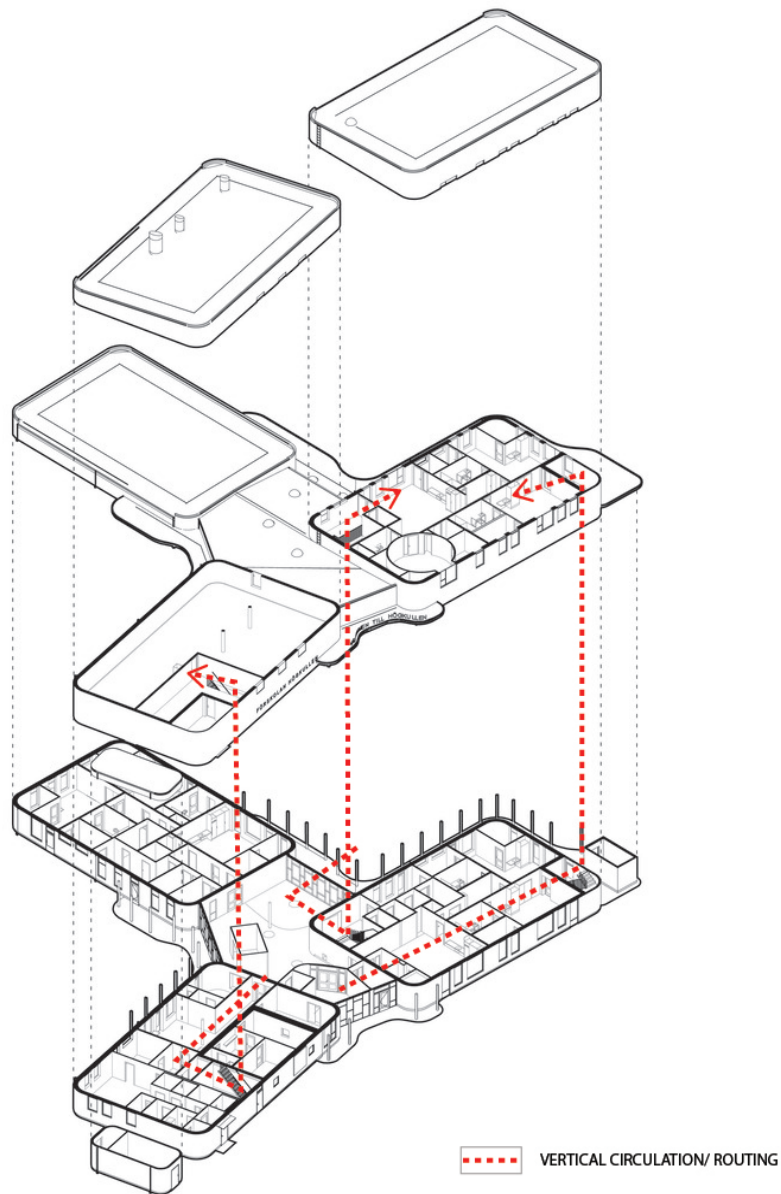


Figure 24: Axonometric View of Case Study Routing (Luco, 2022)

## **Natural Environments and Biophilia**

Even though the preschool covers a relatively small amount of land, the presence of nature and biophilia can be seen in all parts of the site. The large green backyard is taken advantage off as all the classrooms and common spaces have openings facing it. This creates beautiful and serene views from the windows. The presence of a small lake also gives a feeling of harmony and calmness. The choice of material also promotes the natural theme that is present in the entire building. The continuous wooden beam facade makes the building look an incarnation of nature itself. The interiors and furniture also have a wooden finish giving the entire building a seamless effect of nature entering the inside. All rooms are well lit and ventilated due to the presence of openings in each space.



Figure 25: Image of Case Study (Luco, 2022)



Figure 26: Plan View of Case Study Greenery (Luco, 2022)

Biophilia is omnipresent in the building. The extensions of the second floor to form balconies have a grass finish. This gives an imitation of green roofs when looked at, from a certain height. The importance of biophilia can be seen within the classrooms too. Each room has plants on the windowsill as well as flowers on each table. This adds to a very friendly atmosphere and also helps in productivity for the children.

In general, the Health Nursery School in Orkelljunga is good case study of a healthcare architecture project that promotes interactions and nature through design. The connection of the three educational buildings is done by an open planned, common area that fosters interactions and helps building friendships at an early age. The good choice of materials and sheer number of openings bring in a lot of light to the interiors and provides it with a very friendly atmosphere. The connection to biophilia and nature is immense and can be seen in all parts of the building. The classrooms are full of plants and flowers, the buildings have green balconies and importantly, most windows face the green backyard that comprises of playgrounds and nature in the form of trees and a pond. To conclude, the pilot project exhibits a lot of positive design principles that have been coined necessary and important through literature studies. By doing so, it helps in creating a positive and healthy atmosphere for the children suffering from physical and mental health issues, putting on a trajectory towards recovery. The implementation of themes through the hierarchy of movement is a vital characteristic that should be used for the author's design project.



Figure 27: Images of Case Study (Luco, 2022)



# 5. FIELDWORK

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The following segment discusses the several forms of fieldwork that was conducted which includes visits to care facilities, interviews with professional architects, interviews with university psychologists as well as surveys with the chosen target group.

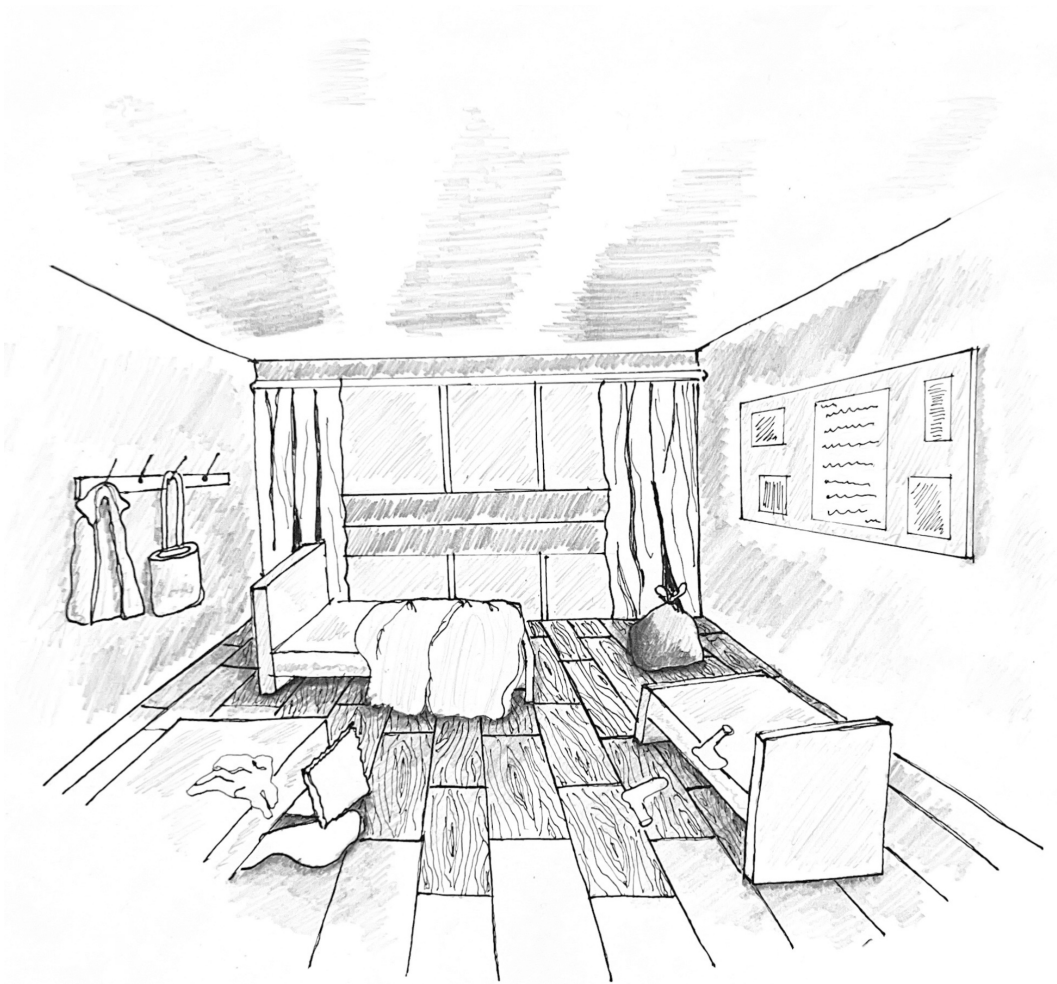
Each form of fieldwork has been conducted with the intention of gaining new and unique insights as a primary source of information. It is also done to see if the literature conclusions and design principles match with information provided by these primary sources.

The visits made to certain care facilities have been done in order to explore current existing solutions for mental illnesses in the context of Netherlands. It would also help in understanding the living conditions and daily lives of the patients. This would in-turn make the author as a designer, more aware about the problems and required solutions.

The interview with people such as the architect and the university psychologists have been conducted to get expertise from a professional standpoint from people who have good knowledge about the respective fields.

Lastly, surveys have been sent out to get personalized answers and data from the target group which is young adults with mild to moderate mental illnesses.

## 5.1 HVO QUERIDO



*Figure 28: Drawing of Care Center Room*

*HVO QUERIDO*  
*SOCIAL AND CARE CENTRE*



## Introduction

HVO Querido is an organization that has many Social and Care centers for people with addictions and for the homeless around Netherlands. The one that was visited was located in city of Harlem. The facility is an outpatient center during the day, allowing anyone with substance addictions as well as homeless people to come and use the facilities provided by the care center. The building also has a residential section which is located on the second floor. People which registration papers were allowed to stay in the facility if there was space in the rooms. The only restriction in this care center was that one had to be a minimum of 23 years old to be eligible and to have access to the facility.

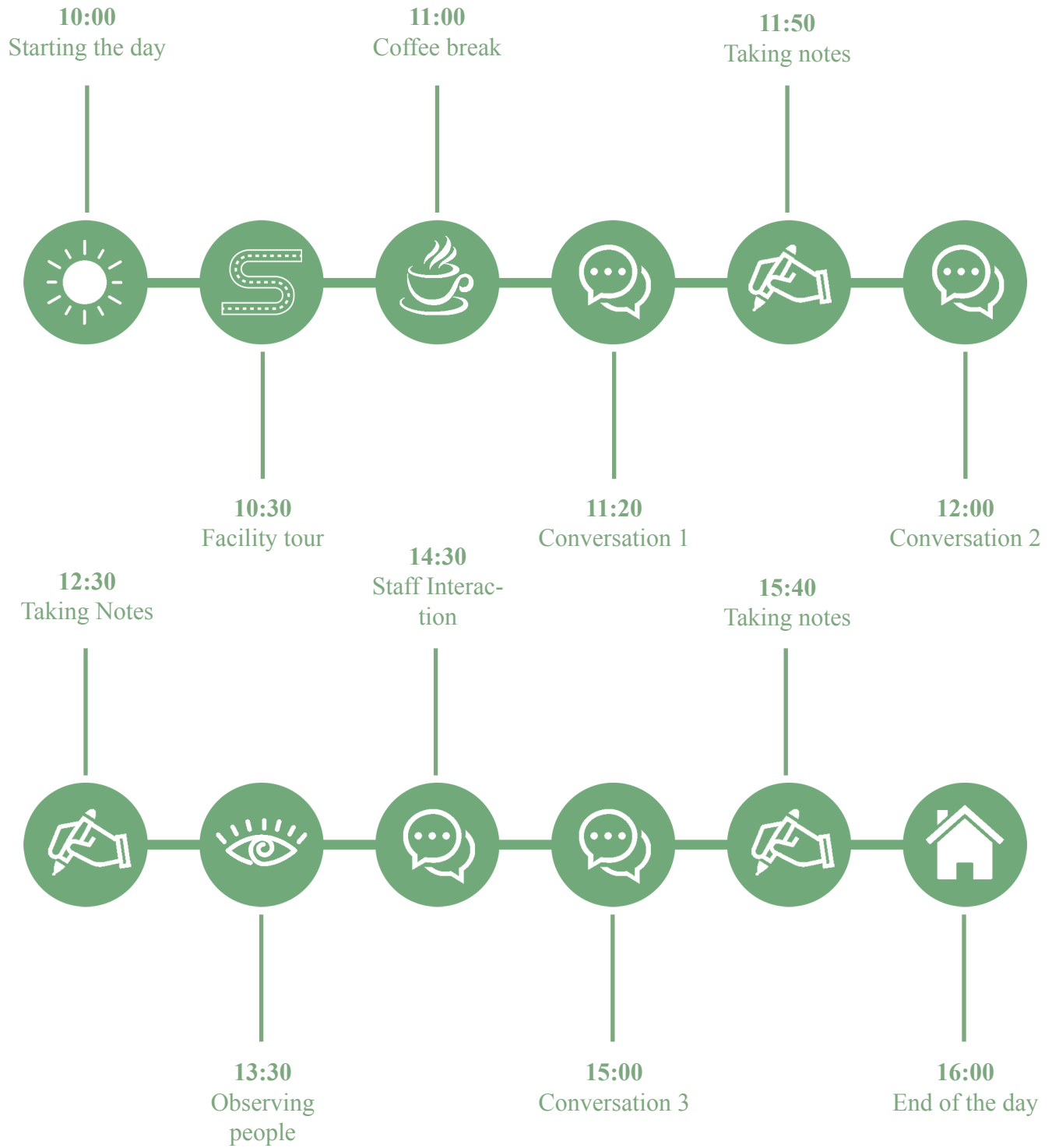
The day care that was located on the ground floor ran from 09:00 till 18:00. The entrance had a security room with guards that regularly walked around the center and interacted with the residents. There was an administration room which was the caretaker's office space. There were normally three caretakers and the duties rotated throughout the week. A very interesting aspect of the care center was that it had substance intake rooms. One room for drinking, one for smoking and one for drugs. These were the most frequently used rooms by the patients and the access to these rooms were regulated by a medical specialist who's room was adjacent to these rooms. The conference rooms and meeting rooms were used during the times when the patients needed help or consultation by the care takers.

Lastly, the ground floor included a large common living room space that had a very long dining table. This is where most of the people sat during the day and conversed with each other while drinking a coffee or eating a snack, available to buy from the kiosk next door.

The night care was located on the floor above and the patients were granted access to the place from 18:00 till 09:00. The night care area mainly consisted of the different bedrooms and common bathrooms. There was also a community kitchen and dinning area in which patients would volunteer to cook meals at times. The dinning area also had a television that seemed to be frequently used by the people.

In order to live in this facility, one has to sign up at the local municipality. The patients pay approximately 180 euros per month as rent. This also includes food and access to facilities such as the pool table and board games. The care center was male dominant and everyone seemed to be in the age range of 40 - 60 years with a few exceptions of younger people.

# DAY 1



*Routine of the author at the care center*

**10:00** - The day starts by entering the facility and getting a brief introduction by the caretakers. Before the tour of the facility, we sat down and made our initial observations on people's behavior

**10:30** - We get a tour of the entire facility. This includes a short briefing about how the organization works as well a tour of the night care area. We were able to see one of the shared bedrooms as a part of the tour.

**11:00** - We took a coffee break and discussed our initial thoughts about the facility

**11:20** - We were approached by one of the patients who was happy to talk to us about his life.

**11:50** - After having a conversation with the patient, it was important to document the conversation by writing down key points.

**12:00** - As we were writing down some notes, we were approached by another patient who was very eager to tell us about his life and struggles.

**12:30** - After hearing the emotional stories about person 2, it was time for a lunch break that included documenting the conversation with person 2.

**13:30** - After lunch, we continued to observe and listen to people's conversations

**14:30** - It was a bit difficult to approach the patients due to their addictions and since no patient was coming to talk to us, we decided to walk around and interact with the caretakers and security team.

**15:00** - The moment we went back and sat in the common living room space, we were approached by person 3. We had a very friendly and interesting conversation with him which continued over a cup of coffee.

**15:40** - After the conversation, we wrote down our conclusions from the day.

**16:00** - We decided to go back home.



*Figure 29: Drawing of Person 1*

*PERSON 1*

*DOCUMENTED CONVERSATION*

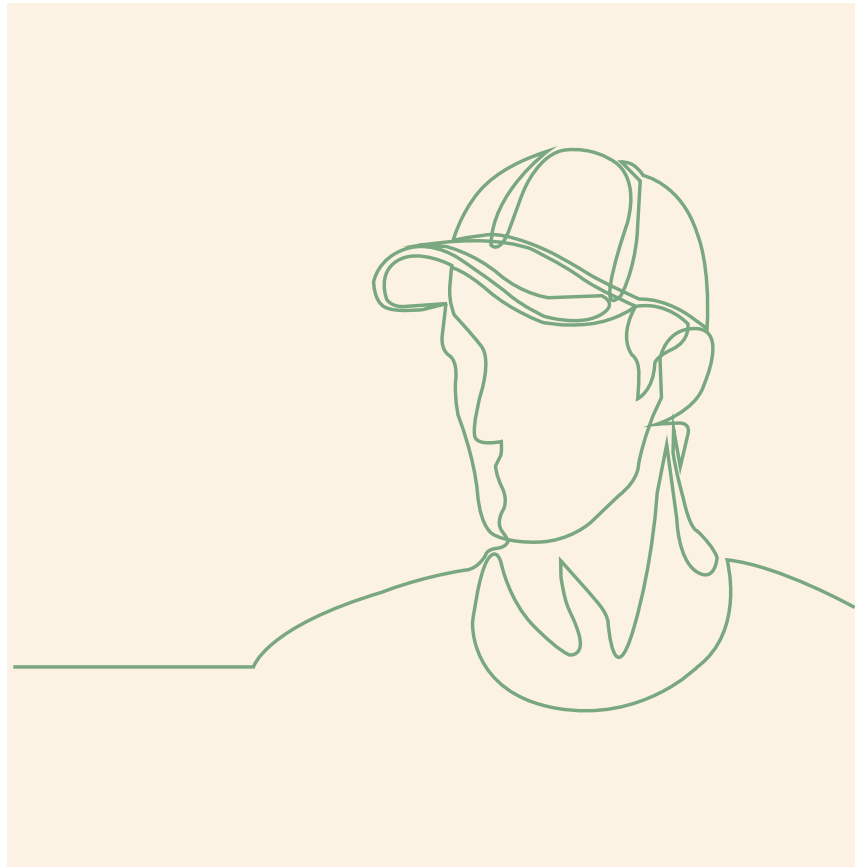
Person 1 is a middle aged man who used to live in the HVO Querido until he moved into a more independent facility. He was a pilot engineer and was diagnosed with depression at the age of 35. He has a wife that is in Thailand and a daughter working in Netherlands.

