

# Happy living environment for university students

Design of mentally supportive residential environment on campus-based neighborhood

Research plan

Dwelling graduation studio AR3AD110

Design for care in an inclusive environment 23/24

Ying Shen 5792371

Research Mentor: Leo Oorschot

Design Mentor: Birgit Jürgehake

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# INTRODUCTION

## Background

### Depression in University students

More than half of all university students report having emotional problems (Versteeg & Kappe, 2021). In the majority of developed nations, over 50% of young people are enrolled in higher education. The average age of entry into higher education coincides with the peak age of onset of mental health issues, with 75% of cases seeing the first signs of mental and drug use disorders before the age of 24. While many students adjust well to the significant lifestyle adjustments that come with higher education, this is not always the case for certain students (Reavley & Jorm, 2010).

The prevalence of anxiety, depression, ADHD, and substance addiction among university students in the Netherlands has significantly increased; in 2009, 22% of students reported having such issues. In comparison to the working population (21%), this percentage has increased to 44% by the year 2022 (*Almost Half of Students in the Netherlands Have Mental Health Problems / DUB*, n.d.). The Dutch population between the ages of 18 and 25 will have the highest levels of dissatisfaction with their mental health in 2019 and 2020, compared to other age groups. The most common individual mental health problem in the Netherlands is serious depression (Versteeg & Kappe, 2021).

The young college age group (18–24 years), sometimes known as "emerging adulthood," is a developmental stage that sits between late adolescence and adulthood. Stress and anxiety are believed to occur throughout this time due to the requirement to build the independence and self-sufficiency that people learn during adolescence, as well as the ability to manage the brand-new chores connected with creating and maintaining personal relationships (Mahmoud et al., 2012). At the same time, this might be brought on by academic overload, peer competition, pressure to perform, and less time spent with friends and family (Versteeg &

Kappe, 2021). The academic performance, productivity, substance usage, and social interactions of college students during this time may all be significantly impacted by an untreated mental illness (Hunt & Eisenberg, 2010).

### **Prevention is better than cure**

The Dutch government has established a system of primary and secondary mental health treatment as well as frontline support provided by general practitioners to assist those suffering from depression or other mental disorder (*Primary or Secondary Mental Health Care*, n.d.). The Netherlands Court of Audit found that 1.3 million persons receive mental healthcare annually, with the majority receiving rapid assistance. The waiting lists for mental healthcare maintained by the industry groups GGZ Nederland and MeerGGZ in 2018 were the basis for the estimate that 11,000 people must wait 4 months or longer to receive treatment (Rekenkamer, 2020).

The vast majority of young people who suffer from depression and similar disorders either delay seeking professional care or do not seek it at all, despite a significant number of mental problems in the younger population. Instead of seeking professional assistance, they frequently turn to self-help techniques that might be detrimental, such as abusing alcohol or other substances (Reavley & Jorm, 2010). Avoid seeking help because they believe that doing so shows weakness, which will hinder their ability to advance in their careers. High psychological discomfort patients may not be aware of their atypical mental condition. They might not be aware that there are practical strategies to handle stress or know where to turn for assistance (Storrie et al., 2010). In addition, the cost of treating depression is substantial. As a result, there is a strong motivation to prevent depression and its symptoms (Tak et al., 2012).

The idea that proactive awareness and preventative interventions are more effective than remedial efforts has never been more crucial, according to the Dutch humanist scholar Desiderius Erasmus (Psychiatry, 2022). Meanwhile, Nicola Reavley in her study also highlighted that the facilitation of preventive and early intervention in this context has the potential to introduce a new dimension to mental health, with over 50% of 18–20 year old in higher education. has the potential to have significant positive effects on both the individual and the population levels in this situation (Reavley & Jorm, 2010).

## **Problem Statement**

### **Mental health prevention in the social aspect**

According to Colleen S. Conley's research, psychoeducation and skill development are the main components of preventive strategies for students in higher education. a combination of exposing them to probable difficulties and issues, inspiring them to make wise and effective decisions, and educating them on how to employ relaxation techniques, constructive conflict resolution techniques, and other coping mechanisms to relieve stress or sadness (Conley et al., 2015). Josefien J. F. Breedvelt investigated the impact of community cohesion on teenage and young adult depression reduction. and suggested specific measures to improve community

harmony going forward (Breedvelt et al., 2022). The Dutch government places a lot of emphasis on mental health prevention and effective therapies, and it suggests tailored interventions and policy support for various age groups. It is reported that interventions for adolescents in the Netherlands are also partially applicable to students in higher education, but there are no effective interventions in the Dutch intervention database that are specifically targeted at university students (*Effectieve interventies en beleid mentale gezondheid en preventie*, n.d.).

