# A conceptual framework on the Quality of Life (QOL) factors that can improve mental health conditions among underprivileged children

Farah Akmal Mohd Zamzuri[1], Siti Sarah Herman[2*]

[1,2] *Department of Architecture, Faculty of Design & Architecture, Universiti Putra Malaysia, Serdang, Selangor*

*\* 102355@upm.my*

There is a pressing need to address mental health problems among the underprivileged children in Malaysia as reported by the Royal Malaysia Police (PDRM) whereby, children between 15-18 years old, made up 51 per cent of the total 1,708 suicide cases recorded. Previous studies found that mental health problems are prevalent among young people in Malaysia yet access to specialist mental health care is extremely limited. In relation to that, there seems to be a lack of rehabilitation centres, for current mental health services, and the design space conducive to the healing process and wellbeing of these underprivileged children. Hence, the objective of the concept paper is to review on the current literature review on children's quality of life, children's mental health and children's healing environment in order to formulate a conceptual framework on the rehabilitation centre for underprivileged children to enhance their wellbeing and quality of life. In this research, a case study will be used as the research inquiry to provide a greater understanding of the contextual environment of the subject and allow asking questions and following up on issues. This research will explore architectural guidelines on the rehabilitation centre for underprivileged children to enhance their wellbeing and quality of life. Furthermore, this research will contribute to the local authority councils to provide shelter as well as design guidelines on the rehabilitation centre for unprivileged children. Future research can do survey questionnaires towards bigger sampling.

**Keywords**: Quality of Life (QoL), childrens' mental health, healing environment

## 1. INTRODUCTION

### Background Study

There is a pressing need to address mental health problems among the underprivileged children in Malaysia. Up to 872 young people in Malaysia took their lives since January 2019, as reported by the Royal Malaysia Police (PDRM), whereby children between 15-18 years old made up 51 percent of the total 1,708 suicide cases recorded within the time period. (UNICEF, 2021). These underprivileged children lost their chances on having a normal childhood and are not capable of developing emotionally, physically and socially when compared to their more fortunate peers. Some of them don't have access to a good quality education, shelter, healthy food and medical care while some live with disabilities. Thus, making them vulnerable to malnutrition, disease, exploitation, abuse and other forms of violence. Furthermore, they are less likely to positively contribute to the society in the future as they might not be able to hold a stable and good paying job leading to them partaking in crime or fall victim to the criminal justice system.

### Problem Statement

Malaysia is reported to requiring a long term comprehensive strategy against youth suicide as

one of the social, economic and public health issues in Malaysia (The Star, 2021). According to the National Health and Morbidity Survey (NHMS), a total of 424,000 children in Malaysia suffers from mental health problems, meaning nearly one in 10 children aged between 10 to 15 years old have mental health issues (CodeBlue, 2020). Furthermore, people with mental illness is less likely to seek help as the current laws are preventing them from doing so for fear of being labelled, shamed and sometimes charged with a suicide crime (IDEAS, 2021). Suicide still remains as a criminal act in Malaysia, despite clear evidence that criminalization of suicide reduces help-seeking, hinders collection of accurate data, and the development and implementation of effective suicide prevention strategies. (Relate, 2021). Therefore, immediate investment is needed to expand on mental health services including systematic and upgraded psychological screening and professional support for young people in schools and communities. (UNICEF, 2021)

According to Berry et al., (2019), mental health problems are prevalent among young people in Malaysia yet access to specialist mental health care is extremely limited. More context-specific research is needed to understand the factors affecting help-seeking behavior in youth, when mental health problems typically have first onset. The prevalence of serious mental illness is higher in homeless people compared to those who are housed and higher rates of personality disorder, self-harm and attempted suicide among the homeless. (Jennifer Perry & Tom K.J. Craig, 2015) Services for homeless youth traditionally provide shelter and nourishment but do little to break the cycle of homelessness. A more comprehensive approach to serve homeless youth is the drop-in center model that provides safe and easy-to-find facilities within communities to bridge the gap between the streets and transitional or permanent housing. (Shillington, Bousman & Clapp, 2009)

**GAP**

It is noted that there seems to be a lack of rehabilitation center for current mental health services as well as on the design space of the rehabilitation centre conducive to the healing process and wellbeing of these underprivileged children. Thus, the current rehabilitation center does not focus on the healing process through architectural design to engage patients in the process of self healing and recovery. As a result, the spaces are not properly designed to be nurturing and therapeutic and are indistinguishable from normal housing.