A resident of the facility for 8 months, Person 1 claimed to have made a lot of friends in there. He had a lot of opinions about the place which included some positive aspects alongside room for improvement. He was grateful for such a facility to exist. The fact that such facilities exist around Netherlands to house the homeless, made him happy. He was also praising the cheap rental prices for the accommodation. Person 1 mentioned that the staff such as the care takers are very interactive and the security guards walk around talking to the patients. It was also mentioned that the dinner provided to them was good and tasty.

While there were some positive aspects to the facility, Person 1 did not shy away from criticizing the place. He seemed to be frustrated by the fact that the residents are denied access from their rooms during the day time. This meant that the residents had to rest on the common couches during the day and got no sense of privacy. He also mentioned that the process of moving out is quite tedious and lengthy. Patients are initially placed in shared rooms of 4-5 people. These rooms had no division and did not even include a cupboard. He mentioned that at some point he moved to a room that was shared with one other person until he finally moved into his own individual room.

The transition from a multi shared room to an individual room is a sign of reward based on the patient recovery.

Person 1 also complained that everyone was very bored in the care center. The facilities such as ping pong table and board games were hardly used. He carried on to suggest that certain jobs would keep the residents busy and keep their minds occupied with tasks. These jobs could include cleaning, working at a supermarket etc. To keep himself busy during the time he stayed in the facility, Person 1 used to walk around the city, clean the entrance of the care center and would also volunteer to work at the kiosk. The small tasks around the care center would help him earn 35 euros a day.



*Figure 30: Drawing of Person 2*

*PERSON 2*

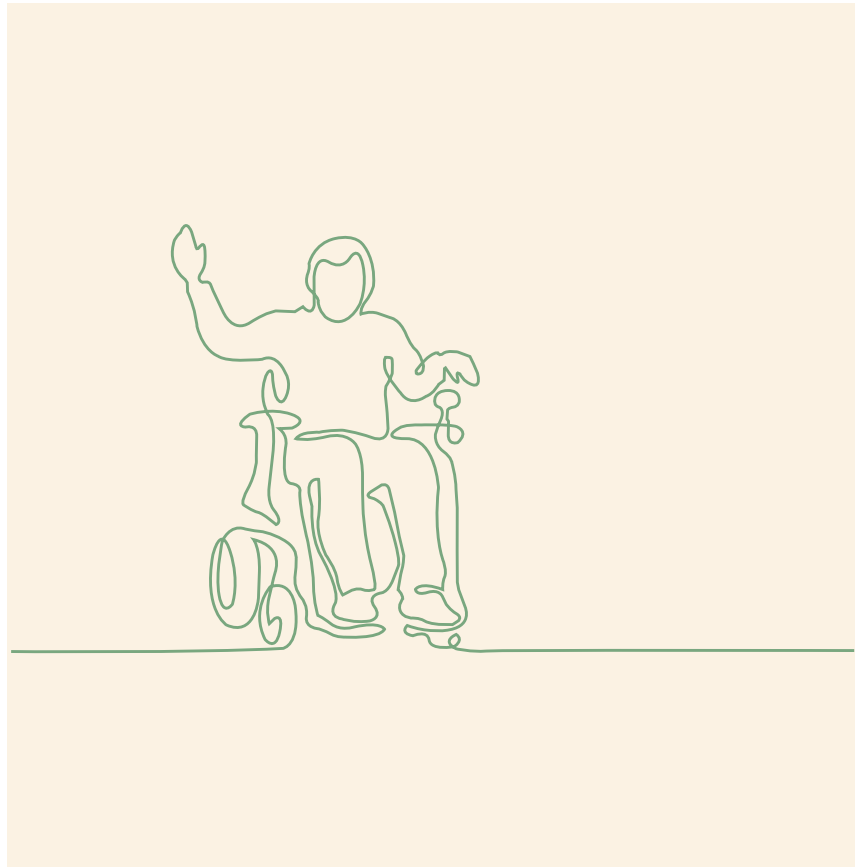
*DOCUMENTED CONVERSATION*

Person 2 is a young man in his early 30's. He clearly seemed to be very restless and was a resident of the HVO Querido care center. He had a very traumatic history starting with going to juvenile jail at the age of 15. He was put behind bars for criminal activity as he was a part of a gang that indulged in heists. He also had ties to the pornographic industry where he claimed to have interacted with celebrities. He is a heroine and cocaine addict and hence was quite fidgety throughout the conversation.

He was talking extremely negatively about the care center throughout the conversation and was very vocal about his hate towards the place. He also complained about the fact that people were very bored but then went on to complain that the caretakers do not help them find a job. He did not like interacting with any other resident and in fact did not like sleeping at the facility too. He preferred sleeping on the streets and if he got lucky then he would trespass and sleep in someone's garage.

Other than the care center, Person 2 also expressed his concerns towards the Dutch medical system. He complained about the delays in the system because of which he has to continue living in the care center for an indefinite period. While talking about the medical system, Person 2 also expressed his anger about societal problems. He believed that people do not listen to him at all and just assume that all the information is false due to his drug addictions.

To keep himself busy, Person 2 now collects metal scraps from around the city and sells it to make money and pay off his debts. He also collects clothes and distributes it in the care center amongst the residents.



*Figure 31: Drawing of Person 3*

*PERSON 3*

*DOCUMENTED CONVERSATION*

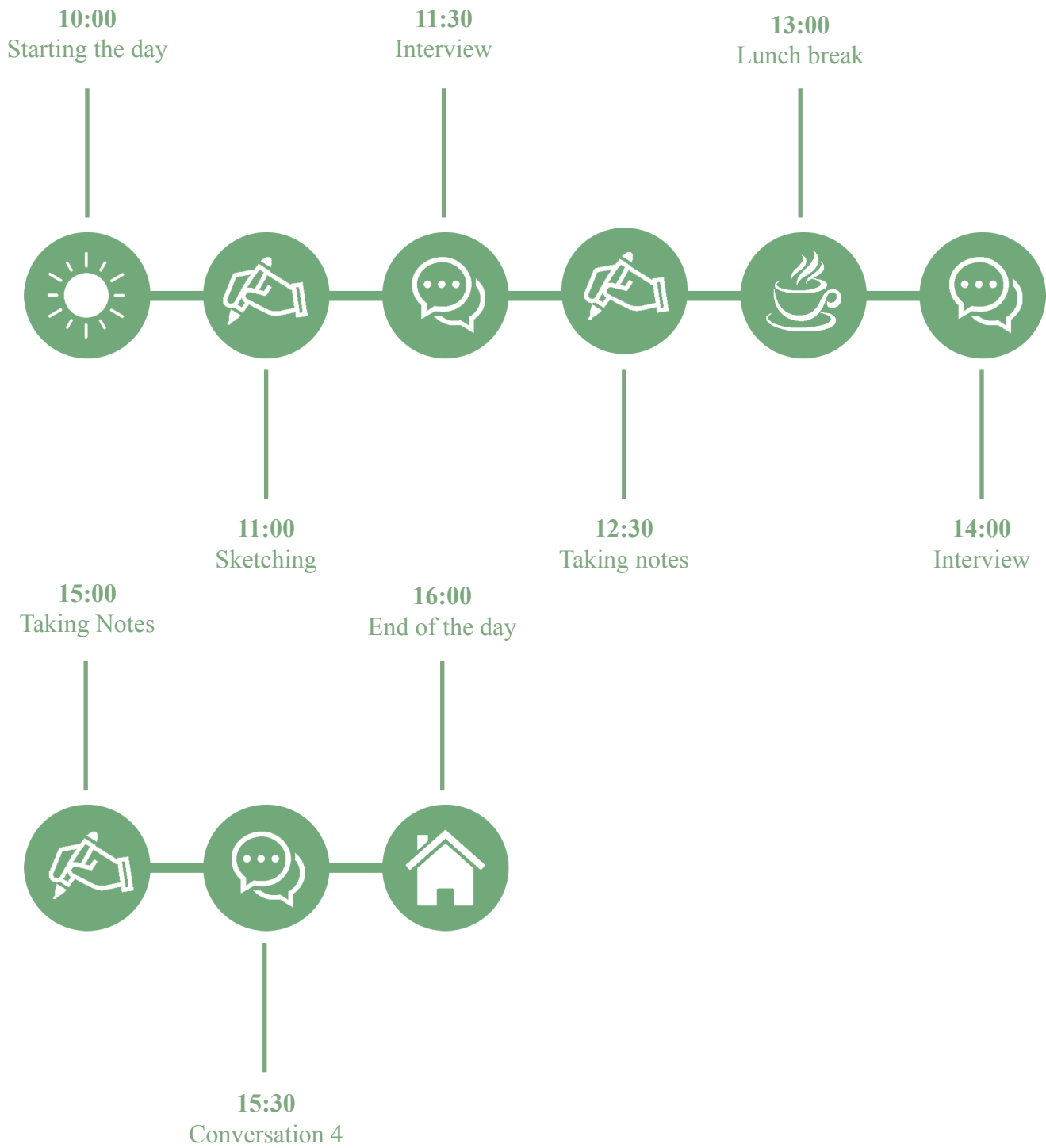


Person 3 is a handicapped man in his 40's who approached me while I was observing people. He was a former resident of the care center and has now recovered and successfully moved into an apartment that he bought. His reason for being a resident in the facility is anonymous as he did not mention his problems.

The conversation started off by him explaining his daily struggles while being a resident in the facility. He very clearly stated that the building was not wheelchair friendly. Although he had an electric wheelchair, he still struggled to get into places within the building. He went on to criticize the government. He claimed that the government has a lot of money for healthcare but it is not put to use properly.

Person 3 believes that residents in the care facility need to find a purpose in life. It would motivate them to get better and move back into normality. If they do not find activities to do and participate in, they will lose their mind doing nothing in the care center. According to him, as of now there are not many activities to indulge in compared to other facilities and the caretakers do not help the residents to find a job.

# DAY 2



*Routine of the author at the care center*

**10:00** - The day starts by entering the facility and observing the people. The observations included the overall mood and aura of the facility. There was music being played and people seemed to be more cheerful.

**11:00** - Since taking pictures were prohibited, we sat down and sketched the floor plan of the building. This sketching process also included making diagrams with all the building functions and rooms.

**11:30** - An interview was scheduled with one of the main caretakers in order to understand the logistics of the facility from his perspective.

**12:30** - After a very insightful interview, it was important to write down the conclusions.

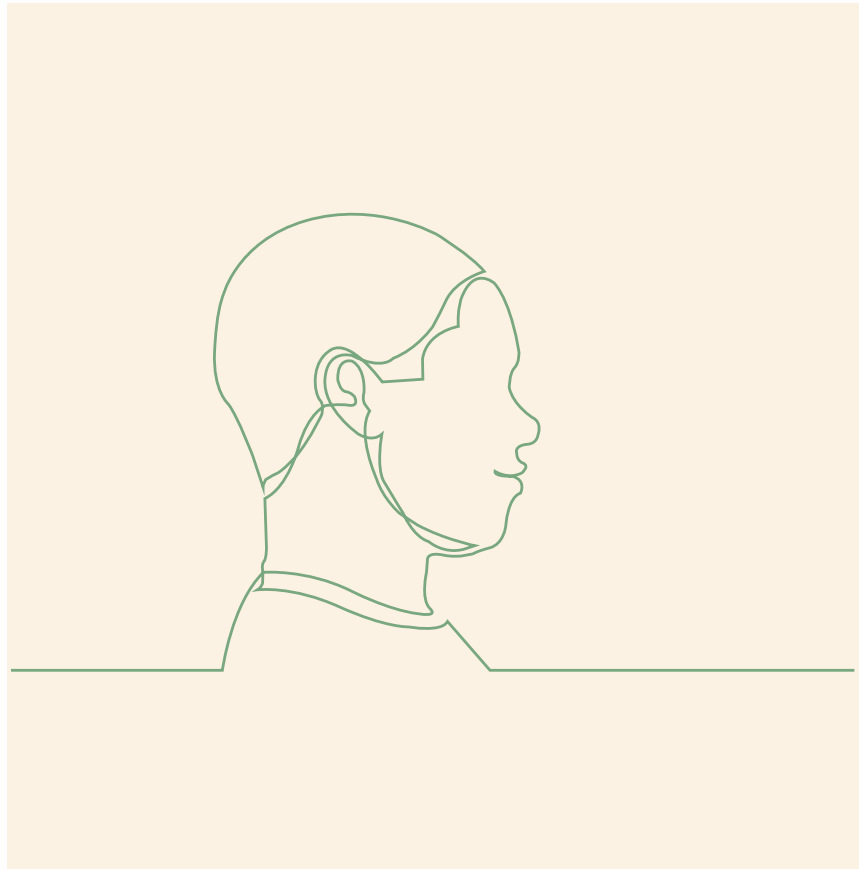
**13:00** - While taking a lunch break, we also prepared questions for the interview that was scheduled with the medical specialist

**14:00** - It was important to understand the functioning of the care center from the perspective of the medical specialist and hence an interview was conducted. It was very insightful and eye opening.

**15:00** - Conclusions from the interview were documented

**15:30** - As we were packing up, we were approached by person 4. She spoke to us about her experience at the facility and it was very interesting to understand a female's experience at the facility

**16:00** - We thanked the caretakers for offering us this opportunity and went back home.



*Figure 32: Drawing of Caretaker*

*CARETAKER*

*DOCUMENTED INTERVIEW*

A part of the fieldwork was also to understand the situation of the care center from the perspective of a caretaker. The caretaker that was interviewed, worked at the facility full time and has been an employee for multiple years. He is very familiar with the people working and residing in the facility and provided me with beneficial information.

When asked about why he likes doing this job, his response was very clear and straight forward. He really likes to hear the stories of the people, this includes their backgrounds, how and why they approached the care center, as well as their perspective on different problems. He further expressed his annoyance towards clinics that do not take care of or even treat the patients. The people are in need of care and when not provided, they end up coming back to this facility to intake their different substances.

The caretaker was also asked about his opinion of the facility. He mentioned that the facility is in a bad state. Due to the fact that it was a former bank, the interiors are very bland and the windows cannot open up. This makes the ventilation system very poor, affecting the mood of people. He also mentioned that the living room should be more home like and currently it looks very institutional. This prevents and makes people not want to be in the facility at all. It also makes them hesitant to go to other care centers due to their assumptions that all care centers look very institutional.

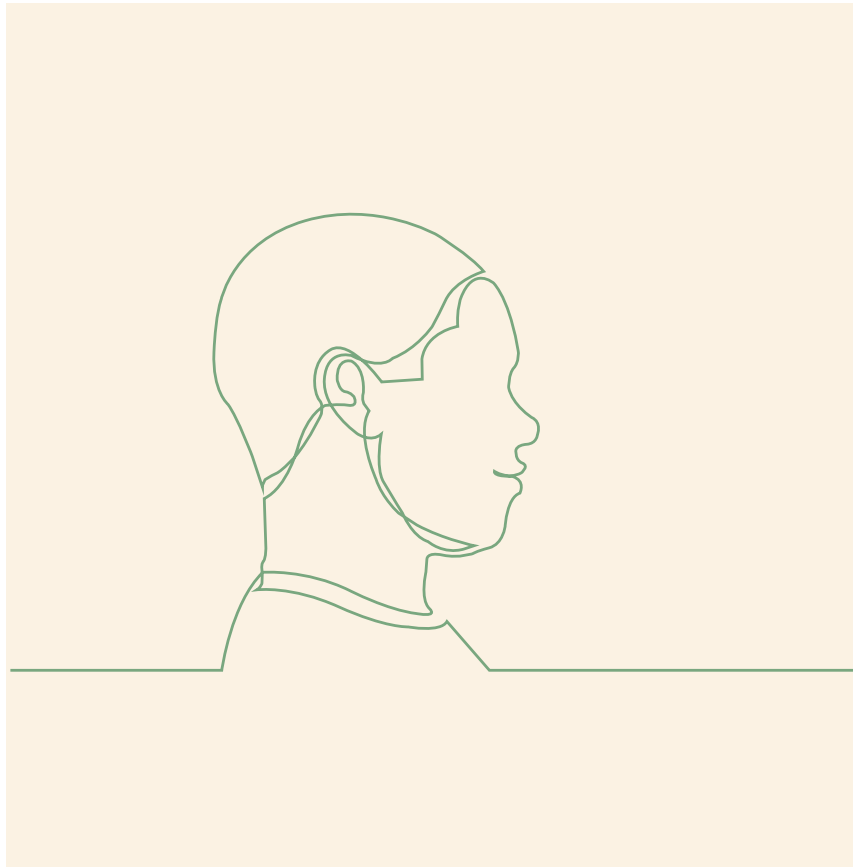
The topic of the substance intake rooms was discussed too. With the assumption that care centers should prevent substance abuse, he was asked why these rooms existed and why they were allowing the patients to regularly use different substances. He replied saying that the patients that come to the facility have real traumas. This makes them want to drink or take different substances. The caretaker mentioned that if these patients were suddenly told to stop taking the substances, due to their body's reactions, they might die. The facility therefore allows them to intake

different substances but this consumption is regulated. It is a safe space for them, making the substance consumption to take place in a controlled environment. Over time it is reduced drastically helping the patients recover from their addictions.