## **Mental health prevention in the living environment**

There are numerous architects who concentrate on the connection between space and mental health in the area of architectural design. According to architect Tonia Householder, "The greatest opportunity for architecture to encourage the prevention and control of mental illness is in residential and work environments, where we spend most of our time." As of now, the focus of health-related architectural design has been on medical buildings, giving architects well-researched and practical experience that can be used to both residential and commercial space (*Architecture Concepts Can Boost Mental Health*, n.d.). In the study of A. Fernandez, it is mentioned that there has been an increase in interest in studying how the built environment affects psychological well-being in recent years. However, there is no research evaluating the effects of the built environment on the mental health of the university neighborhood, and little is known about the strategies implemented in universities that follow the environment-based model (Fernandez et al., 2016). In addition, there is limited research on providing students living in student housing with living environments that support health and may reduce symptoms of depression and anxiety (Worsley et al., 2023). In some of the scholars' research on student residential environment and mental health, it was mentioned that: some students claimed that living in their student housing made them feel lonely; someone said that because their apartment block looked a concrete tower, they did not feel particularly inclined to hang out there (Vytنيorgu et al., 2023).

## **Overall problem statement**

There is a lack of research that is inspired by combining **the prevention strategies in social mental health field** and **the existing architectural design principles related to mental health to specifically research for university students** about how the architectural and built environment can be designed to **support depression prevention** in their **residential environment and neighborhood**. Therefore, this research and design is meaningful and can provide some ideas on the relevant field. In addition, it will have a positive impact on preventing other more serious problems, like suicide that depression brings to university students in the aspect of architectural design.

## **Research goals**

The research aims to combine neighborhood-level depression prevention strategies with mental health-related architectural design principles to design student housing and living

environment on campus-based neighborhood that can have a positive impact on depression prevention in university students. It is of concern that depression is a common problem among university students due to stress, competition, social relationships, and so on. Although architecture is not medicine and cannot directly solve the problem of mental illness, it can play a positive role in the mental health or well-being of university students by promoting their daily life environments on campus, including their residential and daily activity networks.

# THEORETICAL FRAMEWORK

The theoretical framework of is separated into three sections corresponding to the research questions by combining existing research and theories in related fields.

## **Campus-based neighborhood strategies of depression prevention**

Research on social preventive strategies for depression has attracted the attention of scholars in various fields. According to Josefiën J. F. Breedvelt et al.'s study, neighborhood social cohesion may lower the probability of suffering depression or anxiety. The degree of solidarity and connection among social groups at the neighborhood level can be used to define neighborhood social cohesion. The article also lists a variety of potential projects that can be performed to enhance neighborhood social cohesion, such as **Volunteering, Art, creativity and culture, sport group, green space, neighborhood regeneration programmes and psychosocial intervention** (Breedvelt et al., 2022).

The research of Nicola Reavley et al. can be used to strengthen neighborhood ability to cope with mental health issues, and the measures in question are largely intended to alter attitudes towards mental health issues and encourage appropriate help-seeking and self-help activities. Additionally, they contend that because educational institutions include a variety of aspects of student life, such as educational activities, health services, residence halls, social networks, and extracurricular activities, they offer a singular opportunity to recognize, prevent, and treat mental health issues (Reavley & Jorm, 2010).

Higher education students may be protected against the negative effects of depression and anxiety by factors like adaptive social and emotional abilities, good self-perceptions, and supportive interpersonal interactions, according to a research report by Colleen S. Conley et al. There has been a lot of multiple studies on preventive mental health strategies in higher

education. In general, these investigations have used two quite different approaches. A particular strategy is psychoeducational, in which university students are informed accurately about potential issues or difficulties they may be facing, inspiring them to take intelligent and effective action to prevent or address these issues. A different strategy is skills training, where participants are systematically instructed in behavioral skills that could aid in preventing negative consequences like stress, depression, or anxiety, as well as instruction in how to put the new abilities into practice (Conley et al., 2015).

### **Design mentally supportive environment**

Research on mentally supportive environments is mainly divided into neighborhood scale and residence scale. At the same time, the design of mentally supportive environments needs to consider not only the healthy environment, but also part of the healing environment.