## 2. LITERATURE

### 2.1 Quality of Life

World Health Organization (WHO) defined Quality of Life as an individual's perception of their position in life in the context of the culture and value systems in which they live, in relation to their goals, expectations, standards and concerns. Based on a literature review by Celebre (2021) states that Quality of Life (QoL) represents a multi-dimensional construct that integrates the psychological, physical and social well-being of an individual. He also highlighted that Quality of Life (QoL) is lower in children with mental health issues compared to those who have physical health problems. Poor Quality of Life (QoL) in children will lead to low self-esteem, poor social skills and stressful life events.

The main Quality of Life (QoL) factors influencing the children's mental health are the social and psychological environment. Social environment is defined as social practices and interactions that exist between two people or more. Positive effect of social environment on children helps to foster positive peer relationships, interactions and give opportunities for the children to achieve their social goals. Psychological environment explores the relationship between people and their environment, focusing more on human-environment interaction. An enriching and loving home environment fosters healthy growth and children's brain development which includes cognitive, linguistic, emotional, and motor skills.

Health is a major booster of Quality of Life (QoL), and it is addressed in the Sustainable Development Goals (SDGs) to ensure all human beings can fulfil their potential in dignity and equality and in a healthy environment. The SDG cannot be achieved without the realization of child rights. Children around the globe are also standing up and fighting to secure their right to good health, good education and etc. Investing in

children and young people to achieve a more equitable, just and sustainable world for all. SDG 3 exclusively address health, which is to promote good health and well-being in children, including mental health.

## 2.2 Children's Mental Health

Based on a literature review by Celebre (2021), the relationship between mental health issues and lower Quality of Life (QoL) is well supported in the adult literature but not in childhood mental health, which is much less established and largely lacking. World Health Organization (WHO) defined mental health as a state of well-being in which an individual realizes their abilities, is able to cope with daily life stresses, work productively and contribute to their community. The recent virus outbreak COVID-19 shows that the pandemic has been affecting and pressuring the masses, including children, into a mental health crisis especially during under nationwide lockdowns and pandemic related movement restrictions. Children are forced to spend their lives away from family, friends, schools and outdoor activities which is one of the key elements of childhood itself. While some underprivileged children may be stuck at home with abusive parents who can affect their mental health and well-being.

Children refers to any human being below the age of puberty or the legal age of majority. According to UNICEF, a child means every human being below the age of eighteen years unless, under the law applicable to the child, the majority is attained earlier. According to the Malaysian law, the Age of Majority Act 1971 (Malay: Akta Umur Dewasa 1971), the age of majority is 18 years old, so that below 18 years old is considered as minor. The term "underprivileged" refers to less privileged on the same standard of living or rights of society due to low economic and social status. Thus, underprivileged children refer to children that do not have the same standard of living, rights and normal childhood as most kids have of their age.

According to Sahril (2021), good mental health in childhood means reaching age-appropriate development and emotional milestone, learning healthy social skills and being able to cope with problems. The most common childhood mental health problems are depression, anxiety, attention deficit hyperactivity disorder (ADHD),

behaviour disorders, and conduct disorders. If untreated, children who suffer from a mental health problem may risk their potential development, education attainments and their potential to live fulfilling and productive lives. Sahril (2021) also highlighted the prevalence and factors associated with mental health problems among children aged 5-15 years old in Malaysia. However, the lack of direct involvement of the child in the study process as well as the cultural and economic differences are some of the main limitations in his study. Therefore, this study will include children in the study process to access the factors associated to their mental health.

Since the start of the COVID-19 pandemic and lockdown, children have been exposed to sense of fear, stress and anxiety which led to negative impact on the children's development. While some underprivileged children faced acute deprivation of nutrition and overall protection. Based on a literature review by Glynn (2021) states that the adverse effects of the COVID-19 pandemic on adolescent and adult mental health are growing, yet the impact on preschool children are only emerging. As the pandemic stressors continue, children have been reported higher rates of anxiety and depressive symptoms due to the effects of lockdown, social isolation, educational adaptations and loss of moderating community supports. Some other factors that may influence the way children expressing their social skills or emotional competencies includes environmental, family and risk factors within the child. Glynn (2021) highlighted on assessing the role of environmental factors in child mental health by examining the household income, food insecurity, parental essential worker status, and loss of parental job as well as preservation of the structure of children's daily experiences. However, Glynn (2021) only focused on responses to the questionnaires completed by parents to ascertain children's general and mental health. Therefore, this study will include responses from the children regarding the environmental factors on their mental health.

Based on a literature review by Singh (2020) states that the impact of COVID-19 and lockdown on children's mental health and adolescents is determined by many vulnerability factors includes developmental age, educational status, pre-existing mental health condition, being economically underprivileged or being quarantine due to infection or fear of infection. These factors have resulted to clinginess, disturbed sleep,

nightmares, poor appetite, inattentiveness, and significant separation problems in young children.