The caretaker was asked about his favorite space in the building and he mentioned that he liked the admin room a lot. The admin room which is also the office space for the caretakers is very approachable and the door is always open. That way people can approach the caretakers at all times and the caretakers can also keep an eye on the patients. He also further went on to state that the common living room is the best space for the patients. It is where people interact the most and build their connections.

The topic of boredom was brought up as it was a common theme when interacting with the patients. The caretaker said that it is very difficult to indulge in activities with the patients. These patients have the cravings to intake their substances every 20 minutes making them very distracted. He also stated that job opportunities have been provided to the patients. They have been given the opportunity to work as a cleaner, serve food, security jobs in the city etc. However, the addictions often restrict the people from working properly.

The caretaker believed that despite the architectural problems of the building, the facility is very approachable. It is located near the city center and it welcomes anyone and everyone. This makes it desirable for people with addictions to consume their substances in the safe and controlled rooms within the facility. It also provided shelter to the homeless and people were given the choice to walk in and walk out whenever.

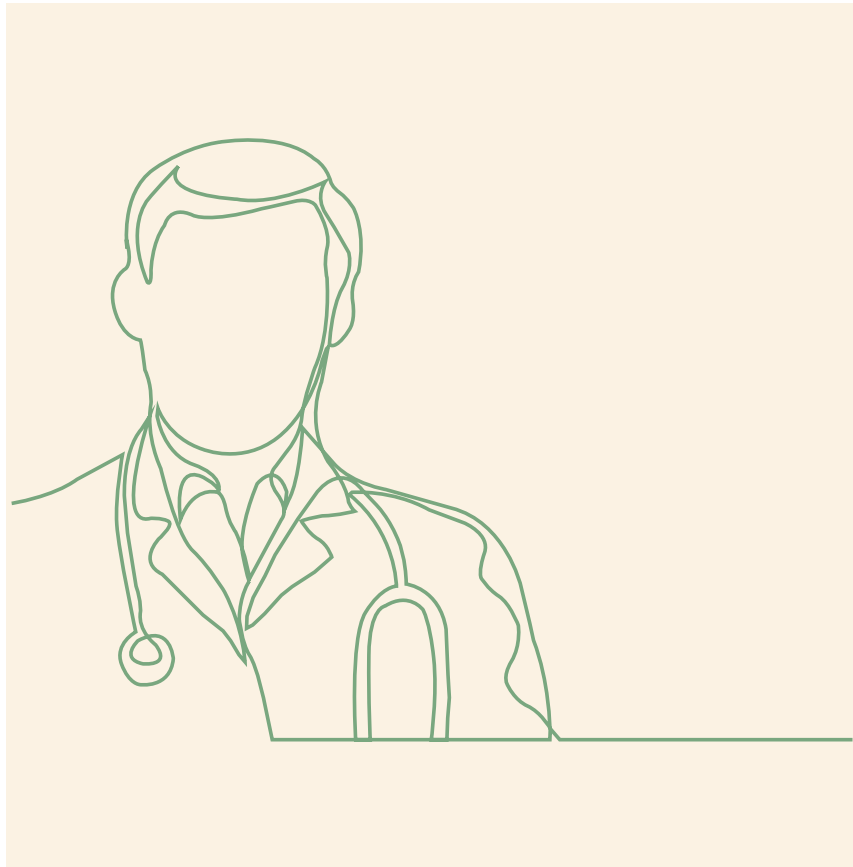


*Figure 33: Drawing of Caretaker*

*CARETAKER*

*DOCUMENTED INTERVIEW CONTINUATION*

To maintain a certain hygiene level, caretakers were also assigned the duty to make the patient beds but also made sure that the patients were regularly brushing and taking a shower. Additionally, a part of the caretaker's job was to help with the documentation process of the patients and helped them manage their pocket money that was provided by the government. Overall, the caretakers seemed to be very interactive with the residents and helped them out in many ways.



*Figure 34: Drawing of Medical Specialist*

*MEDICAL SPECIALIST*  
*DOCUMENTED INTERVIEW*



The medical specialist was an employee working for the organisation Brijder. His office was near the substance consumption rooms and he was the one to provide access for the patients to these rooms. All the drugs were shown to him and only after his green signal, they could consume the substance. The medical specialist seemed to be one of the most active people in the facility as he was approached by different patients at all times. It was difficult to find time to interact with him however, I did have a short conversation with him.

Like the caretakers, he also expressed his concern towards the design of the building. He was most concerned about the lack of day light as well as no natural ventilation. He found it absurd that even the windows in the bedrooms could not be opened and therefore was a health hazard. He also did not like the openness of the common spaces and he suggested that a division of spaces is crucial. Currently, people with substance addictions interact and stay in the same space as homeless people. This is a bad influence for homeless people with no addiction problems as they end up indulging in consumption activities encouraged by addicts.

He also emphasised on making care centres more home-like. Personalisation of spaces, opening of windows, and use of colours makes a place more inviting and less depressing for the patients.



*Figure 35: Drawing of Person 4*

*PERSON 4*

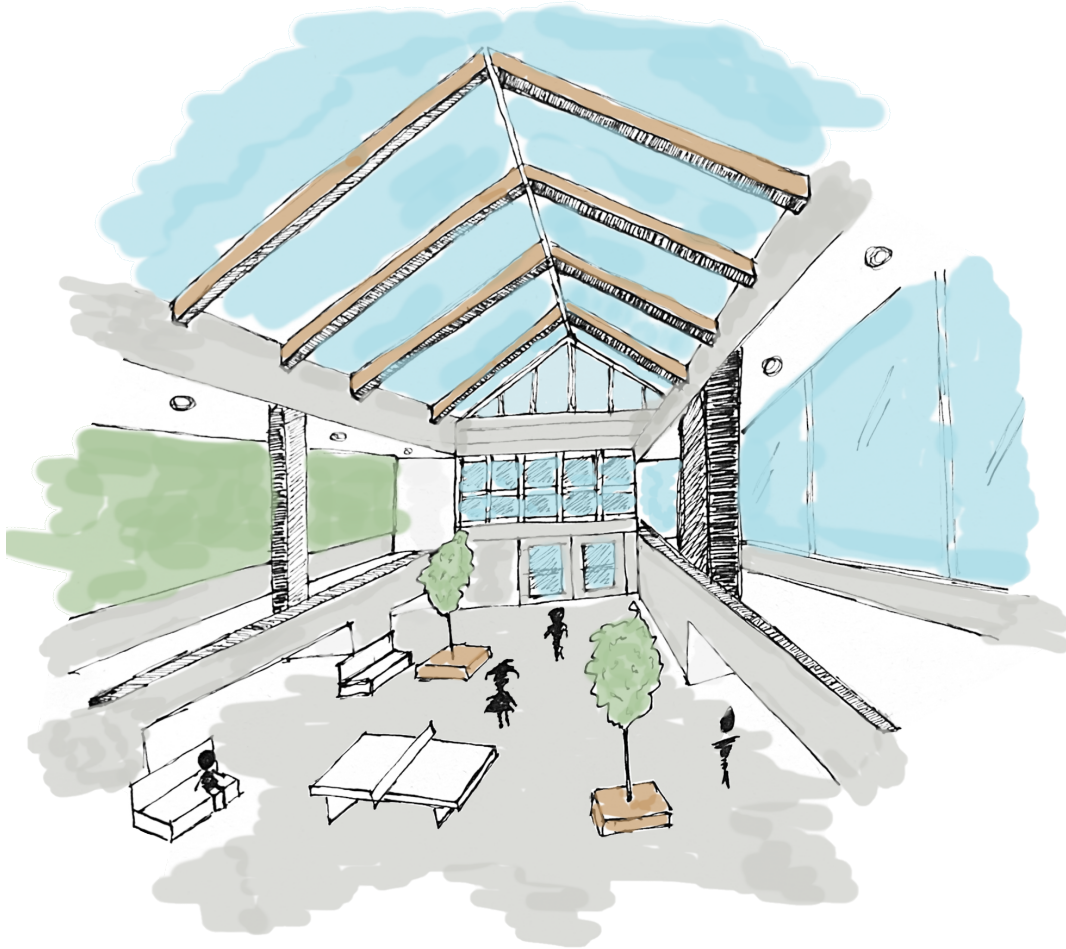
*DOCUMENTED CONVERSATION*

Towards the end of the day, a woman approached me explaining that she used to be a resident in the facility. She has now recovered and moved into an independent living accommodation. While her reason of being in the facility is unknown, she has not only recovered but is also an advisor and advocate for people with addictions. She talks to them and motivates them to get better.

Talking to her helped in understanding the female struggles in this care centre. She kept saying that the residents deserve a better accommodation with higher standards and quality. Currently, the rooms have no privacy and no division. She highly recommended separation of spaces as a design principle to be used for future developments. The topic of bathrooms were brought up and she started talking about minor details that are not thought about in the first place. She expressed the importance of having a shower hose instead of an attached shower head as cleanliness and hygiene of certain body parts are not taken care of.

Interestingly she also suggested the separation of facilities between people with addictions and homeless people. This creates an overlap, encouraging the homeless to indulge in unwanted activities, something that was also mentioned by the medical specialist working in the facility.

## 5.2 YULIUS



*Figure 36: Drawing of Care Center Main Living Room*

*YULIUS*

*PSYCHIATRIC CARE CENTRE*

## Introduction

Yulius is an organization with psychiatric care facilities all around Netherlands. The facility that was visited is located in Enzengarde, a town close to Dordrecht. The care facility hosts 61 residents that have different mental illnesses such as depression, anxiety, schizophrenia, personality disorder, bi-polarism and post-traumatic stress disorder. Most of patients were either middle aged or were quite old. There were a couple of younger people but those were exceptions. Other than the psychiatric patients, the facility also had care takers, doctors, a physical trainer, chefs and cleaners.

From the first moment of entering the facility, I could not stop comparing it to the HVO Querido care center. The two facilities were very contrasting and the Yulius building was designed in a much better way. The area of the facility was much more than the one in Harlem and care center offered a lot of facilities. These facilities included private apartments with balconies and kitchens, medical rooms, meeting rooms, multiple themed living rooms, a cafeteria, multiple inner courtyards, a ping pong table, library etc.

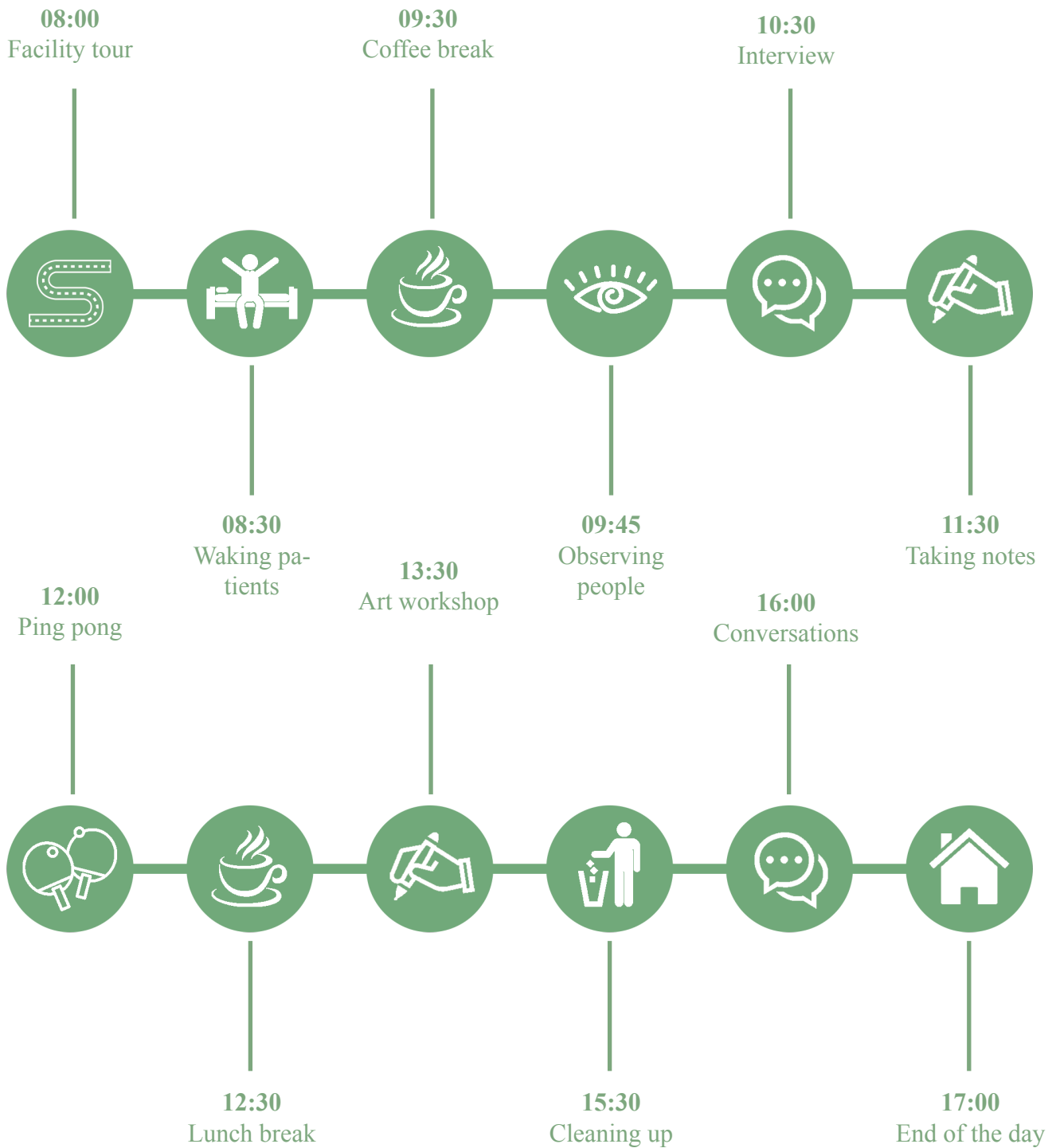
Each bedroom had views to nature and all corridors had plenty of day light. The inner courtyard space allowed penetration of a lot of day light and were often used as spaces in which people would smoke and socialize with one another. There were several living rooms that were very colorful and had different themes, making it very inviting to the residents.

The most important and used space was the large open living room that was at the heart of the building. This space had several Biophilic elements and the glass roof allowed a lot of light to enter the space.

In general, there seemed to be a sense of community in the care center. People with different mental illnesses learnt to live with one another and everyone seemed to be happy. This is due to the fact that most people felt like they were at home. The apartments were completely personalized and in fact the residents encouraged us to visit their accommodations. There were a lot of facilities, activities and programs for the residents, keeping them occupied at all times. The facility was also open to outsiders and multiple events have been held at the care center, encouraging the patients to interact with the outside world.

While the quality of life seemed to be a lot higher in the Yulius facility, the downside was that people just did not want to recover and move out. They were very happy and comfortable in the artificial world created for them through the infrastructure. Whereas in the HVO Querido facility, the quality of life was so poor that it motivated people to get better and move out.

# DAY 1



*Routine of the author at the care center*

**08:00** - We had to reach the psychiatric center very early in order to wake up the patients. At first, I was introduced to the staff and was given a tour.

**08:30** - We were split into groups and went into different rooms, waking the patients up.

**09:30** - Once everyone was awake, we took a coffee break.

**09:45** - I decided to sit in the main living room and observed the people. I also slowly started interacting with some of the residents.

**10:30** - An interview with the head caretaker was scheduled at this time.

**11:30** - After a lengthy and interactive conversation, it was time to document the conclusions.

**12:00** - Since we did not have anything planned in this time, we decided to play ping pong in the common area. The patients were entertained by watching us play.

**12:30** - During the lunch time, some of us served food to the patients.

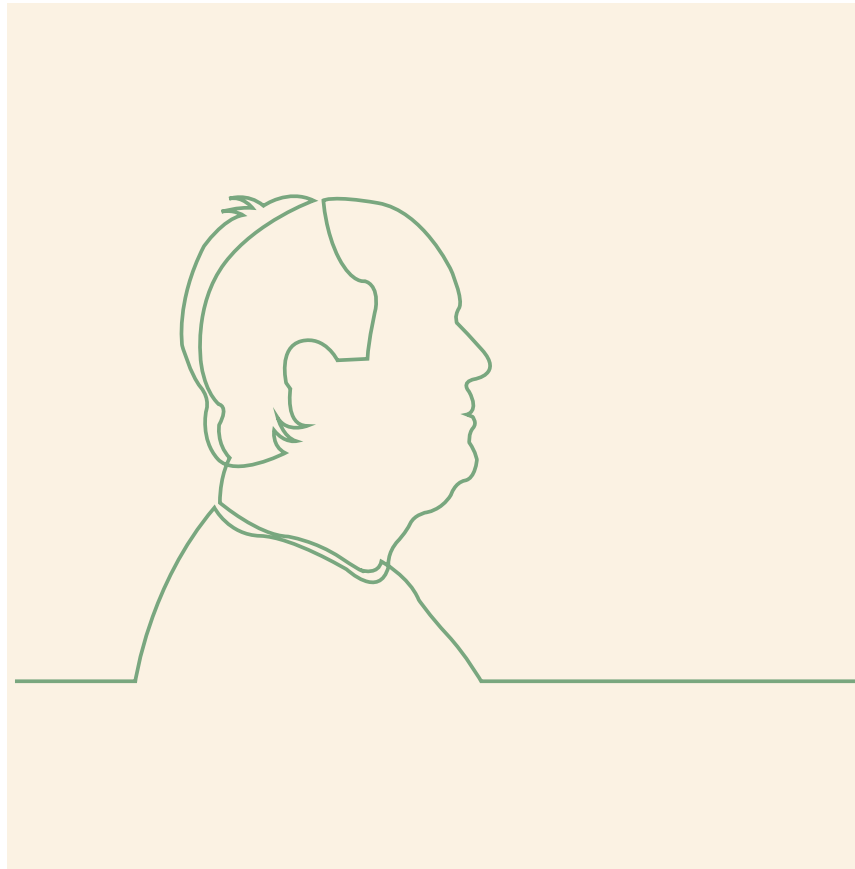
**13:30** - After lunch, we started preparing for an art workshop. This included setting up the living room and laying down art material.

