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EVIDENCE- BASED ACTION PLAN OF REHAB CENTERS FOR PATIENTS WITH LOW BACK PAIN

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ABSTRACT

Back pain is common and many people experience long term problems. The goals of physical therapy are to decrease back pain, increase function and provide health education. Low back pain (LBP) is pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without sciatica, and is defined as chronic when it persists for 12 weeks or more. The study objective is to enhance the compliance of Patients to Rehabilitation Regimen to achieve better prognosis and treatment outcomes.The respondents of the study were low back pain patients from three (3) different rehabilitation centers, Rehabilitation Medicine of Cebu Velez General Hospital, Rehab Solutions Incorporated in Perpetual Succor Hospital and Rehab Medics of Chong Hua Hospital. To answer the mean characteristics of the respondents, descriptive statistical procedures were utilized. To determine the differentiating factors, discriminant analysis was used while logistic regression was utilized to determine the predictors of therapy outcomes. This study utilized a quantitative descriptive research design which enabled the researcher to determine if there exists a relationship between the therapy outcomes as the dependent variable to the demographic, employment and clinical variables identified in the study. It can therefore be concluded that of the twelve (12) variables explored, only four (4) clinical variables are significant predictors of low back pain treatment outcomes. These are (a) compliance to treatment regimen, (b) Co-morbidity, (c) Surgical history and (d) Type of low back pain. The rehabilitation centers would take into consideration the results of the study and that they will find a better way encourage compliance of patients to rehabilitation treatment utilizing the proposed evidence-based action plan. With this development, the problem with regard to compliance and result of rehabilitation treatment will be addressed and will greatly contribute to overall wellness and successful outcome of low back pain treatment. It is therefore imperative that physical therapists should focus on these clinical variables in treating for patients with LBP and recommended that rehabilitation centers should follow the evidence-based action plan.

Keywords: Low Back Pain, Physical Therapy Treatment Outcomes, Quantitative Descriptive Research

INTRODUCTION

Comprehensive rehabilitation programs offer a variety of treatments for low back pain. They may use physical therapy, pain management with medicine and other medical treatments. These programs teach people how to care for their backs and how to prevent reinjury. Low back pain (LBP) is pain, muscle tension, or stiffness localized below the costal margin and above the inferior gluteal folds, with or without sciatica, and is defined as chronic when it persists for 12 weeks or more (American Family Physician, 2011). According to the World Health Organization (2013), LBP is neither a disease nor a diagnostic entity of any sort. The term refers to pain of variable duration in an area of the anatomy afflicted so often that it is has become a paradigm of responses to external and internal stimuli – for example, "Oh, my aching back" is an expression used to mean that a person is troubled (Ehrlich, 2003). Common causes of low back pain (lumbar backache) include lumbar strain, nerve irritation, lumbar radiculopathy, bony encroachment and conditions of the bone and joints.

Globally, the incidence and prevalence of LBP are roughly the same wherever epidemiological data have been gathered but such pain ranks high (often first) as a cause of disability and inability to work, as an interference with the quality of life, and as a reason for medical consultation (Ehrlich, 2003). In the Philippines, there was relatively high prevalence of chronic pain and that there is a need for improved pain management to ensure that patients with chronic pain receive appropriate and effective treatment (Lu & Javier, 2011).

Low back pain can be very disturbing to patients and can lead to many strong psychological effects (Ehrlich, 2003). Low back pain is a common problem, with a prevalence in the United States ranging from 8% to 56%. It is estimated that 28% experience disabling low back pain sometime during their lives, 14% experience episodes lasting at least 2 weeks, 8% of the entire working population will be disabled in any given year, and the lifetime prevalence of low back pain is 65% to 80% (Manchikanti, 2000). In order to minimize those effects, Physical Therapist (PT) plays a significant role. According to Dickerman, patients suffering from most types of low back pain are often referred for physical therapy for four weeks as an initial conservative (nonsurgical) treatment option before considering other more aggressive treatments, including back surgery (Dickerman, 2005). The goals of physical therapy are to decrease back pain, increase function and provide health education.