Singh (2020) also highlighted on children and adolescents' access to mental health services either by using digital platforms or face to face as they are not used to the variation in the new environment. The pandemic COVID-19 lockdown may derail the children from receiving their therapy and special education while children who are undergoing quarantine are at higher risk for developing mental health-related challenges. Singh (2020) focused on the impact of pandemic COVID-19 and the strategies to enhance children and adolescent's mental well-being during the COVID-19 lockdown. Therefore, this study will further study on the strategies to enhance children's mental health.

Furthermore, a supportive environment for children can help to enhance their mental health including engagement to natural environment. Andrusaityte (2020) states that physical activity in green spaces is recommended as a measure to prevent poor mental health among children. Studies shows that lower residential greenness levels and less time spent in a park were associated with poorer general and mental health in children. Spending time in green environments boosts quality of life including various aspect of thinking, attention, memory and creativity in people. Andrusaityte (2020) highlighted on determining the association between levels of residential surrounding greenness, preschool children's park use, sedentary behaviour and mental and general health. However, Andrusaityte (2020) only focused on residential greenness on children's mental health. In order to fill this gap, this study will focus on healing environment for mental health children.

Aside from natural environment, built environment includes urban structure and individual housing also has a direct and indirect effect on children's mental health, especially those living in high rise housing. Based on a literature review by Franklin (2020) suggests that factors associated with the built environment, including artificial light, air and noise pollution may adversely affect children's mental health. Studies found that children's exposure to smoke at home and roadway air pollution increases the mental stress in young adolescent and children. Franklin (2020) focused on the residential green spaces to reduce pollution due to the built environment, with possible mental health benefits for children. Therefore, this study will explore the factor that is important for the healing process and the effect of built environment on healing children's mental health
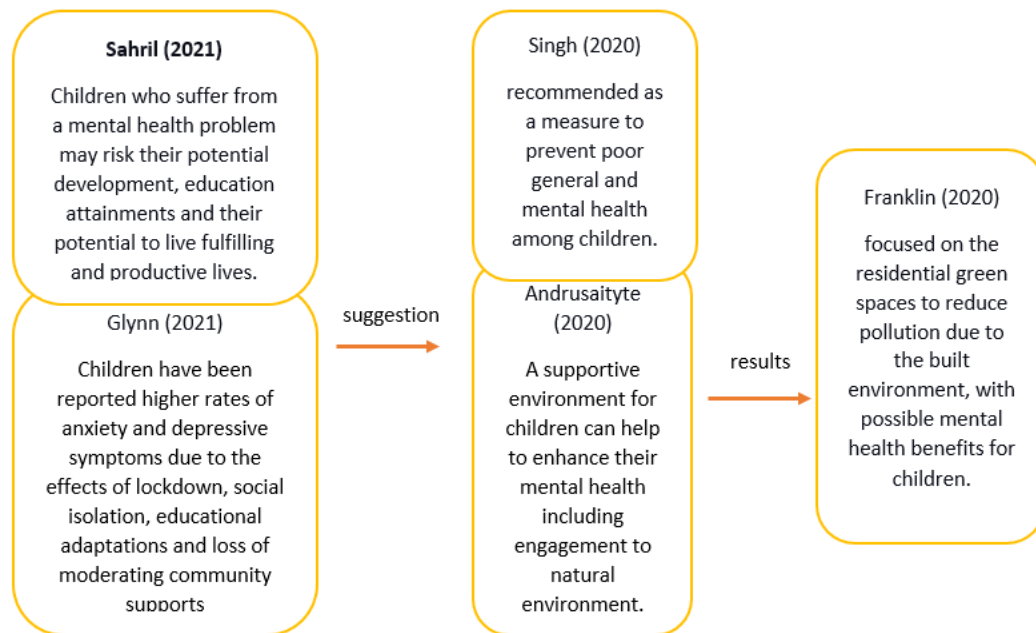


Figure 1. Literature Model of Children Mental Health

## 2.3 Children's Healing Environment

According to Gaminiesfahani (2020), patients' phenomenological experiences of the built environment characteristics of healthcare buildings can impact their healing and well-being. By understanding the healing effects of landscape and green environment on architecture for healthcare setting can improve the health benefits. Gaminiesfahani (2020) highlighted on built environment characteristics of a paediatric healthcare environment that have healing benefits including access to nature, music, art and nature light, reduced crowding and noise, soft and cyclical and user-controlled artificial lighting. However, Gaminiesfahani (2020) only focused on the healing effect based on the healthcare settings. Therefore, my study will further analyse the healing design that can be used for the rehabilitation centre.