**14:15** - This is when the art workshop began and a lot of patients started walking in, eager to participate in the workshop.

**15:30** - After a very eventful art workshop, it was time to clean and pack everything up.

**16:00** - Before leaving, we interacted with a few more patients.

**17:00** - Decided to call it a day and went back home.



*Figure 37: Drawing of Caretaker*

*CARETAKER*

*DOCUMENTED INTERVIEW*



Observing and interacting with the patients helped in learning a lot about life in the psychiatric center. However, it was also crucial to understand the duties of a caretaker as well as their opinions about the facility. The caretaker that was interviewed was one of the head caretakers who was in charge of a lot of the logistics.

When asked about his daily routine, the caretaker mentioned that the day starts at 07:30 when the night shift caretakers brief the day caretakers about any incidents and observations. After this meeting, the caretakers then go around the entire building waking all the patients up. At 09:30 there tends to be another caretaker's meeting in which the patients and their responsibilities are split up amongst the coaches. The entire day then goes by, taking care of the patient needs and doing logistical work. Additionally, the role of a caretaker was to also manage the dynamics between residents.

The conversation then drifted towards the patients and their lives. The caretaker mentioned that the residents learnt to tolerate and live with one another due to the very special environment that they live in. Sometimes people misbehaved but then they were often spoken to. If the line was ever crossed, the patients would receive warnings and possible consequences. The caretaker further went on to mention that the patients did not care about their appearance. He stated "when you are ill, you do not care about how you dress and maintain yourself". I found this a very interesting statement as many patients had very particular dressing styles that said a lot about their personalities.

The facility also encouraged interactions between the patients and the outside world. The previous local elections were held in the facility itself, inviting neighbors to not only experience the building but also to indulge them in interacting with different residents of the care facility. The cafeteria was also open at all times to any outsider to come and eat dinner at a

very subsidized price. This also sparked interactions with the patients.

When asked about the architecture and building design, the caretaker commented saying that he liked the open spaces throughout the building. Especially the main living room that was the hub of a lot of interactions. He also said that there is a lot of privacy for the residents. At any point, if they did not want to interact with anyone, they had the choice to go to their rooms and could live their lives the way they wanted to. While the main corridor/ living room sparked a lot of conversations and interactions, it also had a lot of stimulants that made some of the patients uncomfortable. There was a lot of echo in this space and people could observe each other's actions at all times. It also made the daily life very visible. Whether it was the act of getting coffee or medicines, everything was visible to everyone which had its own advantages and disadvantages.

The building was designed in such a way that people felt accepted and at home. The design made the building look very de-institutionalised yet the furniture that was picked was done in such a way so that it is easily cleanable. While comfort and facilities were often praised for in the building, the caretaker also criticized it. He said that the life created for the patients is not very healthy. It makes them very lazy as everything is provided within the facility itself and it discourages them to step out into reality. A very important and interesting statement made by the caretaker was "The facilities provided in the building over-rule the inner drive to be more motivated". Indeed, the patients had no motivation to recover and move out as they were so happy residing in the facility.

Life coaching and activities have been introduced to the facility to encourage and motivate the patients to move out and live life in the outside world.

## 5.3 INTERVIEW WITH ARCHITECT



*Figure 38: Drawing of Architect*

*ANTON ANIKEEV*  
*WRITTEN INTERVIEW*  
*WITH*  
*O.M.A ARCHITECT*

The fieldwork included an interview with an already practicing architect in order to get some professional advice and opinions. Anton Anikeev is a senior architect at OMA and due to clashing schedules and approaching calendar holidays, the interview was not held in person. Instead, the questions were sent to him and he gave written answers to the list of questions. This segment of the report summarizes the written interview.

When asked about the role of the built environment for the prevention of mental illnesses, he said that it is important to create a safe environment. An environment that is not sterile and maintains qualities that harness spontaneity, creativity and a chance to encounter adventure. Regarding the elements that would make a care facility approachable, Mr Anikeev said that it is important for healthcare facilities to have a down to earth feel unlike in the past in which hospitals and healthcare institutions had a grand look. He also said that there should be an element of privacy and separation to make the facility more approachable. However, he also believed that the core strength of healthcare is an institution and by de-institutionalising healthcare facilities means that it is, in a way, undermining its core. Therefore approachability is more important, according to Mr Anikeev.

Regarding the community aspect of design, Mr Anikeev believes that the community makes the space instead of the space forming a community. It is the duty of the architect to deliver a building of high quality and then it is up to the people itself to accept what is given and then form a community. He also thinks that the idea of creating fragments of community centers around a district or city is a good idea but he also thinks that a digital platform to promote and encourage these programs is essential.

At last, Mr Anikeev also recommended a few books like *Reaching Down the Rabbit Hole* by Alain Ropper, *The Divided Self* by Laing, *Behave* by Robert

Sapolsky and a reference project called *Hospital of the Future* by OMA, to end the written interview. The exact interview can be found in the appendix.

## 5.4 INTERVIEW WITH PSYCHOLOGISTS



*Figure 39: Drawing of Psychologists*

*JAN VAN BEEK & MAFALDA PINHEIRO*

*INTERVIEW*

*WITH*

*TU DELFT PSYCHOLOGISTS*

In order to get a better idea about the topic of mental illnesses especially among the student age group, an interview was held with Technical University of Delft's student psychologists Jan van Beek and Mafalda Pinheiro. This interview had discussions about the topic of mental health in general, the problems and needs of students as well as architectural contributions for better mental health.

When asked about the most prominent mental illnesses among students, both psychologists mentioned that anxiety and depression are very common. They also explained that the root causes of these illnesses are the pressure to perform and do well in their education which is a form of societal pressure, the pressure of knowing too much about the world alongside the situation of having many options for anything in life, social media addictions and the lack of real life connections.

The topic of connections was spoken most about. Due to social media, people have lost the concept of making real life connections and are very dependent on digital connections though mere images. Real life interactions lead to an exchange of energy which is key for happiness and the feeling of content. This is also a way to prevent mental illnesses according to Mr van Beek. Other than real life connections, it is also important to design spaces that encourage people to interact with one another. Correct use of colors and materials to improve the aesthetics, addition of plants and flowers and lastly adding activities such as puzzles, libraries can really help improve the quality of spaces according to both the psychologists.

Lastly, when it comes to the normalization of mental health, both psychologists believe that it is important to have health care facilities in the middle of societies and neighborhoods but it is also important to maintain some form of privacy. It is about creating balance through design. Instead of designing a facility that looks like a hospital and reminding the patients that they are sick, it is important to make them feel

comfortable. It is also important for the word to spread. If one friend opens up about receiving therapy/ counseling, more and more friends will start opening up and this chain reaction leads to the normalization of mental health.

# 5.5 SURVEY

## SURVEY 1

## SURVEY 2

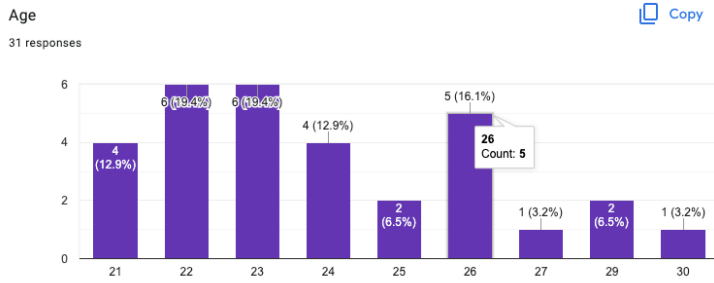


Figure 40: Survey 1 Age

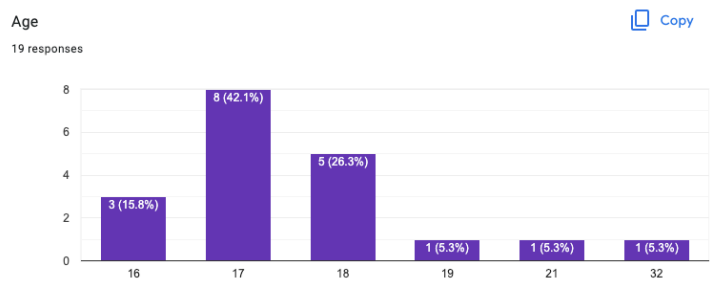


Figure 41: Survey 2 Age

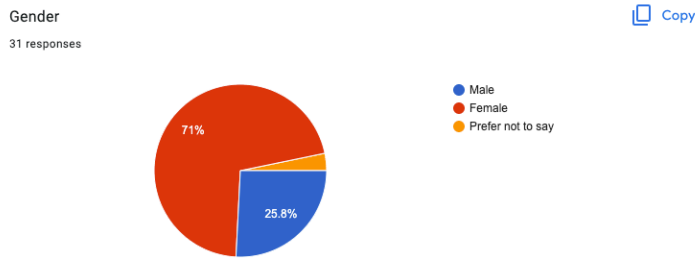


Figure 42: Survey 1 Gender

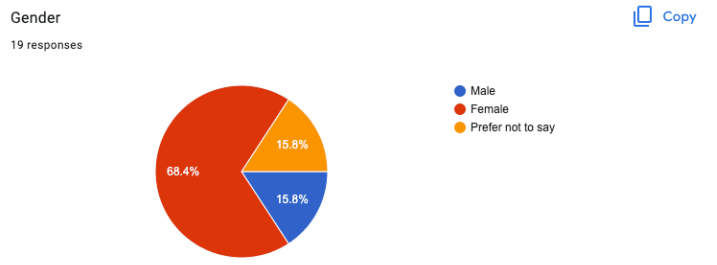


Figure 43: Survey 2 Gender

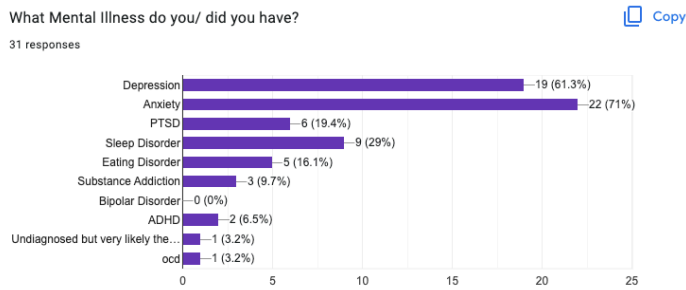


Figure 44: Survey 1 Question

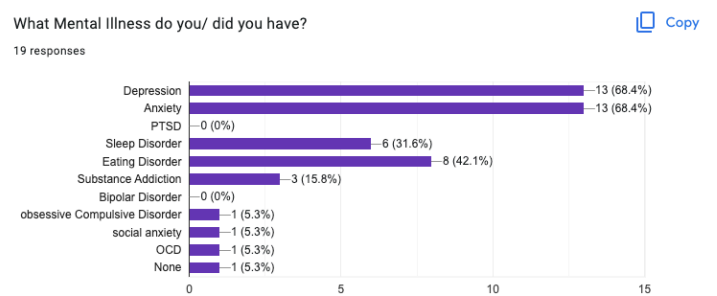


Figure 45: Survey 2 Question

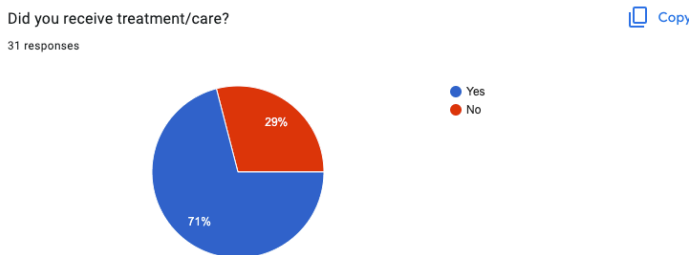


Figure 46: Survey 1 Question

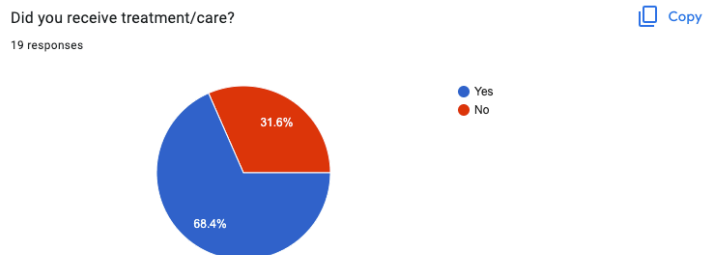


Figure 47: Survey 2 Question

## SURVEY 1

## SURVEY 2

At what age did you realise that you are unwell?

[Copy](#)

31 responses

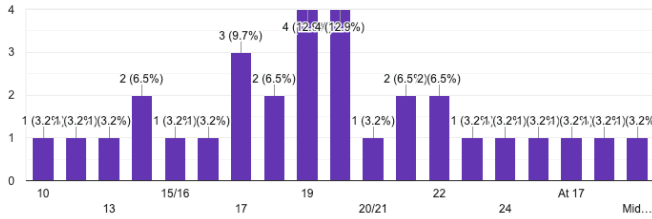


Figure 48: Survey 1 Question

At what age did you realise that you are unwell?

[Copy](#)

19 responses

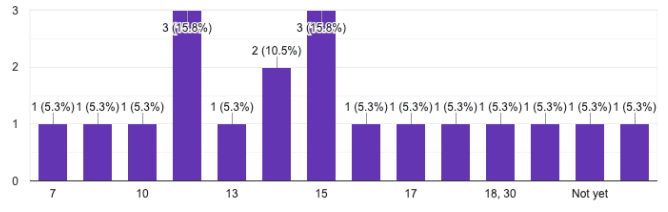


Figure 49: Survey 2 Question

At what age did you start receiving treatment?

[Copy](#)

31 responses

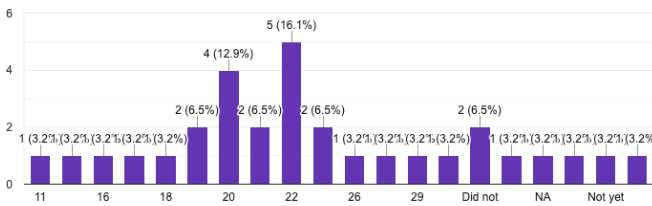


Figure 50: Survey 1 Question

At what age did you start receiving treatment?

[Copy](#)

19 responses

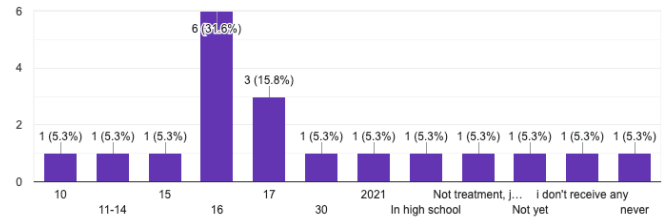


Figure 51: Survey 2 Question

If there was a certain gap, what was the reason?

[Copy](#)

31 responses

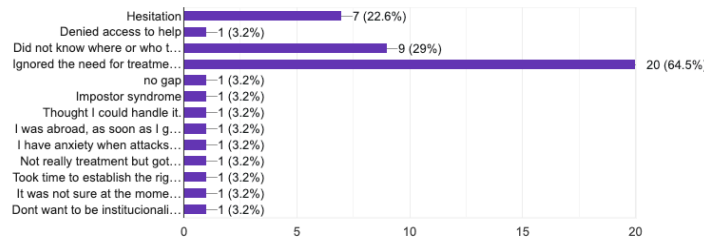


Figure 52: Survey 1 Question

If there was a certain gap, what was the reason?

[Copy](#)

19 responses

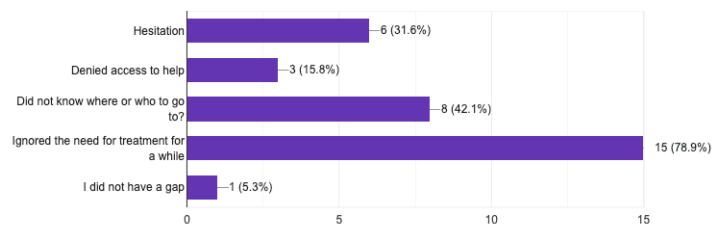


Figure 53: Survey 2 Question

Why do you think mental illnesses are on a rise?

[Copy](#)

31 responses

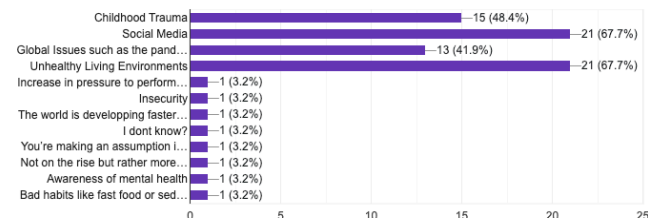


Figure 54: Survey 1 Question

Why do you think mental illnesses are on a rise?