Lumbar strain (acute, chronic): A lumbar strain is a stretch injury to the ligaments, tendons and/or muscles of the low back. The stretching incident results in microscopic tears of varying degrees in these tissues. Lumbar strain is considered one of the most common causes of low back pain. The injury can occur because of overuse, improper use, or trauma.The treatment of lumbar strain consists of resting the back (to avoid reinjury), medications to relieve pain and muscle spasm, local heat applications, massage, and eventual (after the acute episode resolves) reconditioning exercises to strengthen the low back and abdominal muscles. Nerve irritation - the nerves of the lumbar spine can be irritated by mechanical pressure (impingement) by bone or other tissues, or from disease, anywhere along their paths -- from their roots at the spinal cord to the skin surface. These conditions include lumbar disc disease (radiculopathy), bony encroachment, and inflammation of the nerves caused by a viral infection (shingles). Bony encroachment - any condition that results in movement or growth of the vertebrae of the lumbar spine can limit the space (encroachment) for the adjacent spinal cord and nerves. Causes of bony encroachment of the spinal nerves include foraminal narrowing (narrowing of the portal through which the spinal nerve passes from the spinal column, out of the spinal canal to the body, commonly as a result of arthritis), spondylolisthesis (slippage of one vertebra relative to another), and spinal stenosis (compression of the nerve roots or spinal cord by bony spurs or other soft tissues in the spinal canal). Spinal-nerve compression in these conditions can lead to sciatica pain that radiates down the lower extremities. Spinal stenosis can cause lower-extremity pains that worsen with walking and are relieved by resting (mimicking the pains of poor circulation). Treatment of these afflictions varies, depending on their severity, and ranges from rest and exercises to epidural cortisone injections and surgical decompression by removing the bone that is compressing the nervous tissue.

There are types of LBP, acute and chronic. Acute back pain is the most common presentation and is usually self-limiting, lasting less than three months regardless of treatment. Chronic back pain is a more difficult problem, which often has strong psychological overlay: work dissatisfaction, boredom, and a generous compensation system contribute to it (Ehrlich, 2003).

Lower back pain is often caused by a torn or pulled muscle or ligament. This can occur after lifting a heavy object, a sudden movement, poor back posture, or a sports injury. A low back sprain or strain can happen suddenly or can develop slowly over time from repetitive movements. While sprains and strains do not sound serious and do not typically cause long-lasting pain, the acute pain can be severe. Most commonly, mechanical issues and soft-tissue injuries are the cause of low back pain. These injuries can include damage to the intervertebral discs, compression of nerve roots, and improper movement of the spinal joints.

However, there are various factors affecting the treatment outcomes as the dependent variable of the study among rehab patients suffering from LBP. A study concluded that patients with clinically relevant improvements in LBP were more likely to have a shorter duration of pain, lower baseline pain, a directional preference for extension activities. Clinically relevant gains in perceived function were observed in patients who were younger or those with shorter symptom duration. Prognostic variables associated with a successful return to work included being female, having a job available, intermittent pain or a directional preference for extension activities (McIntosh, Hall & Hoffman, 2014).

Another study demonstrated that participants showed greater improvement if their episodes of pain during the previous year were short-lived while those with Middle Eastern, North African and Chinese ethnicity demonstrated minimal improvement. According to one study, there were significantly better results in terms of functional capacity and pain level in younger patients,

whereas back-to-work rate and satisfaction with therapy did not show a significant difference between the groups analyzed. According to the results of this study, older patients with chronic low back pain also derive significant benefit from a multidisciplinary treatment strategy, although in some outcome criteria results were inferior to those obtained in younger patients (Buchner *et al.*, 2006).