Based on the literature review by Chang (2017) suggested that visiting and viewing landscaping at hospitals accelerates patients' recovery from surgery and help staff's recovery from mental fatigue. Studies found that different types of features promote visits from specific user groups whereby landscape features facilitating physical activities effectively encourage visits across user groups, especially for caregivers and staff. Chang (2017) highlighted on experimental choice sets to investigate how landscape features influence the visitations of different users in a large regional hospital in Taiwan. However, Chang (2017) only focused on landscaping that can capture adults' attention. Therefore, this study will analyse the environment needed for creating a better healing environment for children.

However, an unfamiliar environment in a healthcare setting will make children scared and anxious. According to Karimi Azeri (2020) states that getting into an unfamiliar environment in the hospital makes children fear, discomfort and is considered as a very common stressor in such setting. It may take them some time to get familiar with the new environment and surrounding and sometimes this can also cause stress and anxiety to some parents. Karimi Azeri (2020) highlighted on addressing the needs and preferences of children regarding the design of a therapeutic environment. Studies found that the most

important environmental elements in hospital that promote the reduction of children's fears includes components of entertainment and play, natural light, the presence of green space, cheerful atmosphere and lastly is the presence of family. However, Karimi Azeri (2020) only focus on addressing the needs and preferences of children based on the parent's opinion and not the children themselves. Therefore, this study will include responses from the children regarding their needs and preferences.

Another study by Jiang (2020) states that positive distraction is a significant environmental feature that introduces positive feelings by diverting attention from stress or anxious thoughts. Studies look into six themes of positive interactions such as art and environmental aesthetics, spatial arrangement and atrium, considerations of socialization patterns, play and interactive technologies, sound and lighting interventions, and lastly access to nature. Jiang (2020) highlighted on improving behavioural and emotional well-being, reducing stress and anxiety, enhancing healthcare experience and satisfaction and facilitating medical procedures and recovery. However, Chang (2017) stated that research gaps emerged between positive distractions and play in garden spaces and spatial design to accommodate interactive technology and socialization in the public areas of paediatric healthcare environments.

Based on the literature review by Becker (2019) states that it's important to consider means of preventing suicide during the construction and business operation of these institutions for the treatment of young people with acute suicidal tendencies. The approaches to anti-suicidal environment are divided into restrictive (security measures and means of avoiding potential hazards) and atmospheric therapeutic measures (positive distraction, positive physiological and natural influences). Becker (2019) highlighted on ways to create an anti-suicidal environment and to establish a setting amenable to close support and care by mental health professionals. Therefore, my study will combine this study with a healing-built environment design for the rehabilitation centre as to provides suicide prevention and protection.
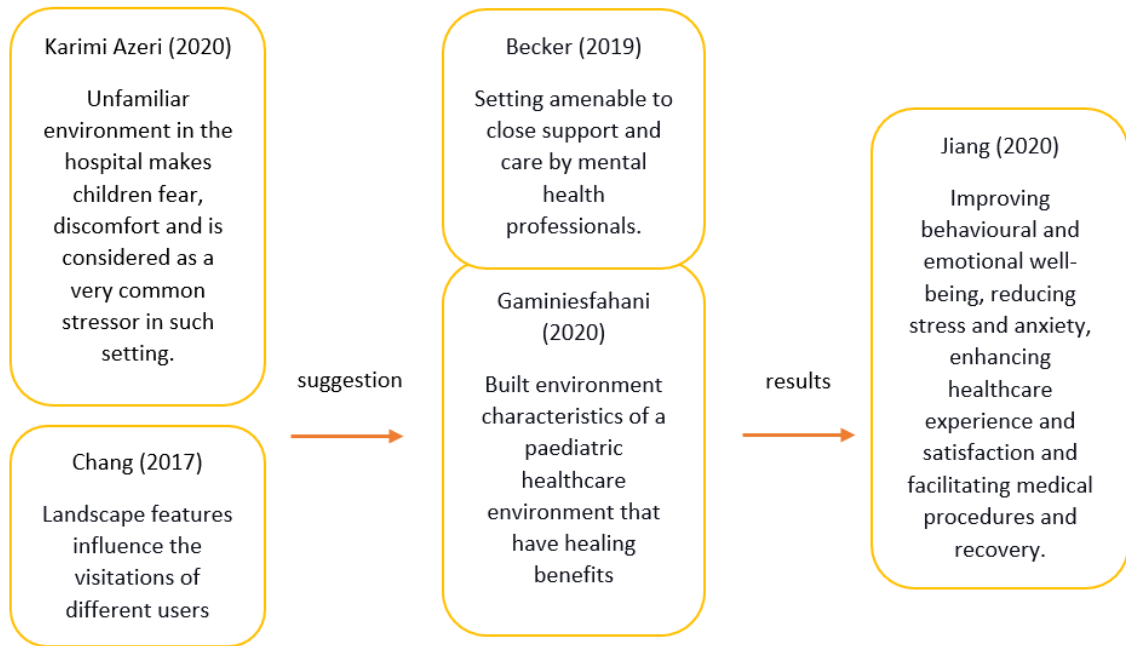
Figure 2. Literature Model of Children Healing Environment