At the neighborhood level, green space was linked to mental health and vitality, and exposure to natural environments aided people's recovery from acute stress and psychological exhaustion more than other environments, according to Magdalena van den Berg et al., based their study on Rachel Kaplan's 1989 Attention Restoration Theory (ART) about stress reduction and attention restoration (van den Berg et al., 2016). Additionally, Jenny Roe et al.'s ART-based study on the connection between walking and natural environment proposed a study to show how urban walking can aid in the recovery of persons with mental health issues (Roe & Aspinall, 2011). According to Min Weng et al.'s study, walking suitability in the **15-minute walkable neighborhoods** can enhance physical activity—including walking during leisure time—active transportation, and mental health (Weng et al., 2019).

In Josefiën J. F. Breedvelt et al.'s study, strategies to specifically promote social cohesion also included spatial strategy, such as green space (Breedvelt et al., 2022). For people who are feeling upset or stressed, the healing environment can be constructed within the living environment to help them relieve their emotions. Three of Stefan Lundin's seven suggestions for constructing inpatient mental facilities are also applicable to residential settings and are included in his book *Healing Architecture: Create a relaxed and open environment, Encourage social engagement, Provide access to the outdoors for free and views of the outside world* (Lundin, n.d.).

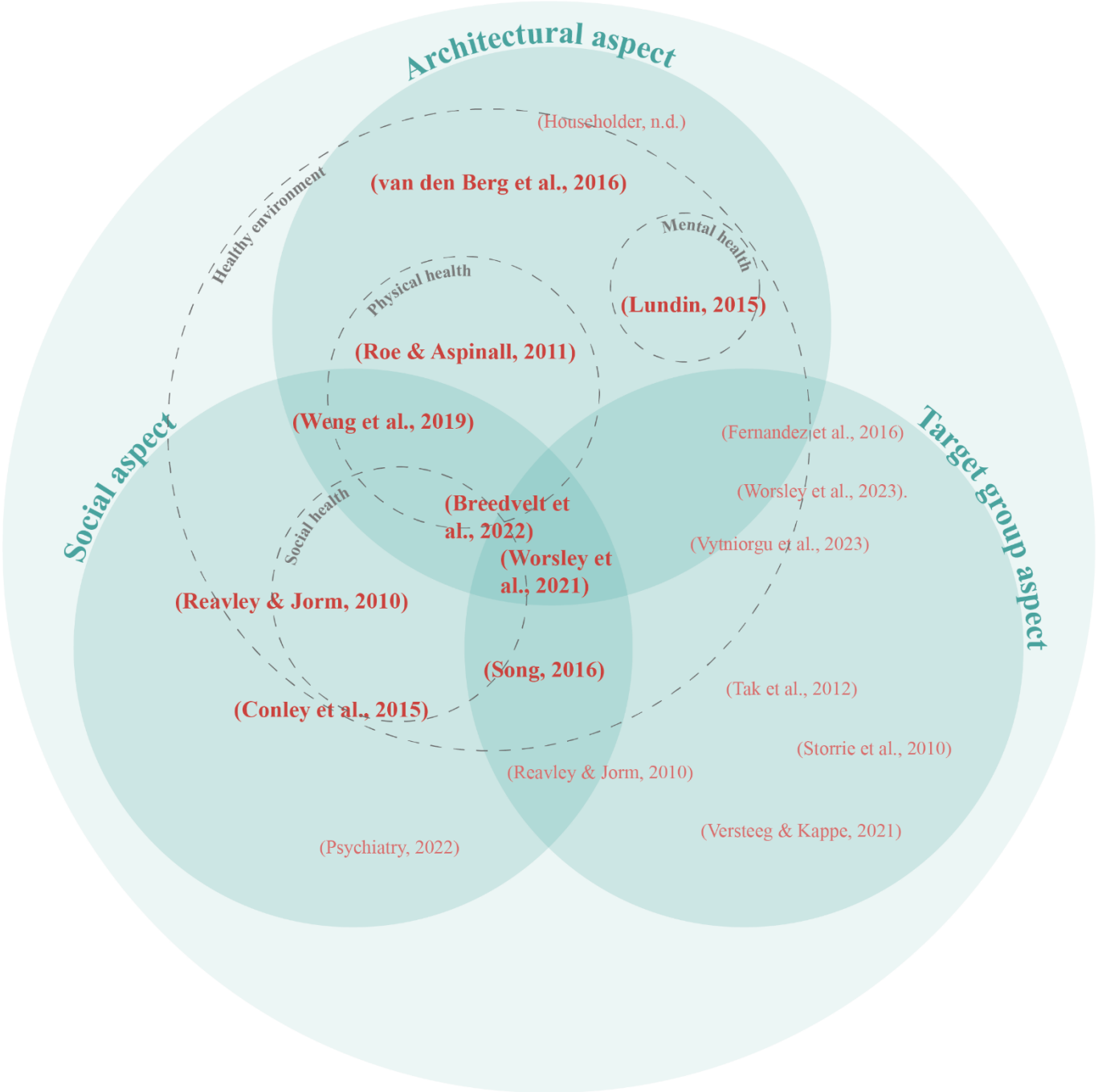
### **Creating living community for university student**