The following variables will be correlated to the treatment outcomes in this particular study: for demographic variables, age, sex, civil status and educational attainment; for employment variables, type of occupation, nature of employment; for clinical variables, compliance to rehab treatments, co-morbidity, surgical history, type of LBP, type of rehab center, category of primary therapist, pain scale. Hence, the proponents aim to determine the predictors or prognostic value of demographic, psychosocial, employment and clinical factors on outcome in patients with low back pain in Velez College Affiliated Centers. Findings will be the basis for improvement of Rehab services for better client satisfaction.

Statement of the Problem

This research aimed to formulate an evidence-based action plan for patients with low back pain in Velez College Affiliated Centers in Cebu City, during the Fiscal Year 2017. Specifically, the following queries are answered:

1. What are the characteristics of the patients as to Demographics (such as Age, Sex, Civil Status, Educational Attainment, Nature of Employment, Type of occupation); Clinical variables as to Compliance to Rehab treatments, Co-morbidity, Surgical history of the spine, Type of LBP, Pain scale, Type of Rehab Center Services and Category of Primary therapist.

2. What are the treatment outcomes based on the medical records?

3. What are the best practices of the rehab centers for patients with low back pain?

Statement of Hypotheses

Null Hypotheses

Ho 1: The demographic variables (age, sex and civil status) are not significant factors affecting the LBP treatment outcomes.

Ho 2: The type of occupation is not a significant factor influencing the LBP treatment outcomes.

Ho 3: The clinical variables (compliance to rehab treatments, co-morbidity, surgical history, type of LBP, type of rehab center, category of primary therapist, pain scale) are not significant factors influencing the LBP treatment outcome.

LITERATURE REVIEW

There can be numerous factors that could possibly lead to the success or failure of treatment among patients with low back pain. These include demographic, employment and clinical variables.

Demographic Variables: Age refers to the length of time in years that a person has lived. According to one study, there were significantly better results in terms of functional capacity and pain level in younger patients, whereas back-to-work rate and satisfaction with therapy did not show a significant difference between the groups analyzed. According to the results of this study, older patients with chronic low back pain also derive significant benefit from a multidisciplinary treatment strategy, although in some outcome criteria results were inferior to those obtained in younger patients (Buchner *et al.*, 2006). Sex is the state of being male or female (typically used with reference to social and cultural differences rather than biological ones.

Employment Variables: An increased risk of a new episode of low back pain was found in those whose jobs involved lifting/pulling/pushing objects of at least 25 lbs, or whose jobs involved prolonged periods of standing or walking (Macfarlane *et al*., 1997). Permanent employees have no specified end date for employment and generally remain employed until they are fired or laid off or choose to quit while temporary employees work for a specific length of time or until specific project is completed. There are benefits and drawbacks to both types of employees.

Clinical Variables: Therapies with good evidence of moderate efficacy for chronic or sub-acute low back pain are cognitive-behavioral therapy, exercise, spinal manipulation, and interdisciplinary rehabilitation. For acute low back pain, the only therapy with good evidence of efficacy is superficial heat (Chou & Huffman, 2007).

RESEARCH METHODOLOGY

Research Design: This study utilized a quantitative descriptive research design. This enabled the researcher to determine if there exists a relationship between the therapy outcomes as the dependent variable to the

demographic, employment and clinical variables identified in the study.

Research Environment: The Rehabilitation centers were all affiliated with the Velez College – Department of PT-OT. These centers were coded accordingly to maintain privacy and confidentiality. These include the following three (3) centers: Rehab solutions of Perpetual Succour Hospital (PSH), Rehab Medics of Chong Hua Hospital and Rehabilitation Medicine of Cebu Velez General Hospital.

Research Respondents: The respondents of the study included LBP patients undergoing treatment in Velez College Affiliated Centers with the following inclusion criteria: (1) undergone physical therapy as an outpatient, (2) discharged from treatment or verbalized that the pain subsided already, (3) at least 18 years old. Hence, this utilized universal enumeration during the mentioned duration of data gathering to maximize the available respondents.