Table 1. Summary of literature review on quality of life, children's mental health, children's healing space

| Document | Background Study | Problem Statement | GAP | P.O.D | Methodology | Results | Conclusion | Remarks |
|---|---|---|---|---|---|---|---|---|
| Glynn (2021) - A predictable home environment may protect child mental health during the COVID-19 pandemic | Information about the adverse effects of the COVID-19 pandemic on adolescent and adult mental health is growing, yet the impacts on preschool children are only emerging. | Environmental factors that augment or protect from the multidimensional and stressful influences of the pandemic on emotional development of young children are poorly understood. | Responses to the questionnaires completed by parents were used to ascertain children's general and mental health. | To assess the role of environmental factors in child mental health we examined household income, food insecurity, parental essential worker status and loss of parental job, as well as preservation of the structure of children's daily experiences with the | Depressive symptoms in 169 preschool children (mean age 4.1 years) were assessed with the Preschool Feelings Checklist during a state-wide stay-at-home order in Southern California. | Practice of family routines robustly predicted better child mental health, and this protective effect persisted after covarying income, dual-parent status and food insecurity as well as maternal depression and stress. | Maintaining a structured, predictable home environment by adherence to family routines appears to mitigate these adverse effects, providing empiric basis for public health recommendations. | This study is only focusing on children's mental health based on home environment factor |
| Sahril (2021) - Factors Associated with Mental Health Problems among Malaysian Children: A Large Population-Based Study | Mental health problems are a major public health issue, particularly among children. | They impair children's development, academic achievement, and ability to live a productive life. | the lack of direct involvement of the child in the study process as well as the cultural and economic differences are the main limitation of this study. | The present study aimed to determine the prevalence and factors associated with mental health problems among children aged 5 to 15 years old in Malaysia. | Data from the National Health and Morbidity Survey (NHMS) 2015 were analyzed. | children who had fathers with a non-formal education and worked in the private sector, had parents who were widowed or divorced, and had either parent with mental health problems were more likely to have mental health problems themselves. | Children from the lower socioeconomic group and who had either parent with mental health problems had higher odds of having mental health problems in Malaysia. | This study is lacking on the trends of mental health problems among children in Malaysia. |
| Andrusaityte (2020) - The effect of residential greenness and city park visiting habits on preschool Children's mental and general health in Lithuania: A cross-sectional study | 14% had poor perceived general health, and 44.7% spent 5 or more hours per week in city parks | Every additional hour of time spent in parks was associated with decreased sedentary behaviour and a lower risk of poor health; meanwhile, lower residential greenness was associated with poorer mental and general health | Study implications and limitations are also discussed. | The aim of this study was to determine the association between levels of residential surrounding greenness, preschool children's park use, sedentary behaviour, and mental and general health. | This cross-sectional study included 1489 4-6-year-old children – residents of Kaunas city, Lithuania. | Lower residential greenness levels and less time spent in a park were associated with poorer general and mental health among 4-6-year-old children. | Physical activity in green spaces is recommended as a measure to prevent poor general and mental health among children. | This study is lacking the health benefits of nature-based solution |
| Karim Azeri (2020) - Effective Environmental Factors for Reducing Children's Fear in Children's Hospital: Using Parent's Attitudes | Getting sick and getting into an unfamiliar environment in the hospital makes children fear, discomfort and is considered as a very common stressor in such setting. | Poor design of hospital environments can exacerbate behavioral disorders, as well as fear and anxiety in individuals. | Architects and construction managers should work closely with the institution's health personnel (e. g., doctors, therapists, and psychiatric nursing staff) during the planning stages for Departments of Child and Adolescent Psychiatry in order to come up with solutions that comprise appropriate, practical and functional requirements | The main purpose of this study is to investigate and address the needs and preferences of children regarding the design of therapeutic environments. | The desk research method was used and data was collected through a questionnaire given to the parents of children in 17th Shahrivar Children's Hospital in Rasht city, Northern Iran. | the first study on the design of children's medical environment using the opinion of their parents in Iran and in this regard. | the components of entertainment and play, natural light, the presence of green space, cheerful atmosphere and the presence of family are among the most important environmental elements affecting the reduction of children's fears from the perspective of their parents. | This study is done based on the parent's opinion and not the children themselves. |
| Chang (2017) - The influences of Landscape Features on Visitation of Hospital Green Spaces—A Choice Experiment Approach | Studies have suggested that visiting and viewing landscaping at hospitals accelerates patient's recovery from surgery and help staff's recovery from mental fatigue. | To plan and construct such landscapes, we need to unravel how landscape features desirable to different groups so that the space can benefit a wide range of hospital users. | a more rounded understanding of these variables is required via research so that their individual and combined impacts are reflected in holistic design recommendations. | Using discrete choice modeling, we developed experimental choice sets to investigate how landscape features influence the visitations of different users in a large regional hospital in Taiwan. | The empirical survey provides quantitative estimates of the influence of each landscape feature on four user groups, including patients, caregivers, staff, and neighborhood residents. | Patients in this study specify a strong need for contact with nature. | Our study provides information essential for creating a better healing environment in a hospital setting. | This study is lacking in terms of environment needed for each landscape feature in the hospital. |