Residential environments have a substantial impact on the mental health and wellbeing of university students. According to Joanne D. Worsley et al., students are vulnerable throughout the transition to higher education as they become used to new learning, relationships, and situations. These factors might cause students to feel lonely and socially isolated, which can have an effect on their mental health. The authors make an argument for three overarching themes in student housing to address this issue, among which **"The betwixt space"** and **"Accommodation as a vessel for fostering friendship and community"** are important to support prevention of depression in university students. They also mention specifics like future constructions should think about grouping student rooms together rather than arranging them linearly, making sure that there is plenty of natural light in the housing, connecting the housing



to nature, and using vibrant colors to create an inviting environment. Additionally, **community and collision spaces** can be good for students' mental health (Worsley et al., 2021).

According to social psychologist Martin Heilweil, “student dissatisfaction with residential life has more to do with the architecture and layout of the building than with the management style or rules and regulations.”, and the reasons include privacy and isolation instead of forced social interaction, close proximity and social relationships, and learning activities and individualization. Building on the results of his study, Yutong Song contends in her research that student housing is a crucial location for creating community and socialization (Song, 2016).



**Figure 1: General theoretical framework**

## Reflection

The above theories help to provide a foundation for my research and help me to translate them into an architectural language to answer my research questions. Based on the above theories, I will propose the following reflection:

1. In the campus, the overall design goal of supporting depression prevention is achieved by focusing on students' physical health, social health, and mental health. Through planning and design of public space, combined with social preventive strategies, it will promote students' walking activities and other physical activities, as well as promotes communication and social cohesion among students.

2. At the student residential environment, meet the needs of students while enhancing walking and other physical activities. It is also important to promote connections between the residential environment and campus spaces, and between and within student housing clusters to further enhance communication and cohesion. Besides, create mentally supportive environments with architecture that focuses on both healthy environments and healing environments.