Table 1: Number of Respondents per Rehab Center

Rehabilitation Center	Number of Respondents	Percentage
Cebu Velez General Hospital	30	31%
Perpetual Succour Rehab Solutions	31	33%
Chong Hua Rehab Medics	34	36%
Total	95	100%

Table 1 represents the distribution of respondents across the three (3) rehabilitation centers in Cebu City with their corresponding percentages. As reflected in Table 1, out of ninety five (95) respondents, the three rehabilitation centers were well represented and distributed ranging from 31-36 %. This implies that whatever will be the findings of the study, it can be applicable to all three rehabilitation centers. The detailed discussions of the respondents' profile are presented in the results and discussions section.

Research Instrument: The proponents used a survey questionnaire. The following variables are collected: for **demographic** variables, age, sex, educational attainment and civil status; for employment variables, type of occupation, nature of employment; for **clinical** variables, compliance to rehab treatments, co-morbidity, surgical history, type of LBP, type of rehab center, category of primary therapist, pain scale. Pre-determined category is reflected consistent with the codes in the definition of terms.

Research Data Gathering Procedures

Preliminary Preparation: Transmittal letters were forwarded to the center heads for the permission to conduct the study before the actual data gathering from the respondents and rehab centers.

Data Gathering: Thereafter, informed consent was explained and signed with the respondents. The needed research data were gathered through chart/document review after permission is asked. One on one interview with the respondents was conducted.

Treatment of Data: To answer the mean characteristics of the respondents, descriptive statistical procedures were utilized. To determine the differentiating factors, discriminant analysis was used while logistic regression was utilized to determine the predictors of therapy outcomes. To compute for the statistical analysis, Minitab statistical software was utilized.

Definition of Terms

The following terms are operationally defined to provide unified understanding of the terms being used:

Age: This refers to the length of time in years that a person has lived. In this study, the subjects must be at least 18 years old and will further be categorized into the following based on Erikson's development: 18- 35 years old belongs to Young Adult; 36-55 years old under Middle Adult; and 56 above in the Late Adult category.

Category of Primary therapist refers to the primary actual therapist of the patients. They can be either a licensed physical therapist or a physical therapy intern.

Civil Status or the marital status is defined as the civil status of each individual in relation to the marriage laws or customs of the country, i.e. never married or single, married, widowed and not remarried, divorced and not remarried or separated, married but legally united or living in.

Compliance to Rehab treatments refers to the subjects' compliance to all rehabilitation treatment regimens based on Physiatrist's prescriptions. Skipping of 3 consecutive treatments will be considered non-compliant. Hence, this can be categorized as either compliant or noncompliant patient as defined above.

Co-morbidity is a state of either the presence or

absence of co-morbidity or any medical condition or illness among the respondents aside from having low back pain such as hypertension, diabetes mellitus and other disease conditions as experienced by the respondents.

Highest Educational Attainment refers to the highest academic achievement of the respondents and may be categorized as either elementary graduate, high school level, high school graduate, college level, college graduate, master's degree holder or doctoral degree holder.

Nature of Employment can be categorized into tenured or non-tenured. It is important indicator if patients can continue to pay for his/her therapy. Permanent/tenured is defined as being hired with employee-employer relationship and that they are entitled to the benefits as per Labor Code or Civil Service memoranda. Temporary/contractual employees are those who are working as per short term contract who does not enjoy the benefits of those with employee-employer relationship.

Pain scale is a measure of a patient's pain intensity and severity. It can be categorized into either no pain if the level is 0; mild pain if pain score is between 1-3; moderate pain if pain ranges 4-7 or severe if pain scale is between 8 to 10, based on visual analogue scale.

Sex refers to the state of being male or female with reference to their biological origins. The respondents will be categorized as either male or female.

Surgical history refers to any previous surgical operation of the spine among the respondents. This can be either categorized into presence or absence of surgical history.

Type of Low Back Pain (LBP) refers to the severity of the diagnosis. Type of LBP may be acute, if present up to 12 weeks or chronic, if present more than acute duration.