Table 1. Summary of literature review on quality of life, children's mental health, children's healing space (con't)

| Document | Background Study | Problem Statement | GAP | P.O.D | Methodology | Results | Conclusion | Remarks |
|---|---|---|---|---|---|---|---|---|
| Celebre (2021) - An Examination of Correlates of Quality of Life in Children and Youth With Mental Health Issues | Quality of life (QoL) is significantly lower in children with mental health issues compared to those who are typically developing or have physical health problems. | However, little research has examined factors associated with QoL in this particularly vulnerable population. | | this study contributes to the field in assisting service providers with care planning | 347 clinically referred children and adolescents were assessed using the interRAI Child and Youth Mental Health (ChYMH) Assessment and Self-reported Quality of Life- Child and Youth Mental Health (QoL-ChYMH) | Children and adolescents who experienced heightened anhedonia and depressive symptoms reported lower social QoL. (e.g., family, friends and activities; p = 0.024, 0.046, respectively). Additionally, children and youth who experienced heightened depressive symptoms reported lower QoL at the individual level (e.g., autonomy, health; p = 0.000), and level of basic needs (e.g., food, safety; p = 0.013). In contrast, no mental state | no mental state indicators were associated with QoL related to services | This study is only focusing on the quality of life in children with mental health issues. |
| Becker (2019) - Suizidpräventive Architektur in der Kinder- und Jugendpsychiatrie | In Germany, departments of Child and Adolescent Psychiatry are responsible for the treatment of young people with acute suicidal tendencies. | It is important to consider means of preventing suicide already during the construction and business operations of these institutions. | | ways to create an antisuicidal environment and to establish a setting amenable to close support and care by mental-health professionals. | Approaches to structural suicide prevention can be divided into restrictive and atmospheric-therapeutic measures. | Restrictive measures comprise security measures and means of avoiding potential hazards, for example, through life-threatening jumps (e. g., staircases) or intentional strangulation (e. g., employing materials with predetermined breaking points). In addition to security issues, architectural and creative aspects must be incorporated to enable a suicide-preventive atmosphere, that is, satisfying protective needs, creating positive distractions (panoramic views, activities, occupational therapy opportunities), and using positive physiological and natural infl uences (such as colors and light). Secure | an inviting and atmospherically pleasant space can be created that simultaneously provides suicide prevention and protection, where adolescents with psychiatric disorders can be treated by mental-health professionals. | This study only focusing on the inviting and restrictive measure and not the factor of that are important for healing process |
| Franklin (2020) - Association of the Built Environment With Childhood Psychosocial Stress | Emerging research suggests that factors associated with the built environment, including artificial light, air pollution, and noise, may adversely affect children's mental health, while living near green space may reduce | Little is known about the combined roles of these factors on children's stress | | To investigate associations between components of the built environment with personal and home characteristics in a large cohort of children who were assessed for perceived stress. | a total of 2290 Southern California Children's Health Study participants residing in 8 densely populated urban communities responded to detailed questionnaires. | In this cohort study, children's exposure to smoke at home in addition to residential exposure to ALAN and near-roadway air pollution were associated with increased perceived stress among young adolescent children. | The findings may support the promotion of increased residential green spaces to reduce pollution associated with the built environment, with possible mental health benefits for children. | This study is only focusing on the green spaces instead of factor of that are important for healing process |
| Gamrinesfahani (2020) - A Scoping Review of the Impact on Children of the Built Environment Design Characteristics of Healing Spaces | This article elucidates current understanding in pediatric healthcare building design via scoping review of research on the impacts on the health and well-being of children of the architectural and landscape characteristics of healing spaces. | Studies indicate that patients' phenomenological experiences of the built environment characteristics of healthcare buildings can impact their healing and well-being | | the healing effects of landscape and architecture can inform the design of healthcare settings for increased health benefits. | This method comprises five search stages: (1) research question is formed; (2) key words, search terms, and search strategy are identified; (3) databases are searched, and papers are assessed via inclusion and exclusion criteria; (4) information of the selected articles is extracted and summarized; and (5) key findings are interpreted and reported via | Analysis indicates that the built environment characteristics of pediatric healthcare environments that have healing benefits include access to nature, music, art and natural light, reduced crowding, reduced noise, and soft, cyclical, and user-controlled artificial lighting. | it is important to understand the design variables that influence pediatric healthcare, it is also necessary to contextualize them and to distinguish these variables from each other and appreciate their interaction | This study only discussed on the healing effect based on the design of the healthcare settings. |
| Jiang (2020) - Positive Distractions and Play in the Public Spaces of Pediatric Healthcare Environments: A Literature Review | A positive distraction is a significant environmental feature that introduces positive feelings by diverting attention from stress or anxious thoughts. | Existing research has deemed the application of positive distractions in pediatric environments to be significant. | | The aims of this study were to validate and extend evidence on positive distractions and play opportunities in the design of the public spaces in pediatric healthcare environments, translate existing evidence into design suggestions, and identify research gaps in this realm | A four-phased literature review method was employed in the study, including literature search, literature screening and selection, literature appraisal, and thematic analysis and in-depth discussion. | The research indicated that positive distractions in the pediatric healthcare environment provide a series of health benefits for patients, including improved behavioral and emotional well-being, reduced stress and anxiety, enhanced healthcare experience and satisfaction, and facilitated medical procedures and recovery. | This study organized the understanding on the components of supportive environments and its outcomes for pediatric healthcare design. | This study only focusing on the supportive components for a pediatric health and it would be better to compare with rehabilitation centre |