[Copy](#)

19 responses

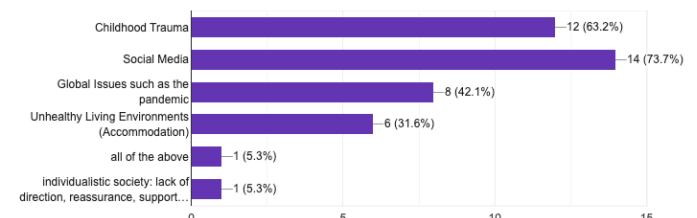


Figure 55: Survey 2 Question





## Introduction

Two surveys were conducted in order to get more accurate data from the target group itself. One survey was sent out to university students and young professionals, the other survey was sent to high school students. Interestingly, even though the age range was quite big, the survey had very similar results.

## Conclusions

First of all what is very interesting is that in both surveys, a majority of females answered the survey which lead to two presumptions. Either that females are more vulnerable to mental illnesses or that males are not very vocal about their opinions. Or it could be both the cases.

Second of all, both cases suggest that a majority of the people had depression and anxiety compared to other mental illnesses. A couple of other mental illnesses worth noting were sleep and eating disorders. While a majority of the people receive treatment of some sort, there is still a significant time gap between the moment they first fell ill compared to the moment they first received treatment. The main reasons for this time gap were hesitation, ignoring the need for treatment and lack of information regarding the treatment.

The main root causes for the mental illnesses were childhood trauma, social media, global issues and unhealthy living environments. And when asked if mental illnesses are stigmatized, a majority of the people said yes and that it is what refrains people from seeking for help.

There were a few more questions asked so the entire survey can be read in the appendix. Overall, it can be said that the survey results are very similar to a lot of the other fieldwork and literature findings. This clarifies the main problems and lists possible solutions.

# 6. RESULTS

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The study aimed to investigate the normalization of mental illnesses by de-institutionalising mental illness centers and catering the youth. The study was done by a combination of Literature Research, Architectural Research and Anthropological Research. Literature review was carried out by creating a theoretical framework and finding relevant literature for each topic. The findings were in the form of books, research papers, scientific articles and additional publications. Architectural research was undertaken by finding existing projects with similar themes and then investigating them in the form of case study analysis. Lastly, first-hand knowledge was acquired through primary sources in the form of fieldwork. The fieldwork included visiting psychiatric centers and participating in conversations, interviews, sketching and observing. Additionally, interviews were held with architects, psychologists and people with mental illnesses. To initiate a bottom-up approach to the findings, surveys were also done which had results from people with mental illnesses answering questions. All of these approaches helped in deducting results which would be translated to design principles and strategy.

The research results indicate that the design should have a double approach in the form of prevention and cure. Before having options of cure and treatment, it is important to take preventative steps in order to not have severe illnesses at a later stage. When it comes to the mental health of young adults, prevention and treatment of mental illnesses can be exercised through alternative design solutions which must be investigated to remove the stigma behind the illness and to de-institutionalise care facilities. The alternative design solutions for the process of prevention and treatment are community centers with programs to provide wellness, community-based living to promote social connectedness, and lastly biophilic and natural design elements in an urban context.

## 6.1 Community Centers

Prevention is better than cure is often mentioned in the thesis and is a very effective measure in the health industry. Taking preventive steps can stop any health hazards before it develops into a serious problem such as a mental illness. For the youth especially, survey results suggest that there is a gap between when they first had mental health problems and when they first received treatment. The survey also says that the reason for this gap is primarily hesitation and also lack of knowledge. Young adults are vulnerable at that age and therefore facilities that make them aware and also help in the prevention of mental illnesses are crucial. This can be done in the form of community center.

Creating a standard design for a community center that could be placed in multiple parts of a district or city would be a part of the design project. These community centers would consist of activity rooms that would involve young adults to participate in and would distract them from social media and mobile phones in general. Some examples of activity rooms could be game rooms, art rooms, music rooms and dance rooms. Some of these spaces such as art and music rooms were present at the Yulius psychiatric center and were very popular spaces. They sparked many conversations and interactions between people and is hence, an important feature of a community center. Outdoor activities and sports are also highly encouraged for the recovery of mental illnesses and therefore an addition of a multi-purpose sports ground would be vital. Lastly, it is also important to have medical rooms

with psychologists and psychiatrists available at all times. They can observe and detect abnormal behavior and can also enlighten or answer questions when approached by young adults with their problems. This medical staff could also help in recommending the care center to young adults with slightly more concerning health problems. This helps in creating a system of prevention and early detection for early cure.

To conclude, community centers would be an important aspect of the design part of the project, to promote the prevention of mental illnesses. These community centers would be the hub for activities as well as a place where young adults can learn more about mental health. It is important to create a system that makes the community centers very recognizable and relatable to the mental health care center and this link can be made through an icon design.

- **Activity Rooms-** Game Room, Art Room, Music Room, Dance Room
- **Medical Rooms-** Psychologist, Psychiatrist
- **Outdoor-** Sports and Other Activities

## **6.2 Social Connectedness Through Community Based Living**

Research has demonstrated the value of social connections in boosting the mental health of young adults. According to studies, having supportive social setting and connections aid the reduction of negative impacts of stress and adversity while fostering resilience and overall well-being (Cohen & Wills, 1985) . Community-based living, which places an emphasis on designing larger living rooms, that create relationships and increases engagement among the community members, is an important strategy of encouraging social interactions (Berkman & Syme, 1979) .

Implementing community-based living for young adult's mental health can benefit greatly from the creative use of design. For instance, programs and spaces that would encourage people to bond would be very helpful. These can be done by the addition of activity rooms with ping-pong tables, art rooms and music rooms. These were popular and used quite regularly in the Yulius psychiatric care facility, for example. These help in building relationships (Kuo & Taylor, 2004) that contribute to positive mental health outcomes (Relf & O'Brien, 2015) .

Another example to take from the Yulius psychiatric care facility is the abundance of several shared spaces in the form of living rooms. Each living room had different themes that suited people with different characteristics. Other shared spaces such as kitchens and dining areas are also a hub for interaction (Talen, 2010) , and this was visible in the HVO Querido care center. Game rooms, fitness centers, spiritual rooms and additional facilities help in recovery but also bring the community together to providing a sense of belongingness (Kellett & Tewdwr-Jones, 2010) .

The point of having a community-based living system is to help the young adults build on real life and in-person connections, something often missing in present day due to social media. This is something that was even mentioned in the interview with the psychologists. Fostering these connections brings happiness and removes the

thought of loneliness and depression. While designing a community-based set up, it is also important to consider the accessibility and inclusivity of people with different mental illnesses. Though the target group is mild to moderate mental illnesses instead of severe cases, yet comfort must be created for all to maximize participation in the communal spaces (Rapoport, 1990) .

Overall, by offering chances for social engagement and interaction, community-based living has the potential to improve the mental health of young people. Architects may assist in designing living environments that encourage relationships and support for young adults by including techniques like shared areas and shared activities.

- **Open plans**
- **Central Movement + Routing**
- **Social Shared Spaces**
- **Inclusivity**

### **6.3 Natural Environments and Biophilic Design in An Urban Context**

All forms of research also suggested the importance of natural environments and biophilic design for young adults with mental illnesses. Access to nature in cities is vital and is often missing, therefore there is a need for natural components to be integrated into constructed environments. Studies also suggest that natural environments and biophilic design has great benefits and positive impacts on mental health (Kaplan, R. & Kaplan, S., 1989) . It reduces stress levels, elevates mood and improves the well-being of those that are ill (Ulrich, 1984) . Given that adolescents are at a critical time of development and are particularly susceptible to the negative effects of stress and bad mood, the significance of nature can be very calming and is essential for the mental health of young adults (Hartig, Mang, & Evans, 1991) . The lack of green spaces in dense, urban cities only has negative effects on mental health and therefore young adults should be encouraged to spend time in nature, therefore, being important to be present in mental health care centers.

Creating aesthetic and well-lit interiors is vital for uplifting the mood and building on one's happiness (Clements-Croome, 2006) . The results from research suggests that a lot of intricate detailing has to be done to create large pockets of natural day light within the interiors of the building (Kellert, Heerwagen, & Mador, 2008) . Alongside the openings, efforts should be put into picking the right material and color pallet to amplify the natural environment effect. Playfulness and use of organic shapes in design also add to the uplifting of one's mood especially among the youth. A sense of connection with nature must therefore be created to amply positive mental health outcomes (Relf & O'Brien, 2015) .

Design decisions should be made in such a way that it incorporates natural settings and biophilic architecture. Biophilic architecture can be done by the simple addition of plants and flowers in all spaces. This was a component missing from the HVO Querido care center but was omnipresent in the Yulius psychiatric center making the residents of Yulius happier and more satisfied. Biophilic design can also be encouraged by having green walls, patios, balconies and roofs. This presence of greenery within the interiors of a building was also encouraged by the psychologists in the interview.

The design of the project should also focus on having a green landscape. Outdoor parks encourage young adults to indulge in sports and other outdoor activities which is key. Additionally, maintaining community gardens could be vocational training program that would allow young adults to connect with nature, help with its growth and attain internal satisfaction that has a positive effect on their mental conditions (Kellett & Tewdwr-Jones, 2010) .

Overall, natural environments and biophilic design are crucial for the mental health of young adults in urban areas, as they promote well-being and reduce stress. By incorporating strategies such as natural elements and easy access to outdoor spaces, architects and designers can help create spaces that foster well-being of the youth in urban areas. Creating more green spaces in the city which can provide much-needed access to nature can also be done within a care center, attracting more people to the program of receiving ailment.

- **Indoor Lighting**
- **Biophilic Design**
- **Playfulness and Organic Design**
- **Outdoor Greenery**
- **Public Natural Spaces**

To conclude, the research results indicate that there is an equal importance for prevention and as for the cure of mental illnesses among young adults. Preventative steps can be taken by introducing several community centers in a district or city. These community centers would host many activities, attracting the youth to these facilities and also takes their attention away from their phones. These community centers would also have a psychologist and psychiatrist present at all times to monitor the youth's behavior and advise them when approached. When it comes to curing mental illnesses, de-institutionalise care facilities should be introduced as a part of the community center program. The young adults that require more attention can be advised to go to a mental health care facility for recovery. These care facilities would have a community-based living program to promote social connectedness, with biophilic and natural design elements in an urban context. This overall system would help in preventing and reducing mental illnesses among young adults and would help in improving their quality of life for the future.

# 7. DISCUSSION

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In order to advance the study and application of community-based and nature-inclusive design models, future research should include the collection of more diverse perspectives. It would be valuable to further conduct more comprehensive surveys and engage in additional dialogues with professionals in the mental health and architectural fields, as well as individuals who have experienced mental illnesses. By doing so, researchers can better assess the accuracy and efficiency of these design principles and can refine them based on firsthand experiences and expert insights.

Furthermore, it is important to investigate how these design principles can be integrated into existing healthcare systems to create more sustainable and cost-effective solutions. This would involve exploring options for renovating existing facilities in order to incorporate community-centered and nature-centric design elements, without initiating the construction of entirely new buildings.

As society becomes increasingly reliant on technology, future research should also examine the potential benefits of digital innovations for mental health care. For example, the application of virtual reality and soundscaping technologies could offer immersive therapeutic experiences that complement traditional treatment methods. Amalgamating these tools into the design of mental health facilities could further enhance the healing potential of these spaces.

Moreover, future research should also focus on addressing the unique mental health needs of marginalized communities, such as low-income families, ethnic minorities, and LGBTQ+ individuals. By tailoring design principles to account for the specific challenges faced by these groups, mental health care facilities can become more inclusive and effective in promoting recovery for all in the modern society.

In summary, there is a wealth of potential for future research in the realm of architecture and mental health. Expanding upon the current understanding of community-based and nature-inclusive design models will not only contribute to the development of better solutions for society but also promote recovery and improved quality of life for those experiencing mental health issues. By incorporating diverse perspectives, investigating sustainable alternatives, exploring the role of new technology, and focusing on marginalized communities, future research can help to further develop and expand the potential of architectural design in mental health care.



# 7. CONCLUSION

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This thesis has explored the role of design principles in the built environment in normalizing mental illnesses and de-institutionalising mental health care centers for young adults. The main research question guiding this study was: What architectural and built environment solutions can support the prevention of mild to moderate mental health illnesses among young adults in the Netherlands? Through an extensive analysis of literature research, architectural research, and anthropological research, in the form of literature review, case study analyses, and fieldwork, it has become evident that the solution is two-folded.

Firstly, prevention can be achieved through the establishment of youth community centers distributed and situated across districts or cities. These centers would not only divert young adults' attention from factors that contribute to mental illnesses, such as social media, global issues, and societal pressures, but also educate them about mental health to de-stigmatise seeking for help. By offering engaging activities and safe spaces such as music, dance, art, game and immersive rooms, community centers can promote mental health awareness and provide opportunities for early intervention, ultimately helping to bridge the gap between mental health problems and treatment.

Secondly, for cases of mild to moderate mental illness, recovery can be initiated through the construction of mental health care centers situated in urban locations. These facilities would incorporate alternative design methods and principles, such as community-based living arrangements to encourage social connectedness. In addition, the integration of natural environments and biophilic design elements can serve as powerful tools for combating mental health issues among young adults. By situating these design elements within an urban context, barriers between mental health care and communities can be broken down, fostering the destigmatization of mental illnesses and promoting a more inclusive and holistic approach to mental health care.

Furthermore, the thesis highlights the significance of incorporating nature-centric design in mental health care facilities, as research has shown the recovery and impact of nature on mental well-being. Green spaces, gardens, and natural light can foster a sense of calm and tranquility, which are essential for recovery. Combining community-centered and nature-centric design can create environments that are conducive to healing, while also facilitating the integration of individuals with mental health issues back into the community.

In conclusion, this thesis highlights the vital role of architectural design principles in addressing the needs of young adults with mental health issues. By focusing on community-centered and nature-centric design approaches, a more normalized and de-institutionalised framework for mental health care can be developed. This innovative approach to mental health care not only supports the prevention and recovery of mental illnesses among young adults but also fosters a more inclusive and compassionate society that embraces mental health as an integral aspect of overall well-being.





# APPENDIX I

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## *Personal Fascination*

As I started my higher educational journey, I have come to a realization that one's mental and physical wellbeing is utmost important in order to succeed in any field. Stress and anxiousness are elements that have been omnipresent throughout my academic life and instead of finding ways to overcome these challenges, I have had the tendency to act ignorant and continue with the norms of my life.

Seeking for help for a better mental state has always been stigmatized in my home country, India. While nature and nurture have shaped my upbringing, my persona has been positively embedded by the roots of my culture and traditions. However, absorbing positive attributes from other countries is a part of a learning process. Hence, living in the Netherlands has taught me the importance of seeking for help. Mental health is a very relevant topic in present day.

Through my architectural journey, I have realized that there is a symbiotic relationship between a building, space and human interaction. A building can easily influence one's emotions, experience and behavioral patterns. While I myself have had distresses in the past, a majority of the present-day youth go through a lot more severe situations. Yes, mental health is a prevalent topic however personally, it is hard to see how architecture is presenting valuable de-institutional solutions to the concurrent problem.

Hence this studio and topic has motivated me to work towards creating a positive change in society through design. A system that helps the youth with mental health issues to seek for help without being stigmatized in society.

# APPENDIX II

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## *Interview With Architect*

**With the rise in mental illness cases among teenagers and young adults, how can the built environment play a role in the prevention of these illnesses?**

I wouldn't say that I have any expertise to really comment on this, but I imagine the key here is in a way to create a safe environment that will create less stressful situations for the users of those facilities on a daily basis. The challenge here is, of course, to make sure that this environment is not sterile, and maintains qualities that harness spontaneity, creativity, and a chance encounter/adventure.

**What architectural elements make a health care facility more approachable?**

Today, in the contrast to what the healthcare actually used to be in the 20th-century and before that as well, a sort of grand institution that had been proclaiming its own grandness through the stature of architecture, I think, architecture of a contemporary healthcare facility must maintain a sort of down to earth feel, one that is playful and engaging. I also do not really believe into the full integration of these facilities, and I believe there must be an element of privacy and separation to be maintained for those facilities to provide comfort and privacy, I think that will make those facilities also more approachable.

**What design aspects improve a health care facility's quality of space?**

I think this is very individual and it is hard to give any specific advice here. You would probably need some specialist outside of architecture. Somebody from the field of medicine perhaps, who works with patients and sort of knows what environments do they need in order to get better. Whatever they got to say have to be of course processed by an architect and translated into built environment and do it well is the tricky part.

**What design choices could de-institutionalise youth care facilities?**

Ultimately, the strength of healthcare is that it is an institution so to de-institutionalise healthcare means in a way to undermine its core. I would rather ask the question what can we do to make those institutions more approaching, engaging and easier to deal with.

**In general, what is a good location for residential youth care? (Dense urban spaces, remote locations etc)**

This, I believe depends on the exact nature of the facility, perhaps for some of the facilities it is helpful to be located outside of the city in order to engage with the outdoors and nature yet for some other facilities, it is probably far more appropriate to be located centrally in order to facilitate easy access for the users, and to make sure their

commitment in visiting those facilities, especially if it comes to the young people who has plenty of distractions in their daily life that can steer them off from visiting these places.

### **How could you improve social interactions and create a sense of community through design?**

I think the community makes the space and not the space makes the community and we have many examples of spaces, that are completely inappropriate and under-designed yet successfully integrated and often being a heart of communities especially for the youth. As long as you make architecture of quality, and do not try to cut corners in order to save money or do anything that undermines its main purpose you, as architect, you are doing your part, of course this part is only half of what needs to be there in order for it to work properly, the second part is the community itself that needs to accept what an architect gives them, and there is no way to trick society into doing that, people can tell if they are given something they need or can use.

