

COMPARISON OF EXERCISE IN A GREEN OUTDOOR ENVIRONMENT VERSUS INDOOR ACTIVITIES AMONG CARDIAC SURVIVORS

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ABSTRACT

Heart disease is the number one killer in Malaysia and alarmingly, the numbers of the patients are increasing throughout the year. Currently, the rehabilitation therapy for the cardiac patients are mostly using the equipment found in the rehabilitation unit, rather than utilising the green outdoor environments (GOEs) which can be found within the hospitals' compounds. There is still a lack of study using GOE for cardiac patients' rehabilitation therapy. The main purpose of this study is to identify the effectiveness of using indoor and outdoor as the settings for the rehabilitation therapy for the cardiac patients. This study was carried out at The Rehabilitation Department of Serdang General Hospital in Malaysia where rehabilitation treatments especially for cardiac patients were carried out twice weekly. The patients suffered the Coronary Artery Disease were selected for this study. The patients were exposed to both indoor and outdoor settings during the treatments. The patients' heart rate and blood pressure will be the indicators for the effectiveness of the treatment received. A survey using questionnaires will also applied in order to identify the preferences of the patients on the types of elements that they would like to have within the indoor or the green outdoor environment. The results from this on-going study may help to identify the preferences for the setting of the patients under-going the rehabilitation therapy at hospitals and also, providing the recommendations for the design of green outdoor environment as a rehabilitation area.

Keywords: healing garden, hospital garden, therapeutic landscape

1. INTRODUCTION

Cardiovascular disease has remained the number 1 killer in Malaysia for 27 years [1]. Rehabilitation refers to health care services that help a person keep, restore or improve skills and functioning for daily living and skills related to communication that have been lost or impaired because a person was sick, injured or disabled [2].

A large body of research is consistent with the proposition that humans are hard-wired to appreciate and benefit from exposure to nature [3]. Natural environments are often hypothesised to be restorative [4] which refers to the “process of renewing, recovering, or re-establishing physical, psychological, and social resources or capabilities diminished in ongoing efforts to meet adaptive needs” [4]. Therefore, staying within an outdoor environments or nature give a lot of positive impacts to the society and especially those who are recovering from sickness. Restorative Green Outdoor Environments (GOEs) for the sick has been part of healing since medieval times [5]. The designers and especially landscape architects attempt to design outdoor hospital environments so that they take into consideration the fact that one heals more quickly in a supportive atmosphere, one that ameliorates stress and provides opportunities for positive escape from clinical settings [6].

Currently, the rehab therapy for the cardiac patients are using the indoor the equipment provided in the rehabilitation department and less usage of the green outdoor environment (GOE) provided within the hospital. Furthermore, there is still a lack of study regarding the using of GOE during rehabilitation treatment for cardiac patients.

This paper is discussing the physiological response of cardiac patients while they are having their rehabilitation treatment. Instead of assessing through

psychological response, the study only focuses towards the heart rate and blood pressure in order to indicate the effectiveness of the treatment towards the patients. The main purpose of this study is to find the most effective rehabilitation treatment comparing indoor and Green Outdoor Environment (GOE) when conducting rehabilitation treatment for the cardiac patients.

There are a few objectives formulated for this paper

1. To identify the type of treatment being carried out for the cardiac patients.
2. To assess the outcomes of patients on having the rehabilitation treatment between indoor and the outdoor.
3. To give recommendations on the design of Green Outdoor Environment that may be suitable to use for rehabilitation treatment of cardiac patients.

2. METHODOLOGY

2.1 The Selected Site

The data collection was carried out at the Serdang General Hospital in Malaysia where the hospital has a rehab program especially for cardiac patients and it is being carried out weekly. There will be different patients every week.

40 patients (new cases) will undergo their treatment as assisted by the assigned therapists. They will experience both treatment sessions which are the indoor session and the outdoor session. The physiological response of the cardiac patients act as the indicator either the outdoor session of rehabilitation treatment is more effective or vice versa towards the cardiac patients. It depends on the heart- beat's reading and blood pressure of the patients as each of the patients has their own target of heart rate reading which they need to achieve after having the treatment in one day. The heart beat and blood pressure will be taken by using digital sphygmomanometer.

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The questionnaire will be analysed to identify the patients' regarding the use of indoor or the green outdoor environment. Statistical Package for Social Sciences (SPSS) 2014 will be used as a tool to analyze the questionnaires.

2.2 Group of Patients

There are a few classifications of the patient's group that was determined by the medical staff according to the risk of the cardiac patients.

Table 1: The classification of cardiac patients according to their heart's condition

Red Group (High Risk)	<i>The patients reach at high precaution stage and need high concern by the therapists/doctors along the treatment receive. Their heart might be having problem in pumping the blood to the heart, the thickness of the blood and etc.</i>
Green Group (Low Risk)	The patients can consider as normal among themselves. However, they still need to be concern in order to prevent them from being in Red Group patients.

3. EXPECTED RESULTS

The study is expecting to identify the effective rehabilitation treatment of the cardiac patients, both for the indoor and the outdoor. The results from this study are also aiming to provide the recommendations on the design of the GOE meant for the use in rehabilitation therapy for cardiac patients at hospitals in Malaysia.

4. CONCLUSIONS

Cardiac patients are one of the patient that faced haemodynamic changes in their life. Therefore, through an appropriate and effective education and treatment, they may gain back their confidence level. Furthermore, through the treatment also the patients might be helped in adapting themselves to be in their social life as normal as before. This study will be done to provide the suitable Green Outdoor Environment within the hospital especially for

the cardiac patients that undergo inpatient rehabilitation. Through this study, rehabilitation department may also develop an awareness program for the public about heart disease. Other than that, the government may improvise the technology equipment into more environmental friendly that could substitute the current used machine. The preferences of the patients also important to be known either they are comfortable on the settings of outdoor and indoor during the rehabilitation treatment receive. This may help the landscape architect to design more comfortable garden or courtyard for the patients on having their treatment.

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