## 3  CONCEPTUAL FRAMEWORK
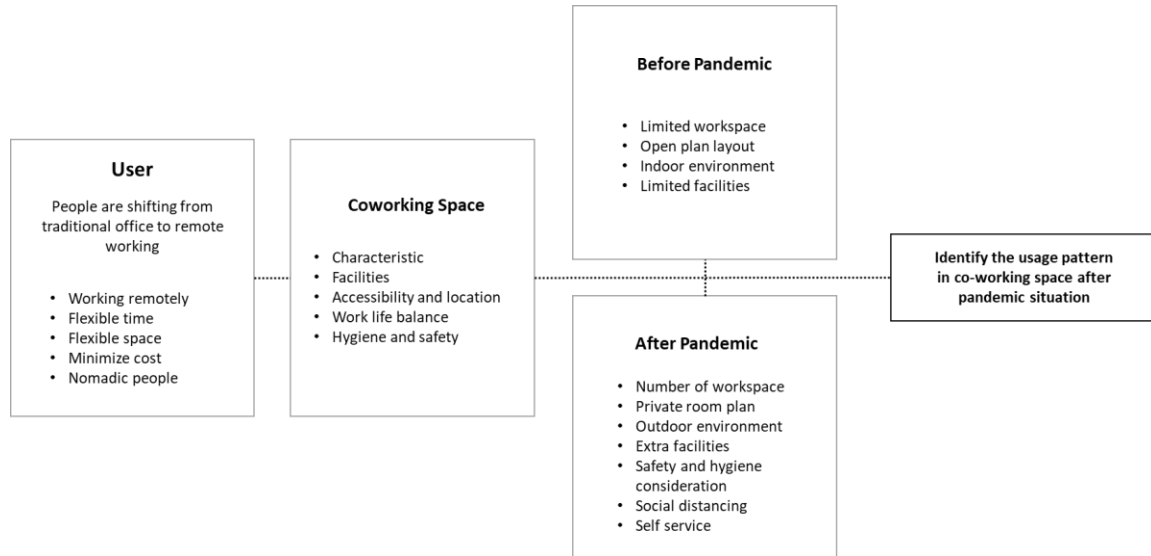


Figure 3. Model of Conceptual Framework

The figure below represents the conceptual framework in graphical manner. This research mainly focusses on underprivileged children of age below 18 years old with or currently diagnosed with mental health problem. Based on literature review, the 2 key quality of life factor that influence the children's mental health would be of social environment and psychological environment. These two key factors create an unfamiliar environment which is not conducive and proper for their growth and development. Hence, this research believes that a healing environment may help these children. The healing environment includes positive built environment, natural environment factors, anti-suicidal environment factors and lastly environment with positive distraction. All of these factors in a healing environment will hopefully become a guide to future design framework of future children's rehabilitation centre.