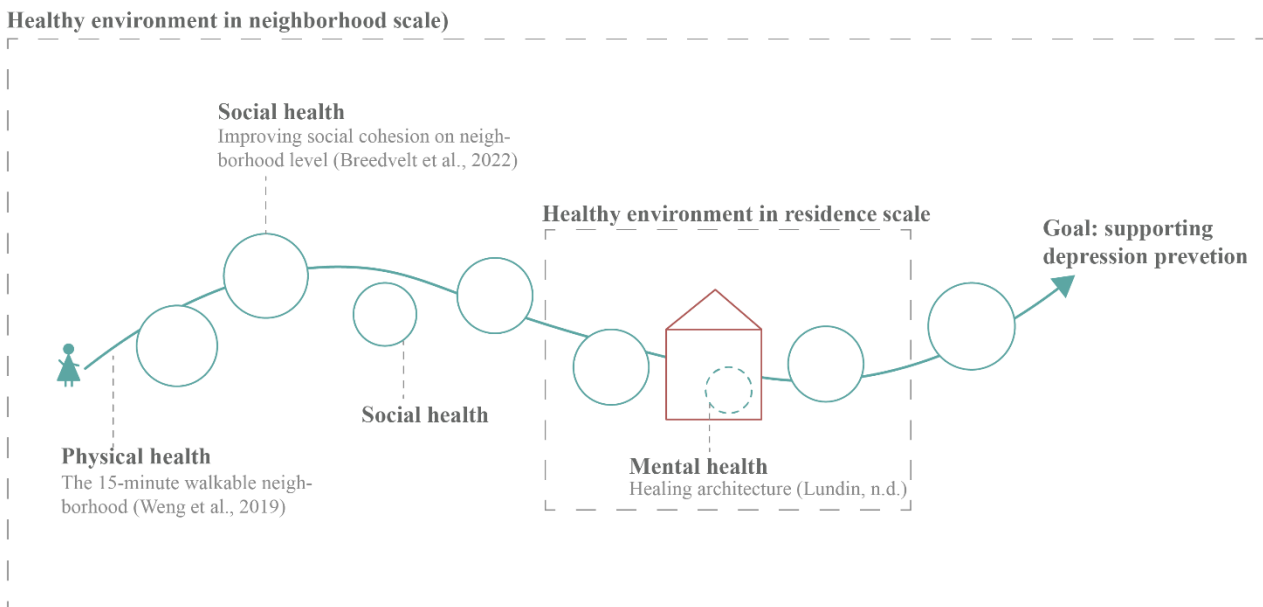


Figure 2: Conceptual framework

# HYPOTHESIS

University students who live in the student housing on campus will spend most of their time in residence and campus neighborhood, so the design will be from the campus level to the residential level. At the campus-based neighborhood level, the campus environment becomes the community where students spend their daily activities, including learning, recreation, socializing and other public spaces. Then, it will be zoomed in to the scale of the residential environment, including the public space and the private space of the individual living in the area. It is hypothesized that this design solution will promote students' physical health, social health and mental health to actively support the prevention of depression.

# RESEARCH QUESTIONS

## **Main question:**

What architecture and built environment features of residential environment in campus-based neighborhood can have a positive impact on depression prevention of university students?

## **Sub questions:**

1. Which architecture and built environment features are there?
2. What is the residential environment in campus-based neighborhood for university students?
3. Which depression prevention strategies can be used to architecture and built environment?
4. What are the design elements of mentally supportive environment that can be learnt from current state-of-the-art psychiatric facilities and housing project?

# DEFINITION

**Depression:** Depression is a common mental disorder. It is characterized by persistent sadness and a lack of interest or pleasure in previously rewarding or enjoyable activities. It can also disturb sleep and appetite (WHO, n.d.).

**Prevention:** Three categories of mental health primary prevention strategies have been identified: (1) Universal prevention, targeting the general public or a whole population group; (2) Selective prevention, targeting individuals or subgroups of the population whose risk of developing mental health disorders is significantly higher than the rest of the population; (3) Indicated prevention, targeting persons at high risk for mental disorders (European Commission, 2021).

**University students:** The students enrolled in a college or university (*Vocabulary*, n.d.). Most belong to young university students, aged between 18 and 24 years (Mahmoud et al., 2012)

**Residential environment:** The residential environment provides a place for daily life, which does not exclude other functions. A key criterion is that the residential function prevails (Földi, 2006).

**Campus-based neighborhood:** Neighborhoods can be defined as geographical places that have social and cultural meaning to residents and non-residents alike, and are subdivisions of large places. Neighborhoods shaped by physical environment and urban planning decisions (Breedvelt et al., 2022). Based on the original definition of neighborhood, a campus-based neighborhood can be defined as a neighborhood that is shaped by the current campus area as its physical environment (Definition by author).

**Mentally supportive environment:** This includes healing environment and healthy environment (Definition by author). Healing environment is that allows the person experiencing mental problems to recover more quickly, or at least, the physical environment

does not make the psychological situation more unpleasant. Healthy environment is that it mainly prevents people from getting sick (Omgevingspsycholoog, 2013). For instance, in an architectural project, there are spaces/ pedestrian that promote people to spend more time on walking or other sport activities, which could prevent people from suffering from diseases caused by physical inactivity (Definition by author).

# METHODOLOGY

This research will be carried out through a selection of research methods including literature review, case studies, observation and interview

## **Literature research**

In order to provide the necessary base of information for my research, I will be researching literature such as books and articles. The main aspects of literature to be researched include: social aspect, architectural aspect, target group aspect.

***Social aspect:*** Studying various neighborhood-based social depression prevention strategies and initiatives is the main objective in this part. To prevent depression among university students, these social theories will be collected and then translated into architectural language. This means that these activities will be interpreted in terms of how they relate to the essential architectural spaces, such as public spaces, green spaces, etc. These theories include the following: studies on neighborhood social cohesiveness by Josefien J. F. Breedvelt et al.; methods to avoid depression in young people by Nicola Reavley et al.; and so on.

***Architectural aspect:*** The architectural aspect of the theory is primarily designed to directly investigate spatial strategies related to mental health. This part of the theory consists of the neighborhood scale and residence scale. For the neighborhood scale, the theories are to promote social and mental health by promoting the physical health of people, like the 15-minute walkable neighborhood by Min Weng et al. For the residence scale, besides the healthy environment included in part of Josefien J. F. Breedvelt et al.'s study, the literature about healing environment is also included. The healing environment focuses on students who are at risk of experiencing depression or who are experiencing depression and helps them to alleviate or not to worsen their emotional stress, such as Stefan Lundin's suggestions for constructing inpatient mental facilities.