**As of now, my idea is to split the project into two design parts. Prevention and then cure. The prevention would take place by creating fragmentations of community centers around a district/city. These community centers would include facilities such as sports, music rooms, art rooms, gaming spaces etc, alongside a psychologist/ psychiatrist room for the young adults to talk to. The second part would include a larger youth care center where the target group can stay and receive treatment if required. Do you think this idea is good? If not, how would you architecturally approach this project?**

In general fragmentation makes sense as it needs to cater for a large group of people dispersed through the large territory, I would say what could benefit such a scheme, and in a way, this is not even an architectural proposal, but I think it needs something digital that will provide a sort of infrastructure to engage people into participation in the activities that you would like to host in your centers, I think today, most of the people get information online and interact with information often also primarily online so I think the challenge here is how to merge those two realms, where one benefits and reinforces the other.

### **Do you know any reference projects that are worth looking into?**

I recommend to look at the project called Hospital of the Future by OMA this is an exhibition in Venice, and I also recommend to look at another hospital project in Qatar, you can find both on OMA website and you can see some interesting videos, explaining the concepts and the vision. I think it is also quite interesting to create a sort of timeline of healthcare facilities and contrast different ways of facilitating mental healthcare through the time contrasting sort of late 19th century asylums with institutionalized, mental health facilities of 20th-century and whatever there is today.

### **Could you recommend any architecture literature related to health care or maybe something more specific to mental illnesses and youth care?**

To be honest, I don't know much about mental health from medical perspective. From the books that I sort of briefly read or look at just out of my own interest I would say maybe you can try a book called Reaching Down the Rabbit Hole by Alain Ropper, there is also an interesting book called The Divided Self by Laing; and this one

maybe not exactly on the same subject, but it's called *Behave* by Robert Sapolsky and is mostly about biology and neuroscience behind human behavior, which in a way is interrelated with a mental health. Maybe it is also worth looking in the work of Michel Foucault, who wrote a lot about institutions in general comparing places, like prisons, or mental healthcare facilities, and analyzing what those institutions say about us as people and about our society. But maybe go through the summary of those books first just to see if it's something that can be helpful or interesting for you.

# APPENDIX III

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## *Interview With TU Delft Psychologists*

**Psychologist 1:** Jan van Beek

**Psychologist 2:** Mafalda Pinheiro

### **What are the main mental illnesses among university students?**

**P2:** The first answer that comes to my mind is anxiety and depression. Even though those terms are a bit vague and you have different kinds of people that fit into either of them, but I think those are the two that come to my mind.

**P1:** I read an article, it also might be loss of connection. For example, during Covid times, students were less connected than before but also connections with friends and family. This can cause mental problems such as anxiety and depression.

**P2:** If I had to pick one illness for which more students complain about is not being able to create connections with others and not being able to have satisfying relationships. These relationships include family, friends, romance or even with themselves. The word connection comes very often.

### **What are the root causes of these mental illnesses?**

**P1:** I think there are lots of them, I do not think there is one main cause in general. The pressure to perform in university and then fitting in society is an example common to this generation. We need to take care of a population that is growing older which is already a form of societal pressure. Pressure in the academic systems as well as the pressure of finding an accommodation which is not easy in Netherlands. Climate problems is a subtle addition.

**P2:** I think there are so many reasons why people might not be okay but I also do think that, we also have the pressure of knowing so much about the world. This usually seems like a very good thing because we have so much knowledge and so much variety but actually it is not that good because we now know that we can choose so many different options and we tend to struggle with what is the best way of doing it. One example of pressure is that society tells us that we need to study hard and be the best at what we do. So overall we have so many options due to which there is this pressure to choose and how to choose the right one, and once that is done, there is a societal pressure to be the best at it.

**P1:** There is this book written called “Twintigerstwijfels & dertigersdilemma’s” which translates to doubts in your twenties and dilemmas in your thirties. One thing that is mentioned in the book is that for example, fifty years ago when people went to the beach, they only had two choices of ice-creams. Today, you have twenty different choices which makes life a lot harder.

**P2:** When talking about present generations, I think social media is also a big problem. Not only a problem, there are also a lot of good things however in general it has drawbacks. It makes us constantly compare ourselves with others. Especially when you are young and do not have the maturity, it is hard to distinguish between what is a good and bad comparison.

**P1:** We just talked about connections and the definition of connection being the energy when you see, hear or value another person and the problem with social media is that you do not really see. You see an image but do not actually see the person. The youth does not take out time to actually connect with people, instead they rely on mere images as connections.

### **Does the built environment play a role in causing/ treating these illnesses?**

**P1:** Well, this room does not have any flowers or plants and that is an example. An atmosphere also makes you feel better. Safety also influences the living conditions in a building. Another obvious theme is also aesthetics. This also applies to classrooms and lecture rooms. If they are too crowded, students have lectures in the cinema sometimes and they struggle to write anything due to the layout of a cinema room.

**P2:** We use our entire day using our eyes and we are constantly looking at things such as colors, shapes, aesthetics therefore it is very important for us to feel that we are in a good environment. I also think that the built environment is important for recovery. If you are recovering from some problem, it is important to be in a space that is comfortable, aesthetically pleasing but also secure and cozy.

**P1:** I also read an article that states that being in a room with plants for even five minutes, already reduces mental stress. Therefore these things actually have an impact and make a difference.

**P2:** For my thesis in my masters, I remember reading a few articles about connection with nature and one of the article’s mentioned that usually when people are going through tough times, it really helps to be in connection with nature. Therefore buildings in which people are recovering from mental illnesses should have a strong connection with nature.

**P1:** I was working in a mental health institution and it was for people with autism therefore more severe cases. These patients had to first walk through room full of people with severe alcohol abuse problems and were then placed in a room with chairs facing each other. This already causes so much discomfort. I also worked in a place which had beautiful trees, huge tables with puzzles and books which really improves the quality of spaces.

## **How can these illnesses be prevented?**

**P1:** What is important is to listen to the people, to really see what they need. Not top-down but a bottom-up strategy. Adding programs to the curriculum is also important, for example, how to be resilient or how to deal with stress while there is this pressure to perform. Start making time for people.

**P2:** In my opinion, it is important to design spaces that can be used casually. So spaces where people can interact other than just studying. This is also related to the topic of connections, therefore to have rooms and spaces where connections can be made.

## **Do you think reducing the amount of time on social media is the way to head in the right direction or more constructively using time on social media?**

**P1:** I think telling people to stop doing things is very difficult however telling people what to do, such as connecting more deeply and to learn how to do that is very important. It is also crucial to tell them why these connections are necessary because then it brings energy and meaning to life, something that does not happen through social media. It is also good to be critical. If you are spending a lot of time on social media and having problems with it, then it is important to ask yourself why these problems are occurring and what happens to your behavior when you go onto social media.

## **How can the act of seeking for help be normalized?**

**P1:** A great example is our office. You came here for this interview and see how hidden the office is. I think being more visible definitely helps practically. But then it is also scary because then society will be overrun by mental zombies or something like that.

**P2:** I think it is important for psychologists or people who are helping to be in the middle of societies and neighborhoods. On one hand it is important to create privacy for the patients so that it is not very obvious that they are seeking for help but on the other hand it would be good if it is just normal to see your friend go and talk to a psychologist. It is about creating a balance. But definitely it is also important for the building to not look like a typical mental institution and a hospital. People do not want to feel that they are sick and that something is wrong with them, which is reminded through an institutional and hospital looking building.

**P1:** These generations struggle to open up about their problems however if one friend opens up and so does another, then it becomes more normal and that way problems can be solved.

## **Additional Discussion**

**P1:** The idea of creating multiple characteristic centers is good and could potentially help but that should not be the end goal of society. Instead of having more psychologists, psychiatrists and care centers, we should gradually have less of them. To end up in a society in which people are able to help each other out. It is important to get



integrated in society. If mental illness numbers increase then there is something wrong with society and having multiple care centers is not what is necessary but instead, find the root cause of the problems in society and prevent it. Society should be stirred away from growth and should be directed towards values. But that is not how the world works. We depend on growth, so if more people are mentally ill, there are more facilities to take care of them, more employment and therefore an improvement of the economy.

**P2:** The idea of having many distinct centers might lead to them becoming more common and not so recognizable or so to say “unique”. It would also have a very specific meaning/demarcation to it, the way a hospital does which is unwanted.

# APPENDIX IV

## Survey 1 Results

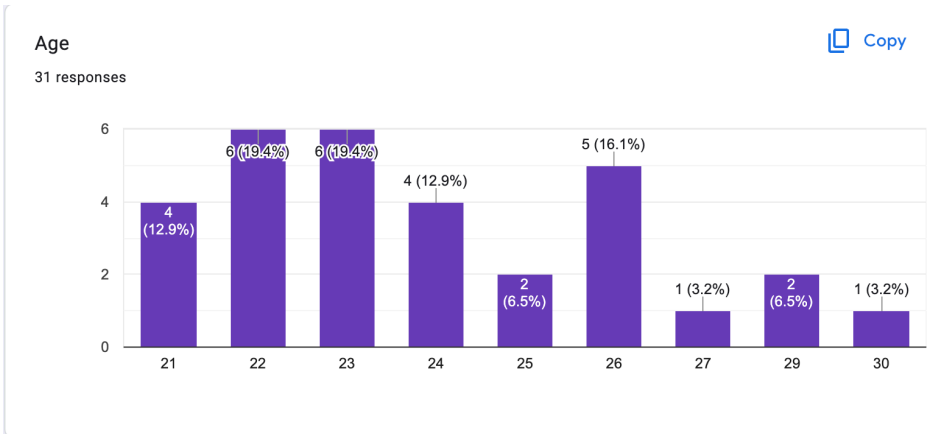


Figure 56: Survey 1 Age

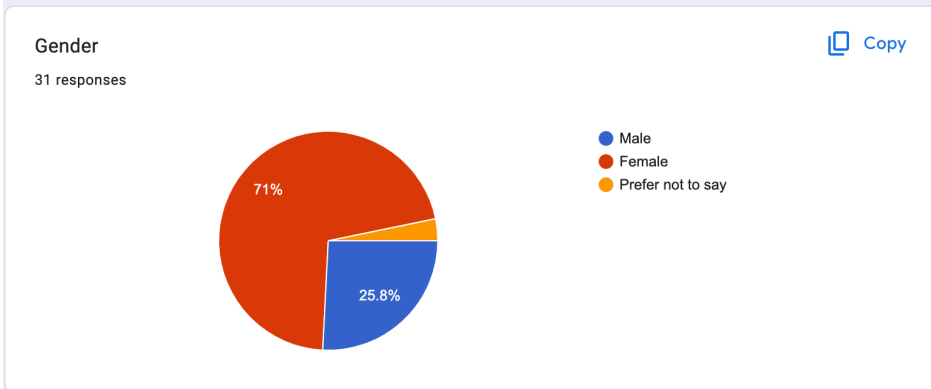


Figure 57: Survey 1 Gender

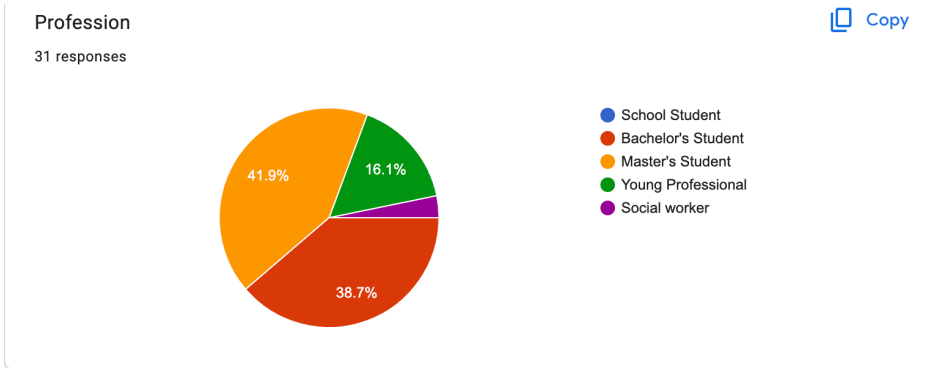


Figure 58: Survey 1 Profession

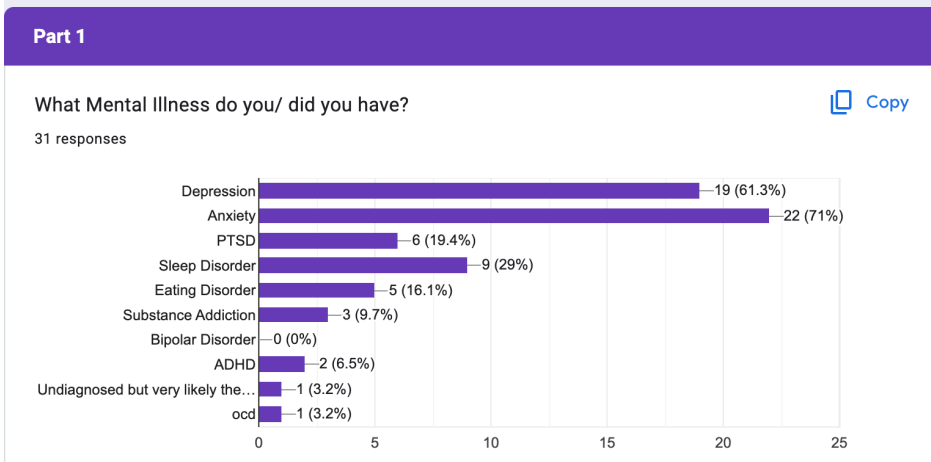


Figure 59: Survey 1 Question

Did you receive treatment/care?

Copy

31 responses

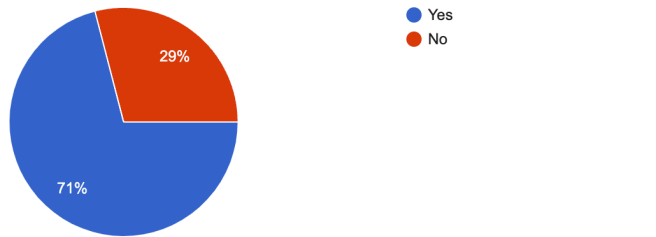


Figure 60: Survey 1 Question

Did you go to an institution or do you get private counselling?

Copy

31 responses

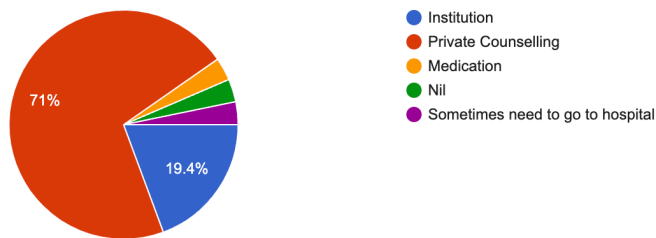


Figure 61: Survey 1 Question

At what age did you realise that you are unwell?

Copy

31 responses

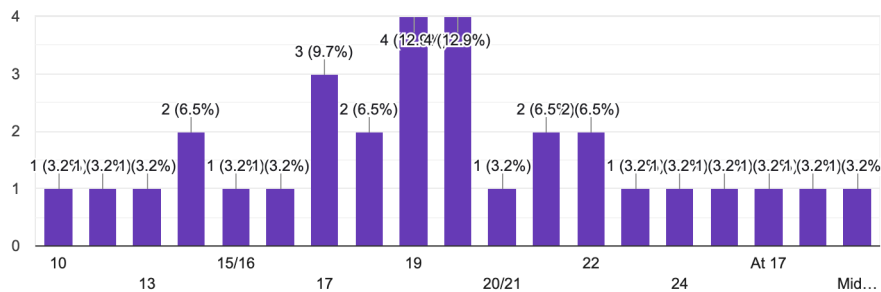


Figure 62: Survey 1 Question

At what age did you start receiving treatment?

Copy

31 responses

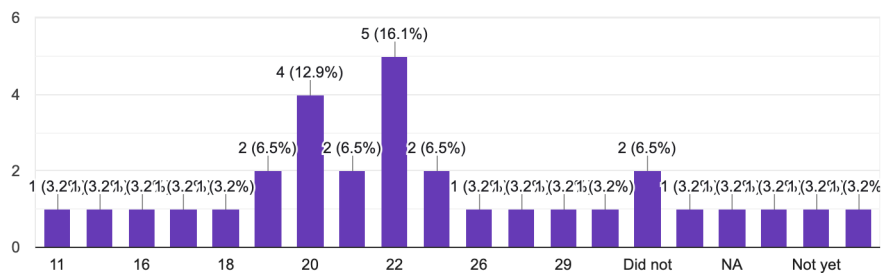


Figure 63: Survey 1 Question

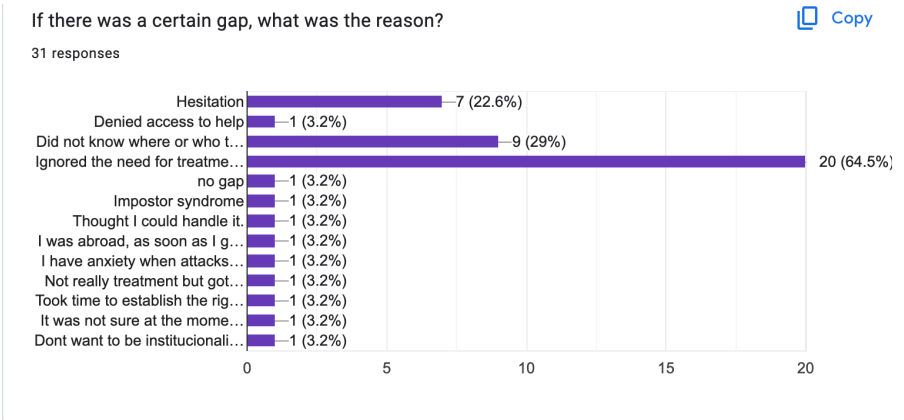


Figure 64: Survey 1 Question

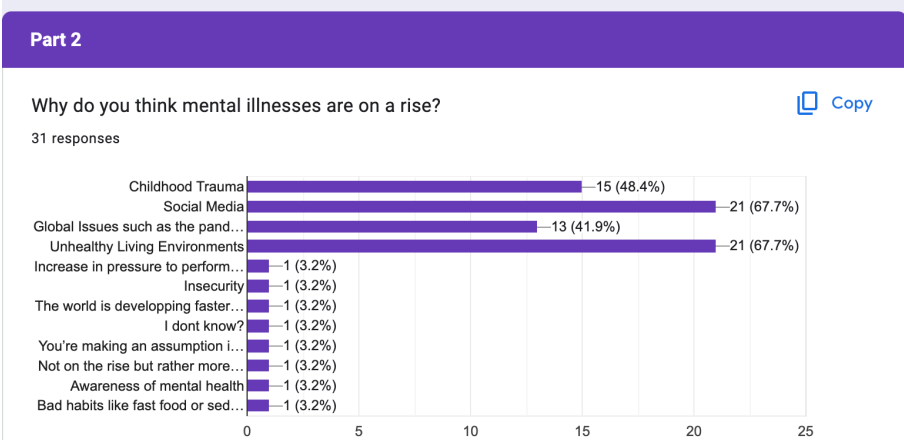


Figure 65: Survey 1 Question

Do you think mental illnesses are stigmatised? If so, do you think it refrains people from getting treatment?