## 4  CONCLUSION

Based on the literature review, the factor that can improve mental health conditions among underprivileged children includes positive built environment, natural environment factors, anti-suicidal environment factors and lastly environment with positive distraction. The finding of the study found that these can improve mental health conditions among underprivileged children.

## 5  CONTRIBUTION

and our relation with architecture. At the same time to underline the mental health problem plaguing the less fortunate children in Malaysia and to be able to act as the basis to formulate architectural guidelines on the rehabilitation centre for the underpriviledged children in order to enhance and improve their physical and mental wellbeing and their quality of life.

In addition, it is hoped that via this research, it will act as a jumpstart for the Ministy of Women, Family and Community Development, in collaboration with local authority council to provide a better shelter or centre for the underpriviledged children by formulating architectural and design guidleines on rehabilitation center with shelter.

## 6    REFERENCES

Glynn, L. M., Davis, E. P., Luby, J. L., Baram, T. Z., & Sandman, C. A. (2021). A predictable home environment may protect child mental health during the COVID-19 pandemic. Neurobiology of Stress, 14.

Sahril, N., Ahmad, N. A., Idris, I. B., Sooryanarayana, R., & Razak, M. A. A. (2021). Factors associated with mental health problems among malaysian children: A large population-based study. Children, 8(2). https://doi.org/10.3390/children8020119

AndrusaityteS., Grazuleviciene, R., Dedele, A., & Balseviciene, B. (2020). The effect of residential greenness and city park visiting habits on preschool Children's mental and general health in Lithuania: A cross-sectional study. International Journal of Hygiene and Environmental Health, 223(1), 142–150. https://doi.org/10.1016/j.ijheh.2019.09.009

Karimi Azeri, A. R., Mirbazel, S., & Nourmusavi Nasab, S. (2020). Effective Environmental Factors for Reducing Children s Fear in Children s Hospital: Using Parent s Attitudes. Iconarp International J. of Architecture and Planning, 8(1), 1–19. https://doi.org/10.15320/iconarp.2020.102

Chang, K. G., & Chien, H. (2017). The influences of landscape features on visitation of hospital green spaces—a choice experiment approach. International Journal of Environmental Research and Public Health, 14(7). https://doi.org/10.3390/ijerph14070724

Celebre, A., Stewart, S. L., Theall, L., & Lapshina, N. (2021). An Examination of Correlates of Quality of Life in Children and Youth With Mental Health Issues. Frontiers in Psychiatry, 12. https://doi.org/10.3389/fpsyt.2021.709516

Becker, K., Schmidtke, A., & Glasow, N. (2019). Possibilities for suicide prevention through architecture in child and adolescent psychiatry. Zeitschrift Fur Kinder- Und Jugendpsychiatrie Und Psychotherapie, 47(1), 9–18. https://doi.org/10.1024/1422-4917/a000622

Franklin, M., Yin, X., McConnell, R., & Fruin, S. (2020). Association of the Built Environment with Childhood Psychosocial Stress. JAMA Network Open, 3(10). https://doi.org/10.1001/jamanetworkopen.2020.17634

Gaminiesfahani, H., Lozanovska, M., & Tucker, R. (2020). A Scoping Review of the Impact on Children of the Built Environment Design Characteristics of Healing Spaces. Health Environments Research and Design Journal, 13(4), 98–114. https://doi.org/10.1177/1937586720903845

Jiang, S. (2020, July 1). Positive Distractions and Play in the Public Spaces of Pediatric Healthcare Environments: A Literature Review. Health Environments Research and Design Journal. SAGE Publications Inc. https://doi.org/10.1177/1937586720901707

Berry, C., Michelson, D., Othman, E., Tan, J. C., Gee, B., Hodgekins, J., … Fowler, D. (2020). Views of young people in Malaysia on mental health, help-seeking and unusual psychological experiences. Early Intervention in Psychiatry, 14(1), 115–123. https://doi.org/10.1111/eip.12832

Perry, J., & Craig, T. K. J. (2015). Homelessness and mental health. Trends in Urology & Men's Health, 6(2), 19–21. https://doi.org/10.1002/tre.445

Shillington, A. M., Bousman, C. A., & Clapp, J. D. (2011). Characteristics of homeless youth attending two different youth drop-in centers. Youth and Society, 43(1), 28–43. https://doi.org/10.1177/0044118X09351277

Singh, S., Roy, D., Sinha, K., Parveen, S., Sharma, G., & Joshi, G. (2020, November 1). Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. Psychiatry Research. Elsevier Ireland Ltd. https://doi.org/10.1016/j.psychres.2020.113429