***Target group aspect:*** This section of the theory aims to explore the requirements of the living

environment of the target group. Through research, the university students' unique needs are translated into the architectural language. This section includes the theories of Martin Heilweil on making students happy with where they live through architectural design, Joanne D. Worsley, and others on establishing a feeling of community and collision space in housing for emotionally fragile college students, and so on.

## **Case study**

In order to demonstrate the effectiveness of strategies related to the prevention of depression, state-of-the-art architectural design related to depression or moods will be analyzed, which may include campus planning/ design, housing/ student housing, psychiatric facilities.

### ***Campus/neighborhood planning/ design :***

1. Lehigh University Residential Life Master Plan - 2016 - Sasaki
2. Towards a healthy city by foot - 2019 – Felixx
3. Köpenicker Rails -2023- ADEPT

### ***Housing/ student housing:***

1. Grand Morillon Student Residence -2021- Kengo Kuma & Associates
2. Princeton University Residential Colleges -2022- TenBerke
3. Vindmøllebakken Housing -2019-Helen & Hard

### ***Psychiatric facilities:***

1. Nuuk psychiatric clinic-2018-White Arkitekter
2. Duke Student Wellness Center-2017-Duda|Paine Architects
3. SK Yee Healthy Life Centre-2014-Ronald Lu & Partners

## **Observation**

In the fieldwork week, I plan to be observing in and around the student housing on the TU Delft campus. Observation will focus on the fellow aspects:

1. Connection with campus spaces
2. Nature or greenery in building or around building
3. Facilities around building
4. Floor plans (circulation, common room, gallery, and so on in the building)
5. Collision spaces (where do the students meet/ chat/ work together/ with each other in the building, and when do they do usually?)
6. Typology of housing

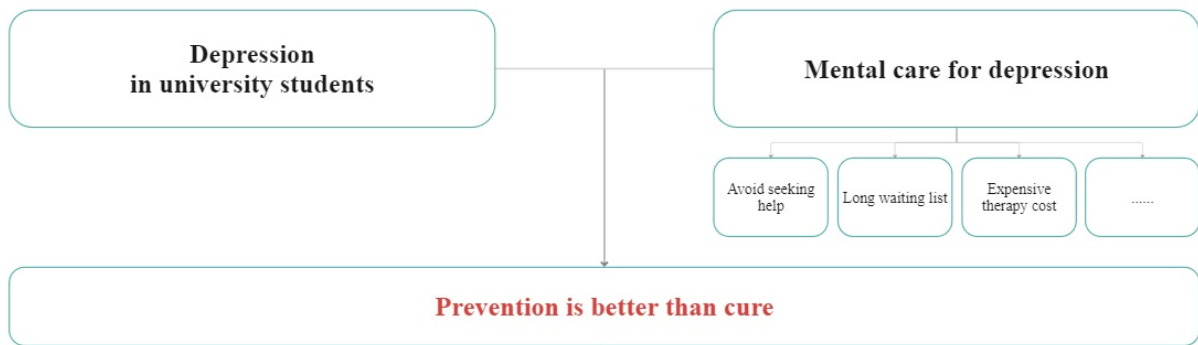
## **Interview**

In order to support my research, I will be conducting a lot of interviews. before conducting the interviews, I discuss and share the interview questions with my colleague as well since our research topics are related. During fieldwork week, we plan to divide up the work of conducting the interviews and finally share the results of the interviews. We listed a few

