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ORIGINAL ARTICLE

<p>THE OUTCOME OF PAIN INTENSITY FOLLOWING PHYSIOTHERAPY REHABILITATION FOR NON-SPECIFIC LOW BACK PAIN- A RETROSPECTIVE STUDY AT PRIVATE HEALTHCARE INSTITUTE IN NEGERI SEMBILAN</p>	<p>Search engine: www.ijmaes.org</p>
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ABSTRACT

Background and Objective: Non-specific low back pain (NSLBP) is described as back pain with no specific underlying pathology. The incidence of non-specific low back pain is relatively greater in worker that required high physical demand in executing daily task. Physiotherapy intervention is a choice of treatment option to restore function. The aim of study is to determine the outcome of physiotherapy rehabilitation in treating non-specific LBP. **Method:** A cross-sectional retrospective study was used in this study. A 120 patient's data was collected at the private institution in Negeri Sembilan. The numerical pain rating score (NRS) for pre and post physiotherapy intervention is recorded. **Results:** A total of 120 respondents involve in this study. Male represents 51.7% and remaining was female. The physiotherapy interventions vary and 40% of respondents received a combination of exercise, ultrasound, interferential, cryo as their physiotherapy intervention. Less than 30% utilized other combination modalities. There's significant reduce of pain rating between pre and post intervention with mean difference of 1.60 (95% CI 1.46, 1.75). The mean of pain score for all of three groups was lower in post physiotherapy intervention where it reduces by 1.65 in the first group, 1.34 in the second group and 2.23 in the third group post intervention. **Conclusion:** Study signifies that physiotherapy intervention at KPJ Seremban Specialist Hospital was effective in managing the pain level for non-specific low back pain patients.

Keywords: Non specific low back pain, physiotherapy modalities, pain score

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INTRODUCTION

An average of 90% of low back pain (LBP), regardless acute and chronic is considered as non-specific LBP¹. Non-specific LBP has become a leading contributor to diseases and disability that burden the worldwide and it can affect peoples of all ages. The pathoanatomical causes of non-specific LBP is still unknown and treatment is mainly on managing the pain and restore functional abilities^{2,3}. Women have greater risk compared to men due to anatomical and functional ability which can lead to non specific LBP. It is because women is shorter than men in term of height, low muscle mass and bone compactness, joint more fragile and lesser physical ability⁴. Patients in middle age has higher tendency on having this problem as most of people around this age is working. The percentage of people having nonspecific LBP in population of middle aged and elderly individual was 24.8% and 15.4% respectively⁵.

Medical intervention didn't give satisfactory improvement results in pain. Physiotherapy rehabilitation has a lot of treatment to offers, such as exercise, electrotherapy modalities and manual techniques. The aim treating non specific LBP is to reduce the pain level and restore functional abilities⁶.

Currently, there is limited studies has been conducted to determine the outcome of physiotherapy treatment on non specific LBP. Therefore, the purpose of his study is to determine the outcome of physiotherapy pain management in treating non-specific LBP patients in KPJ Seremban Specialist Hospital. The subsequent from this study will enable to evaluate the current physiotherapy practice and introduce changes in order to ensure services offer is relevant to cater client's needs and demands.

METHODOLOGY

This is cross-sectional study design, retrospective type of data collection using secondary data (patient treatment card). This study was conducted at KPJ Seremban Specialist Hospital, an eminent private healthcare institute in Negeri Sembilan and was internationally recognised for their quality delivering in healthcare services. A Purposive sampling method was used and the eligible respondents need to fulfill an inclusion criterion of diagnosed of non specific low back pain before qualify to enrol in study. The respondent with pathological changes following history of fracture vertebra spine, mechanical dysfunction with radiculopathy symptoms and congenital disorders were excluded. Sample size was determined using Kish L (1965)⁷ formula of $n = (Z_{1-\alpha})^2 (P (1-P) / D^2)$. Prevalence (P) was 16% based on study conducted by Iizuka et al (2017)⁵, confidence interval determined at 95%, absolute precision is 5% and total number of respondents was 120.

Data Collection: The patient's list name was obtained at the physiotherapy registration book and the treatment card was traced at the KPJ Clinical Information department. The treatment record was selected within 6 to 12 months of post treatment. A research collection form was prepared prior to collection exercise to enable individual treatment information documented. The form consists of demographic information, pain score on pre & post treatment and types of physiotherapy interventions.

Ethical Consideration: This study obtained ethical approval from KPJ Healthcare University ethic committee and permission from KPJ

Seremban Specialist Hospital research committee prior to data collection.

Data analysis: Descriptive statistic was used to describe the demographic distribution of respondents. A paired t-test, was used to compare the means of variables.