31 responses

- Yes and yes
- I think too much effort is put into diagnosing metal diseases
- Yes, it's often talked about as if you could have it way worse
- Yes, people generally don't understand what it's like. If you're being shamed for you put it away instead of getting help
- It's getting better, but yes
- Depending on the illness, yes. There's a lot of prejudice and labels and a lack of empathy and understanding.
- Yes to both.
- Sometimes people think that they are crazy if they go see someone for treatment. And I honestly think I can get over it on my own.

Figure 66: Survey 1 Question

How would you try to normalise the act of seeking for treatment/counselling?

31 responses

Idk

Normalize it through platforms like social media

I discuss with friends and people I meet. I'm very open about the fact that I go

By talking about it openly

Talking more about it. Treating therapists like any other doctor, and treating the mind as any other part of the body that also needs routine checkups and needs to be worked on to be healthy. Have more workshops or talks or lectures in educational settings to offer people help.

Open communication about how "normal" it actually is to be the way you are.

Maybe learning at school that it is normal if you are dealing with such problems.

I would try to make it as accessible as possible so that there is actually capacity, then I would target young people; hold seminars at universities for example

Figure 67: Survey 1 Question

How do you think mental illnesses can be prevented amongst the youth?

31 responses

Make them all exercise and eat healthy

Talk about it openly

Society needs to change as a whole. The need for education can start at an early age at school. But pressure needs to decrease at school work etc.

By creating an environment that isn't so stressful and demanding

Reducing pressure and prejudice. Not sure how more specifically though

Communication

No more social media, that's the main reason that the youth nowadays feels very insecure.

Teach psychology in high school. Offer things such as mindfulness and meditation. Help people realize that emotions are just that, emotions. They come and go, life will always go on.

Figure 68: Survey 1 Question

Do you think architecture plays a crucial role in persuading people to receive treatment?

31 responses

- Yes
- Yes. Especially greenery makes me feel better
- I mean the centre should make you feel comfortable, nice environment
- Could help, but won't cure it
- I'm not sure
- No. It might play a role but I don't find it crucial.
- Not sure.
- No.
- Not really..

Figure 69: Survey 1 Question

What design elements would make a care centre more attractive and approachable?

31 responses

- Plants
- Cosy interior
- Open light Spaces with greenery
- Cozier environments that don't feel like an institution - pastel colors, warm lights etc
- Anything that makes the place look less sterile and like you are a test subject and anything that will make the space feel normal, casual, cozy. Also perhaps communal spaces, as i think support and community building might help
- Colorful designs, art etc.
- I really don't know. Maybe more color paint, child friendly. More like a home vibe where people feel comfortable.
- I guess its nice if it doesnt look too much like a hospital

Figure 70: Survey 1 Question



# APPENDIX V

## Survey 2 Results

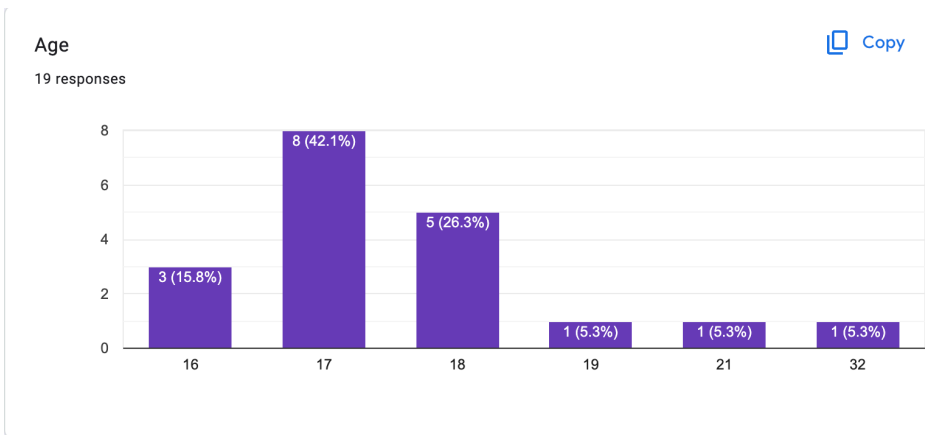


Figure 71: Survey 2 Age

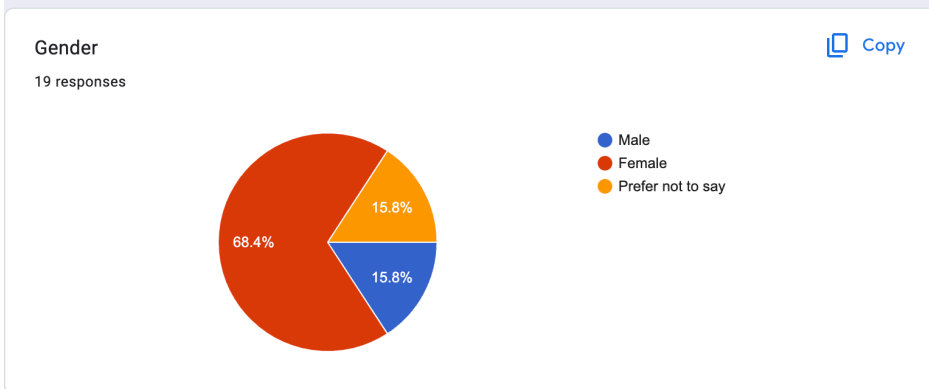


Figure 72: Survey 2 Gender

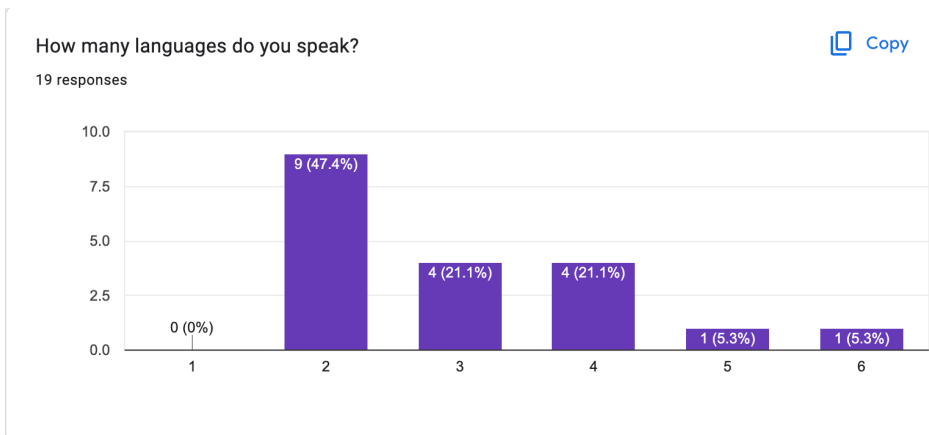


Figure 73: Survey 2 Languages

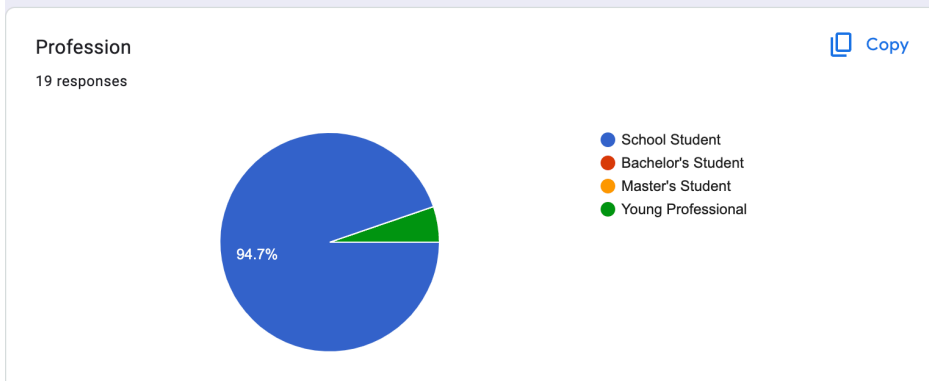


Figure 74: Survey 2 Profession



Part 1

What Mental Illness do you/ did you have?

[Copy](#)

19 responses

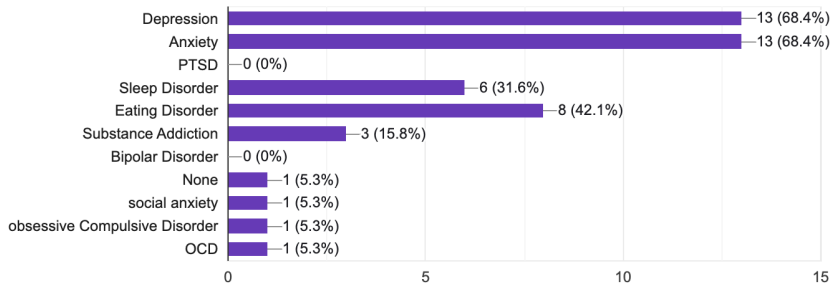


Figure 75: Survey 2 Question

Did you receive treatment/care?

[Copy](#)

19 responses

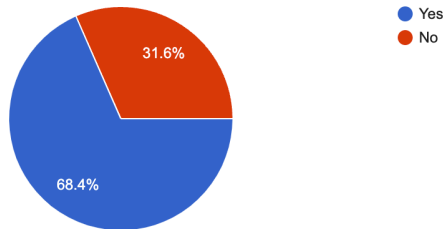


Figure 76: Survey 2 Question

Did you go to an institution or do you get private counselling?

[Copy](#)

19 responses

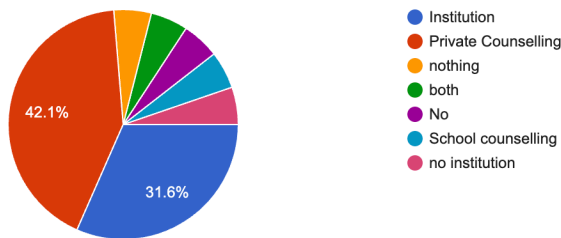


Figure 77: Survey 2 Question

At what age did you realise that you are unwell?

[Copy](#)

19 responses

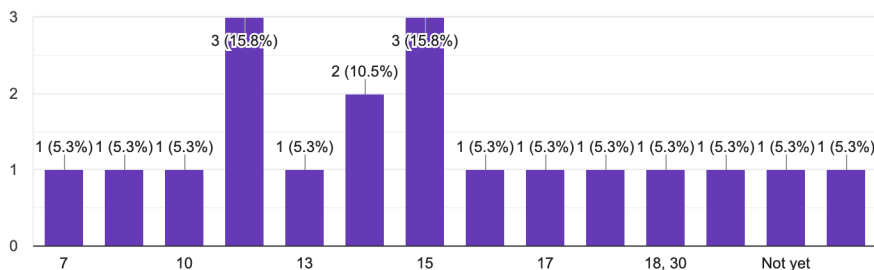


Figure 78: Survey 2 Question

At what age did you start receiving treatment?

Copy

19 responses

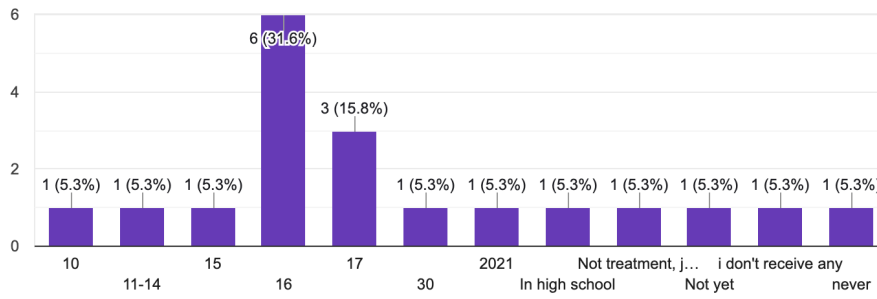


Figure 79: Survey 2 Question

How big was this gap?

Copy

19 responses

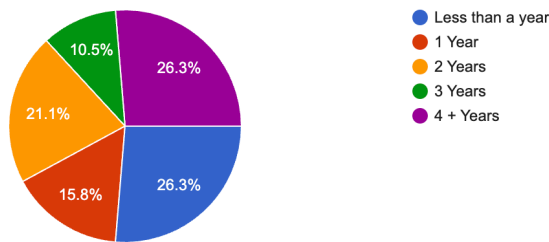


Figure 80: Survey 2 Question

If there was a certain gap, what was the reason?

Copy

19 responses

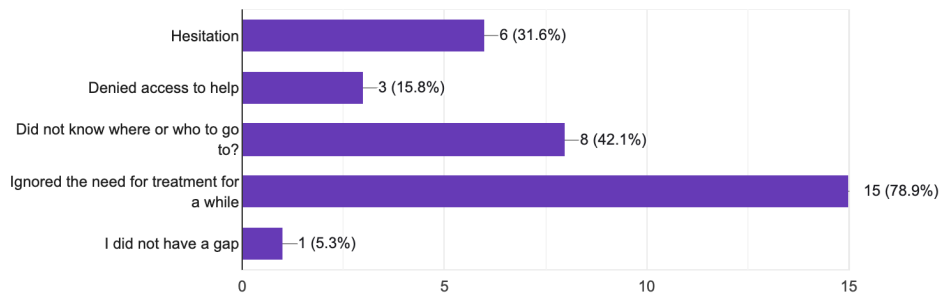


Figure 81: Survey 2 Question

Part 2

Why do you think mental illnesses are on a rise?

Copy

19 responses

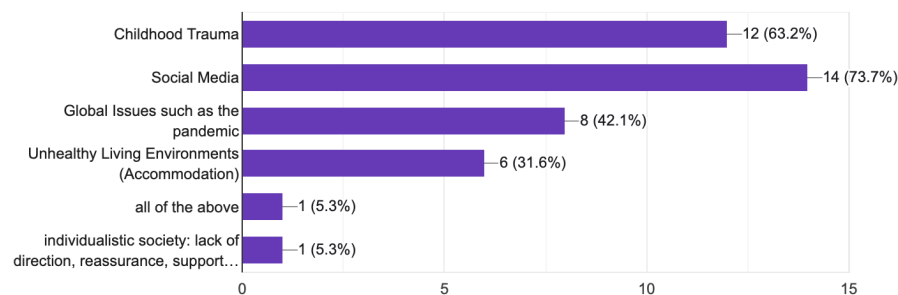


Figure 82: Survey 2 Question

Do you think mental illnesses are stigmatised?

Copy

19 responses

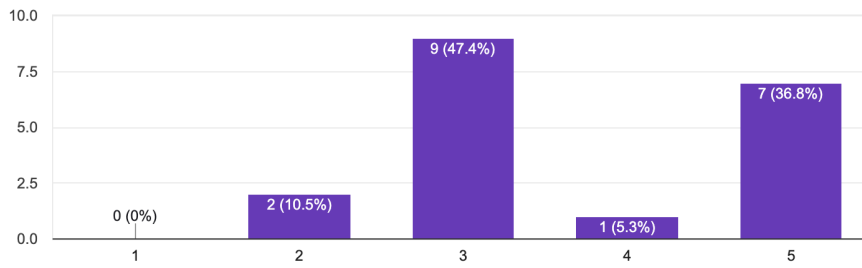


Figure 83: Survey 2 Question

If so, do you think it refrains people from getting treatment?

Copy

19 responses

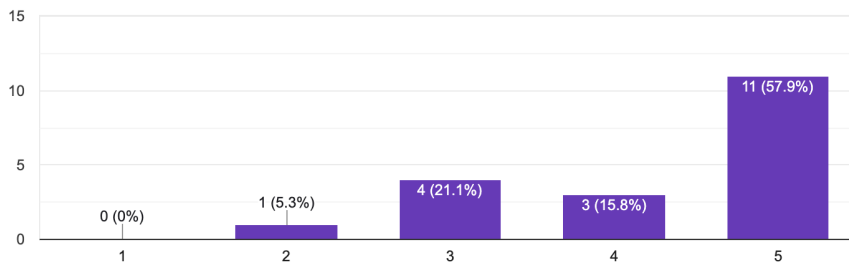


Figure 84: Survey 2 Question

Do you think architecture plays a role in persuading people to receive treatment?

Copy

19 responses

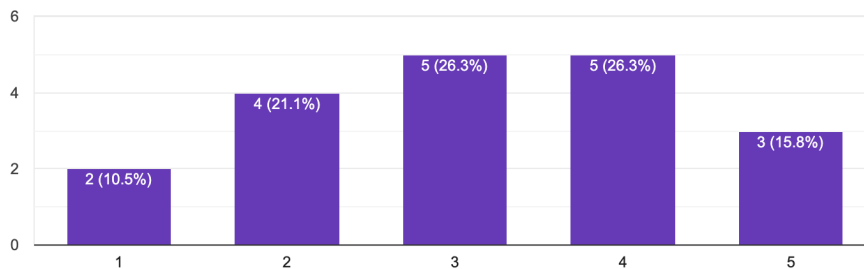


Figure 85: Survey 2 Question

What design elements would make a care centre more attractive and approachable?