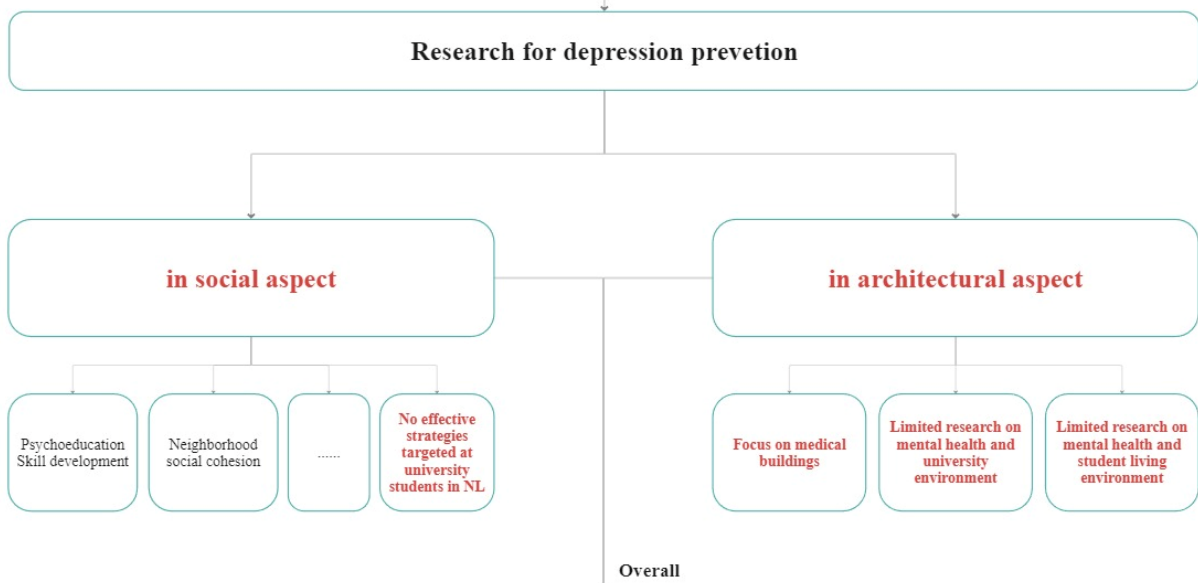


questions for different interviewees and would try to keep each person's interview to about 15-20 minutes. The people we interviewed were: students at TU Delft, psychologist at TU Delft, psychologist from Dutch psychological websites such as [openup.nl](http://openup.nl), psychiatric doctors, etc. The detailed interview plan is shown in the appendix.

## BACKGROUND



## PROBLEM STATEMENT



There is a lack of research that is inspired by **combining the prevention strategies in social mental health field and the existing architectural design principles related to mental health** to specifically research for **university students** about how the architectural and built environment can be designed to **support depression prevention** in their **residential environment and neighborhood**.

## RESEARCH GOAL

The research aims to combine neighborhood-level depression prevention strategies with mental health-related architectural design principles to design student housing and living environment on campus-based neighborhood that can support depression prevention in university students.