RESULTS

A total of 120 respondents involve in this study. Male represents 51.7% and the remaining was female. Age categories vary with 31 – 40 years old represent 55.8% and only 10.0% were aged below 30 years old. The physiotherapy modalities used in managing the pain of non

specific LBP varies and were categories based on the combination of treatment delivered. There were 3 types of treatment combination that widely used at the Institute. Namely, exercise, ultrasound, interferential, cryo (type 1), exercise, ultrasound, interferential, cryo & manipulation (type 2) and exercise, short wave therapy, interferential & hotpack (type 3). The most common physiotherapy interventions were type 1 (40.0% (n=48) and type 2 and 3 were 33.3% and 26.7% respectively (Table 1).

	N	%
Gender		
Male	62	51.7
Female	58	48.3
Age category (years old)		
< 30	12	10.0
31 - 40	67	55.8
> 40	41	34.2
Types of Physiotherapy intervention & modalities		
1. Exercise, Ultrasound, Interferential, Cryo.	48	40.0
2. Exercise, Ultrasound, Interferential, Cryo, Manipulation.	40	33.3
3. Exercise, Short Wave Therapy, Interferential, Hot Packs	32	26.7

Table 1: Demographic information on gender, age category and types of physiotherapy interventions of respondents

In the table 2, the result showed the comparison of pain score pre and post physiotherapy intervention. The null hypothesis which is there is no mean difference of pain score (NRS) between pre and post

physiotherapy intervention among non-specific low back pain patients is rejected since p-value <0.05 (p<0.001) and the 95% CI do not cross 0 (95% CI: 1.46, 1.75). Thus, alternate hypothesis is accepted.

	Mean			P value
	Pre intervention	Post Intervention	Mean difference(95% CI)	
Pain Score	5.66 (± 1.00)	4.06 (± 1.01)	1.60(1.46, 1.75)	<0.05*

The value is significant when $p < 0.05$, statistical test = Sample t-test

Table 2: The mean comparison of pain score on pre and post physiotherapy interventions

Statistically, there's significant reduction of pain on post physiotherapy rehabilitation of all types of interventions. Relatively types 2 intervention showed greater pain reduction (3.75 ± 0.81) compare to others types of interventions. However, types 3 of

physiotherapy interventions seem to be less effective in reducing pain intensity (4.13 ± 1.16). Eventhough the number of modalities used in this types were more compared to others (Table 3)

Types of Physiotherapy intervention	Mean pain Score		P value
	Pre	Post	
Types 1 Exercise, Ultrasound, Interferential, Cryo.	5.54 ± 0.92	3.90 ± 0.99	<0.05*
Types 2 Exercise, Ultrasound, Interferential, Cryo, Manipulation.	5.98 ± 0.95	3.75 ± 0.81	<0.05*
Types 3 Exercise, Short Wave Therapy, Interferential, Hot Packs	5.47 ± 1.08	4.13 ± 1.16	<0.05*

*The value is significant when $p < 0.05$; Statistical test = Paired t-test

Table 3: The mean of pain score on pre and post physiotherapy interventions

DISCUSSION

The data collected were at single private physiotherapy setting therefore it unable to represent the whole private physiotherapy center operated in Negeri Sembilan. The number of male is high compare to female and it may be due to the work nature of male

performing physically demanding task which cause a high risk of getting NSLBP compared to female. Somehow, there is lack of study in determining the correlation between the gender and number of NSLBP which makes this study incomparable to any.

In private setting, the approach of reducing pain within short of time is vital to make sure patients able forearly return of their functional abilities. It is justifiable on the usage of more than 3 treatment modalities were widely used in the private setting. It seems redundance in treatment approach through using varities of modalities however, the outcome following such intervention was benefited to patients itself. This study didn't determine the number of treatment session needed to complete by patients in order to achieve desired outcome. Such factors should be included as study variables to determine the relationship of pain reduction and treatment session. It can be used as outcome tools to measure the cost effectiveness of treatment.

The modalites used in the types 1 and 2 physiotherapy intervention mosly similar and the only different was manipulation technique used. The marked pain reduction following manipulation was due to realignment of dysfunction facet joints that causing mechanical limitation^{8,9}. However it is unable to determine the effects of manipulation on such groups because it is not the scope of this study. However the effects of manipulation in pain outcome cannot be deny and need to be considered and included in the current treatment protocol¹⁰.

Eventhough, the usage adjuncts types of treatment (such as medium frequency modalities, hot pack and cryo) was widely used in managing the pain symptom, an active intervention of exercise seem a compulsory in all treatement interventions. The effects of pain reduction following exercise preception were more dominance due to ability to sustain the therapeutic effects for longer period of time¹¹. However, the sustainability effects of pain reduction in all groups were not

determined because it is not suitable to be carried out using cross sectional method. It is advisable to utilise longitudinal method of study for future study.

Conflict of interest: There was no conflict of interest on conduct of this study.

Fund for the study: The fund for the study was granted by KPJ Healthcare University College, Nilai, Malaysia.

CONCLUSION

The aims of current treatment interventions in reducing pain score amongst non specific LBP refered to Physiotherapy center were achieved. However the current protocol needs to be reviewed to assure it able to meet the needs and demands of patients. Furthermore, it is vital to ensure the physiotherapy rehabilitation services are relevant in future challenges.

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