19 responses

- if the place is warm and welcoming. yet my counsellor was based in an old hospital from 1910s, it looks awful but she was amazing
- Cozy, well located
- non-square/mundane buildings, high ceilings, wood features
- plants, subtle colours (light green/purple)
- approachable colours (pastel colours)
- high ceilings, well lit, yellow lights not harsh white hospital lights, spacious, balance between colours; not too bright and primary, not too grey
- Smooth soft edges. Light atmosphere
- Bright, clear

Figure 86: Survey 2 Question

How would you try to normalise the act of seeking for treatment/counselling?

19 responses

- I talk about it like I talk about flu.... it's both illnesses...
- Talking about it, most of my friends don't know I got to a psychologist and take meds
- Being public about the fact that I seek treatment, normalizing the discussion around mental health, and normalizing asking for help
- attitude towards mental health
- talking about it more often, being exposed to possible help
- more accessible
- Education and awareness. Explain what symptoms are
- Have a good counselor for every school
- I think if more people did it and talked openly about it would help normalise it.

Figure 87: Survey 2 Question

How do you think mental illnesses can be prevented amongst the youth?

19 responses

- more awareness, more balance in life, less technology, more time outdoors and with real friends
- Easy access to mental health resources and approachability
- I think there is multiple systems in place that are designed in a way that fosters and nourishes mental illness in the youth, and that these systems need to be evaluated and either restructured or dismantled.
- earlier recognition of mental illness, puberty, average age of 11
- getting rid of social media (insta, snap, tik Tok)
- prevention of social media exposure from a young age, eg phones
- Education, easy work load
- Promotion and easy access to psychiatrists
- Less romanticization of mental illnesses and substance abuse on the media and amongst the youth

Figure 88: Survey 2 Question



# APPENDIX VI

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# REFERENCES

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- ArchDaily. (n.d.). Gallery of trillium secure adolescent inpatient facility / TVA architects - 7. ArchDaily. <https://www.archdaily.com/803705/trillium-secure-adolescent-inpatient-facility-tva-architects/587fe4fce58ece8d930000ea-trillium-secure-adolescent-inpatient-facility-tva-architects-photo>
- ASHRAE. (2017). Standard 62.1-2016: Ventilation for acceptable indoor air quality. American Society of Heating, Refrigerating and Air-Conditioning Engineers.
- Baumeister, R. F., & Leary, M. R. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117(3), 497-529.
- Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: A nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology*, 109(2), 186-204.
- Berman, M. G., Jonides, J., & Kaplan, S. (2008). The cognitive benefits of interacting with nature. *Psychological Science*, 19(12), 1207-1212.
- Berthold, J. (2022, April 13). 48% of young adults struggled with mental health in mid-2021. 48% of Young Adults Struggled with Mental Health in Mid-2021 | UC San Francisco. Retrieved September 2022, from <https://www.ucsf.edu/news/2022/04/422611/48-young-adults-struggled-mental-health-mid-2021>
- Brenner, A. B., & Sundqvist, K. (2010). Child sexual abuse: Consequences and implications. *Journal of Child Sexual Abuse*, 19(3), 296-317.
- Bullough, J. D., & Janssens, A. (2018). Illuminance recommendations for street lighting. *Lighting Research & Technology*, 50(4), 497-514.
- Centers for Disease Control and Prevention. (2002). Youth risk behavior surveillance—United States, 2001. *MMWR Surveillance Summaries*, 51(4), 1-64.
- Centers for Disease Control and Prevention. (2019). Understanding suicide fact sheet. <https://www.cdc.gov/violenceprevention/pdf/suicide-factsheet-a.pdf>
- Channon, A. (2018). Rural access to higher education: A review of literature. *Journal of Research in Rural Education*, 33(2), 1-14.
- Chrysikou, E. (2014, December). Architecture for psychiatric environments and therapeutic spaces. IOS Press. Retrieved November 2022, from <https://www.iospress.com/catalog/books/architecture-for-psychiatric-environments-and-therapeutic-spaces#:~:text=Description,physiologically%20and%20psychologically%20into%20design>.
- Clements-Croome, D. (2006). *Creating the productive workplace* (2nd ed.). Taylor & Francis.
- Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98(2), 310-357.
- Cookingham, L. M., & Ryan, G. L. (2015). The impact of social media on the sexual and Social Wellness of Adolescents. *Journal of Pediatric and Adolescent Gynecology*, 28(1), 2–5. <https://doi.org/10.1016/j.jpag.2014.03.001>



- Desai, A. (2015, November 26). Building for better health: How architecture & design can address the Mental Health Crisis. theGIST. Retrieved October 2022, from <https://the-gist.org/2021/03/building-for-better-health-how-architecture-design-can-address-the-mental-health-crisis/>
- Dudley, M. G., & File, J. A. (2018). The effectiveness of interventions to prevent and treat burnout in mental health professionals: A systematic review. *Archives of Psychiatric Nursing*, 32(3), 376-384.
- Dutch young people have higher rates of mental illness than rest of Europe. NL Times. (2021, October 17). Retrieved September 2022, from <https://nltimes.nl/2021/10/17/dutch-young-people-higher-rates-mental-illness-rest-europe>
- d’Uva, T. B., Garcia-Gomez, P., Moghani, V., & Teresa Bago d’Uva Pilar Garcia-Gomez Vahid Moghani. (2022, January 13). Mental health problems among university students call for policy action. ESB.nu. Retrieved September 2022, from <https://esb.nu/blog/20069296/mental-health-problems-among-university-students-call-for-policy-action>
- Edmonds, R. (n.d.). Anxiety, loneliness and fear of missing out: The impact of social media on Young People’s Mental Health. Anxiety, loneliness and Fear of Missing Out: The impact of social media on young people’s mental health | Centre for Mental Health. Retrieved September 2022, from <https://www.centreformentalhealth.org.uk/blogs/anxiety-loneliness-and-fear-missing-out-impact-social-media-young-peoples-mental-health>
- Farreras, I. G. (2022). History of mental illness. In R. Biswas-Diener & E. Diener (Eds), *Noba textbook series: Psychology*. Champaign, IL: DEF publishers. Retrieved from <http://noba.to/65w3s7ex>
- Find.Forge.Found. Foundry. (n.d.). Retrieved October 2022, from <https://foundrybc.ca/>
- Fujimoto, T. (2013). *The philosophy of anti-object*. Bloomsbury Publishing.
- Golembiewski, J. A. (2010). Start making sense. *Facilities*, 28(3/4), 100–117. <https://doi.org/10.1108/02632771011023096>
- Golembiewski, J. A. (2016). Salutogenic architecture in healthcare settings. *The Handbook of Salutogenesis*, 267–276. [https://doi.org/10.1007/978-3-319-04600-6\\_26](https://doi.org/10.1007/978-3-319-04600-6_26)
- Hall, C. M., & Tewdwr-Jones, M. (2020). *Urban and regional planning* (5th ed.). Routledge.
- Hartig, T., Mang, M., & Evans, G. W. (1991). Restorative effects of natural environment experiences. *Environment and Behavior*, 23(1), 3-26.
- Hasson, N., & Tzukur, R. (2019). The impact of interior design on happiness: Architecture vs. interior design. *Journal of Interior Design*, 44(3), 71-84.
- Henderson, J. L., Chiodo, D., & Varatharasan, N. (2022, June 24). Young people’s help-giving actions towards a peer with a mental health ... Wiley Online Library. Retrieved October 2022, from <https://onlinelibrary.wiley.com/doi/full/10.1111/eip.13354>
- Hetrick, S. E., Bailey, A. P., & Smith, K. E. (2017, November 20). Integrated (one-stop shop) youth health care: Best available evidence and Future Directions. *The Medical journal of Australia*. Retrieved October 2022, from <https://pubmed.ncbi.nlm.nih.gov/29129182/>

- Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: A meta-analytic review. *PLoS Medicine*, 7(7), e1000316.
- Impact of social media on Youth Mental Health. University of Nevada, Reno. (2019, December 30). Retrieved October 2022, from <https://onlinedegrees.unr.edu/online-master-of-public-health/impact-of-social-media-on-youth-mental-health/>
- Jollant, F., Lawrence, N. S., Olie, E., Guillaume, S., & Courtet, P. (2013). The suicidal mind and brain: A review of neuropsychological and neuroimaging studies. *World Journal of Biological Psychiatry*, 14(6), 1-19.
- Kaczynski, A. T., Henderson, K. A., & Potvin, L. (2007). A tale of two sidewalks: Reliability of using Google Earth™ to assess the presence of physical activity facilities. *International Journal of Health Geographics*, 6(10), 1-8.
- Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective*. Cambridge University Press.
- Kellert, S. R., Heerwagen, J. H., & Mador, M. L. (2008). *Biophilic design: The theory, science and practice of bringing buildings to life*. John Wiley & Sons.
- Kellett, P., & Tewdwr-Jones, M. (2010). *Planning for the creative economy: A toolkit for local authorities*. University of Newcastle, Centre for Rural Economy.
- Kim-Cohen, J., Caspi, A., & Moffitt, T. E. (2003, July). Prior Juvenile Diagnoses in Adults With Mental Disorder. *Jama Network*. Retrieved October 9, 2022, from <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/207619>
- Kuo, F. E., & Taylor, A. F. (2004). A potential natural treatment for attention-deficit/hyperactivity disorder: Evidence from a national study. *American Journal of Public Health*, 94(9), 1580-1586.
- Lea, R. G. (2015). *Work-based learning: Bridging knowledge and action in the workplace*. Springer.
- Leiva, A. (2017). Public space and social capital: A comparative study of two parks in Lima. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 10(1), 51-70.
- Li, L. W., & Sullivan, W. C. (2001). Impact of views to school landscapes on recovery from stress and mental fatigue. *Landscape and Urban Planning*, 57(3-4), 212-221.
- Lindström, B., & Eriksson, M. (2005, June 1). Salutogenesis. *Journal of Epidemiology & Community Health*. Retrieved October 2022, from <https://jech.bmj.com/content/59/6/440>
- Luco, A. (2022, July 7). Health Nursery School in örkelljunga / chroma arkitekter AB. ArchDaily. <https://www.archdaily.com/984958/health-nursery-school-in-orkelljunga-chroma-arkitekter-ab>
- Macdonald, R. (2016). *Youth, the 'underclass' and Social Exclusion*. TAYLOR & FRANCIS.
- Mameren, A. van. (2017, October 20). Special needs education in the Netherlands. XPAT.NL. Retrieved September 2022, from <https://www.xpat.nl/uncategorized/special-needs-education-netherlands/>
- Mathew, J., & Nair, P. P. (2018). *Building performance simulation for design and operation*. Taylor & Francis.

- Mayo Foundation for Medical Education and Research. (2019, June 8). Mental illness. Mayo Clinic. Retrieved November 2022, from <https://www.mayoclinic.org/diseases-conditions/mental-illness/symptoms-causes/syc-20374968>
- McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Childhood adversities and adult psychiatric disorders in the National Comorbidity Survey Replication I: Associations with first onset of DSM-IV disorders. *Archives of General Psychiatry*, 69(12), 1-8.
- Mental Health Foundation. (2019). Prevention. <https://www.mentalhealth.org.uk/a-to-z/p/prevention>
- Merriam-Webster. (n.d.). Biophilic Definition & meaning. Merriam-Webster. Retrieved November 2022, from <https://www.merriam-webster.com/dictionary/biophilic>
- Mestayer, K. (2022). Beyond biophilia: Using biomimicry to create a more sustainable built environment. *Journal of Green Building*, 17(2), 29-43.
- National Coalition for the Homeless. (2016). Mental illness and homelessness. <https://nationalhomeless.org/issues/mental-health-issues/>
- National Institute of Mental Health. (2020). Suicide. <https://www.nimh.nih.gov/health/topics/suicide/index.shtml>
- Normalize. Cambridge Dictionary. (n.d.). Retrieved November 2022, from <https://dictionary.cambridge.org/dictionary/english/normalize>
- Notting Hill Genesis. (2019, October 9). World Mental Health Day: Teresa's story. Notting Hill Genesis. <https://www.nhg.org.uk/news/news/resident-news/world-mental-health-day-teresa-s-story/>
- Overview: Common mental health problems: Identification and pathways to care: Guidance. NICE. (2011, May 25). Retrieved November 2022, from <https://www.nice.org.uk/guidance/cg123>
- O'Connor, P., & Dyck, E. (2016). Realizing the benefits of activity-based workspaces. *Harvard Business Review*, 94(11), 1-7.
- Parks, S. A., & Pillow, D. R. (2014). Marriage as a tool for social integration: An exploratory study of refugee women in the United States. *Journal of International Women's Studies*, 15(2), 27-43.
- Parks, S. A., & Pillow, D. R. (2014). Marriage as a tool for social integration: An exploratory study of refugee women in the United States. *Journal of International Women's Studies*, 15(2), 27-43.
- Parks, S. A., & Pillow, D. R. (2022). Religious coping, self-efficacy, and depressive symptoms in African American cancer survivors. *Journal of Religion and Health*, 61(1), 167-179.
- Peplau, L. A., & Perlman, D. (1982). Perspectives on loneliness. In L. A. Peplau & D. Perlman (Eds.), *Loneliness: A sourcebook of current theory, research and therapy* (pp. 1-18). John Wiley & Sons.
- Rapoport, A. (1990). *The meaning of the built environment: A nonverbal communication approach*. University of Arizona Press.
- Relf, P. D., & O'Brien, E. J. (2015). Green roofs: Their existing status and potential for conserving energy and reducing greenhouse gas emissions within the built environment. *Renewable and Sustainable Energy Reviews*, 41, 1089-1107.

- Robertson, M. (2015). The creative city index: An ex-ante measure of urban creativity? *Environment and Planning A: Economy and Space*, 47(10), 2132-2146.
- Rovniak, L. S., & Bauman, A. (2010). Physical activity promotion among older adults: An evidence-based approach. *American Journal of Lifestyle Medicine*, 4(5), 1-14.
- Seppänen, O. A., Fisk, W. J., & Lei, Q. H. (2011). Ventilation and performance in office work. *Indoor Air*, 21(1), 19-27.
- Seveno, N. (2022). Teacher retention in rural schools. *Rural Educator*, 43(2), 1-10.
- Statistics Netherlands. (2022, June 1). Mental health has worsened among young people. Statistics Netherlands. Retrieved September 2022, from <https://www.cbs.nl/en-gb/news/2022/22/mental-health-has-worsened-among-young-people>
- Stigmatization. Cambridge Dictionary. (n.d.). Retrieved November 2022, from <https://dictionary.cambridge.org/dictionary/english/stigmatization>
- Substance Abuse and Mental Health Services Administration. (2018). National survey on drug use and health: Mental health findings. <https://www.samhsa.gov/data/report/2018-nsduh-mental-health-detailed-tables>
- Sánchez, M. J., & Mahugo, R. (2015). The role of biophilic architecture in humanizing healthcare facilities. *Open Journal of Medical Psychology*, 4(2), 79-91.
- Talen, E. (2010). Does density matter? The role of density in creating walkable neighbourhoods. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 3(2), 141-161.
- Taylor, E. A., & Verhulst, F. (2020). *Mental health and illness of children and adolescents*. Springer.
- The Lancet Psychiatry. (2022). Prevention is better than cure. *The Lancet Psychiatry*, 9(8), 601. [https://doi.org/10.1016/s2215-0366\(22\)00238-3](https://doi.org/10.1016/s2215-0366(22)00238-3)
- Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224(4647), 420-421.
- United Nations. (n.d.). Youth. United Nations. Retrieved November 2022, from <https://www.un.org/en/global-issues/youth>
- Van der Laan, P. (2012). Designing for cohesion: A critical analysis of the potential for public space to facilitate interpersonal relationships. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability*, 5(2-3), 243-262.
- Van Eyck, A., & Hertzberger, H. (2006). *Lessons for students in architecture*. 010 Publishers.
- Wikimedia Foundation. (2022, October 19). Deinstitutionalisation. Wikipedia. Retrieved November 2022, from [https://en.wikipedia.org/wiki/Deinstitutionalisation#:~:text=Deinstitutionalisation%20\(or%20deinstitutionalization\)%20is%20the,mental%20disorder%20or%20developmental%20disability](https://en.wikipedia.org/wiki/Deinstitutionalisation#:~:text=Deinstitutionalisation%20(or%20deinstitutionalization)%20is%20the,mental%20disorder%20or%20developmental%20disability).
- Wilkie, A., & Cheung, L. (2018). Developing interdisciplinary curricula for sustainability education: Lessons learned from a UK-German collaboration. *Journal of Cleaner Production*, 171, 1397-1405.
- World Health Organization. (2010). Urban green spaces and health: A review of evidence. [https://www.who.int/entity/entity\\_healthy\\_settings/publications/9789241563869\\_eng.pdf?ua=1](https://www.who.int/entity/entity_healthy_settings/publications/9789241563869_eng.pdf?ua=1)

- World Health Organization. (2017). Mental health: Strengthening our response. <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
- World Health Organization. (2018). Physical activity. <https://www.who.int/news-room/fact-sheets/detail/physical-activity>
- World Health Organization. (2021, November 17). Adolescent mental health. World Health Organization. Retrieved September 2022, from <https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health>
- World Health Organization. (n.d.). Adolescent health. World Health Organization. Retrieved October 2022, from [https://www.who.int/health-topics/adolescent-health#tab=tab\\_1](https://www.who.int/health-topics/adolescent-health#tab=tab_1)