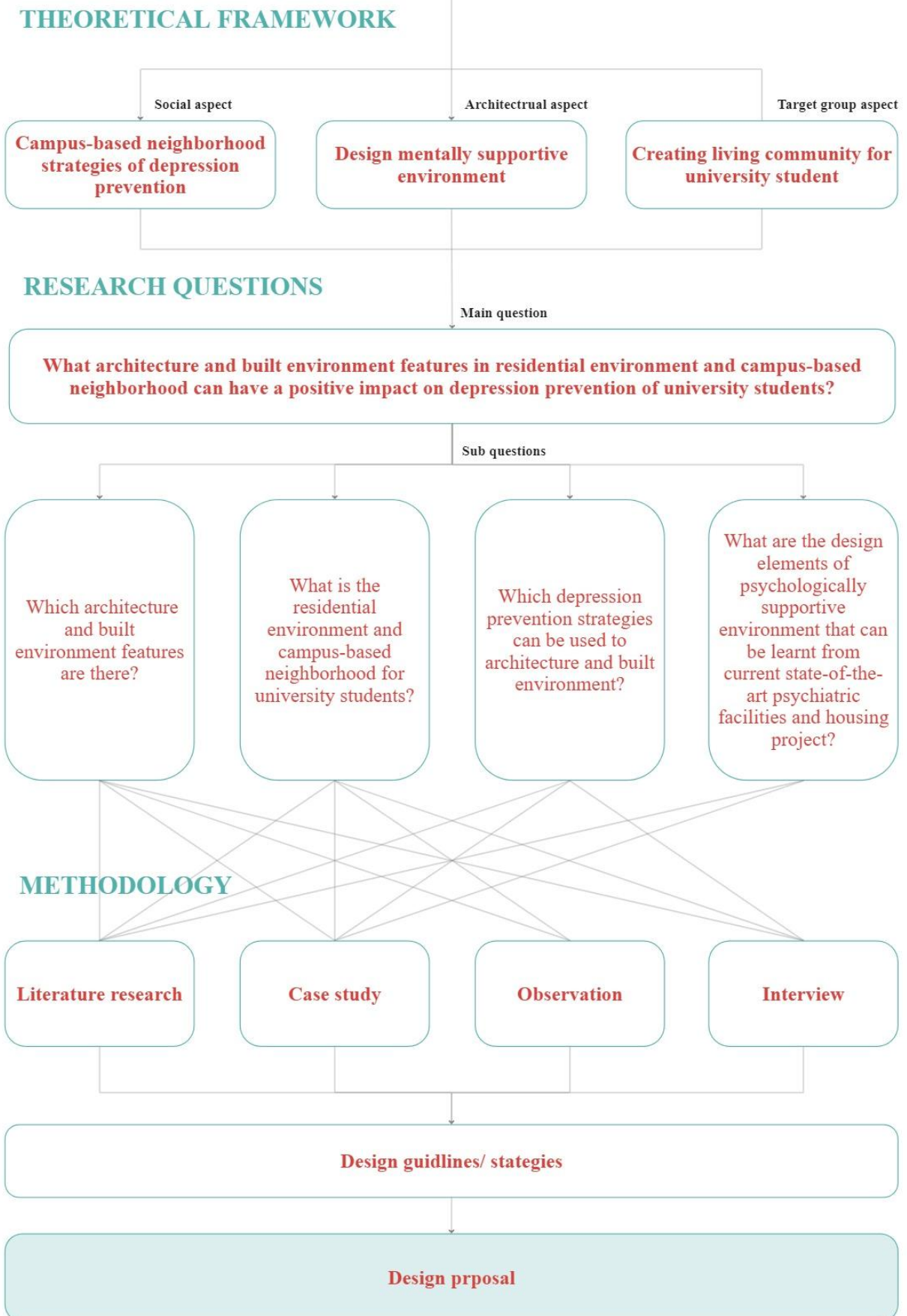


Figure 3: Flow diagram of research plan

# APPENDIX: INTERVIEW PLAN

## **Roles and Responsibilities**

ADDEEN – I will be talking to doctors and TU Delft students

YING – I will be talking to TU Delft students, psychologists and/or counsellors

## **Interviewer Introduction**

I am here because I am investigating on the common occurrence of depression among university students. The research will help in creating architecture guidelines for student housings in Delft to combat depression among university students. This is going to be a short interview for about 15-20 minutes.

## **Icebreaker**

ADDEEN – I've had cycles of depression and occurred more frequently during my undergraduate/bachelor education. Even though I was on the other side of the world from home I was very fortunate to have close friends and my girlfriend to detect my early symptoms of depression and pull me out from it. But I would like to know for those who aren't very fortunate to have the people like I have in my life on what their situation has been like with depression, to understand the condition further, and what are the treatments administered to combat this mental illness.

YING – For me, I experienced depression in my high school, as the study and examination was stressful for me. So, I really concern depression problems especially in university students' group. As an architecture student, I would like to know more about this situation in the group of students and do something for help with architectural design.

### **Architects interview questions**

1. What design philosophies or principles guide your work in student housing design?
2. How can the design foster a sense of connection with the local environment and students' well-being?
3. What strategies do you use to create a welcoming and healing environment?
4. How do you incorporate biophilic design principles into your student housing designs?
5. What measures are taken to reduce noise levels and other environmental factors that could impact patients' mental health?
6. How to promote physical activities and social activities in student housing?

### **(TU Delft or Other) Psychologists and Doctors interview questions**

1. What do you think an ideal environment is like to alleviate depression?
2. What role does the layout, organization, and flow of living spaces play in promoting positive psychological outcomes?
3. Are there specific natural features that are particularly effective in promoting concentration, focus, and productivity in a student's living environment?
4. What activities do you think can prevent or alleviate depression? For example, is walking one of them?

### **TU Delft students/alumni interview questions**

1. Where would you go and how would you spend your time when you first had depression?
2. How does your physical environment, such as your home or faculty, impact your mental well-being?
3. Are there specific colors or elements in your environment that triggers you to relax and reduce stress?
4. Are there any specific strategies you have done to your room that benefitted you to improve your mental health, such as stress or depression?
5. If you had a choice between living in a high rise city filled with a lot of green and a low rise city with some green? Which would you choose and why?
6. Lets say if there's barely any parks in the city because there isn't a space for them, but they do have buildings filled with green spaces? Will there be much of an influence to your mental condition? Have you ever had that experience?
7. Assuming you feel depressed, do you think walking would improve your mood? Or some other physical activity would help you improve your mood?
8. Do you agree that the current campus is a walking-friendly community? What improvements do you think could be made?
9. (ask who live in campus) Do you do any other activities on campus besides studying?

### **Confirmed interviewees (as of now)**

Doctors – 3

TU Delft Students/Alumni – 7

Psychologists – 1

Counsellors –

Architects/Design Architects – 3

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