Type of Occupation can be classified according to the nature of the job. Categorization includes white collar job for those persons who performs professional, managerial or administrative work; blue collar job for those who requires manual labor; an pink-collar job for those who work related to customer interaction, entertainment and sales.

Type of Rehab Center refers to type of research environment affiliated by PT department of Velez College such as Rehab solutions of Perpetual Succour Hospital (outpatient); Rehab Medics of Chong Hua Hospital (outpatient); and Rehabilitation. Medicine of Cebu Velez General Hospital (outpatient).

Treatment Outcomes refers to the category of treatment outcomes and can be further classified into either successful or non-successful outcome. For the successful category, patient is discharged/healed after 10 sessions of therapy or less while non-successful outcome are those who are not yet discharged after 10 sessions of therapy.

RESULTS AND DISCUSSION

This chapter shows the analysis and interpretation of all data which answered the questions being raised in the problem. This presents the information of respondents which were composed of the patients from three (3) rehabilitation centers. Information includes the age, sex, civil status, educational attainment, nature of employment, educational attainment, type of occupation, compliance to rehab treatments, co-morbidity, surgical history, type of rehab centers, category of primary therapist, pain scale and treatment outcomes. All information and data gathered were statistically treated and interpreted in order to address and answer the questions being raised and provide recommendation for the enhancement of compliance of patients to rehabilitation regimen to achieve better prognosis and treatment outcomes. To further substantiate the finding of the study, the profile of the respondents are discussed in details with implications, best practices of the rehabilitation centers are also presented and an evidence-based action plan is proposed for adoption and implementation.

Respondents' Characteristics

Table 2: Age Distribution of the Respondents

Age	Frequency *N*=95	Percentage
18-35 Young Adult	33	35
36-55 Middle Adult	39	41
56-above Late Adult	23	24
Total		*100*

Table 2 presents the age distribution of the ninety-five respondents. Forty one percent belongs to the middle adult age group. This table presents that in terms of age distribution, majority of them, consisting of almost half of the total respondents, belongs to the middle adulthood stage according to Erik Erickson's psychosocial development categorization aging 36-55 years old. According to one study, older patients with chronic low back pain also derive significant benefit from a multidisciplinary treatment strategy, although in some outcome criteria results were inferior to those obtained in younger patients (Buchner *et al.*,2006).

Table 3: Distribution of the Respondents according to Sex

Sex	**Frequency** ***N*=95**	**Percentage**
Male	42	44
Female	53	56
Total		100

Table 3 presents the distribution of the ninety five respondents according to sex. Female comprises fifty six percent of the total respondents. According to Sex distribution, there is only a minimal difference in which 54% (53 respondents) are females and the rest are males. While in terms of civil status, most of the respondents are married 65% and remaining 35% are either single or widow. This can be explained by the fact that majority of them are in the stage of development wherein they are expected to marry or enter into an intimate relationship for they are in intimacy versus isolation stage.

Table 4: Distribution of the Respondents According to Civil Status

Civil Status	**Frequency** ***N*=95**		**Percentage**
Single	23		24
Married	62		65
Widow	10		11
Total			100

Table 4 presents the distribution of the ninety five respondents according to their civil status or marital status. Majority of the respondents belongs to married category. Although civil status has no direct relationship with the treatment outcomes of the patients with low back pain, its measure maybe an indication of the presence or absence of significant others who will be responsible for the provision of support towards the patients. Support can either be financial, moral or emotional aspect. Sixty five percent of the respondents belongs to the married category which implies that majority of them has somebody to turn to during treatment sessions.

Table 5: Distribution of the Respondents According to Educational Attainment

Educational Attainment	**Frequency** ***N*=95**	**Percentage**
Elementary	0	0
High School Level	0	0
High School Grad	2	2
College Level	8	8
College Graduate	85	90
Total		100

Table 5 presents the distribution of the ninety five respondents according to their highest educational attainment. Female comprises fifty six percent of the total respondents.

In terms of educational attainment, ninety percent of the respondents are college degree holder. College degree graduate, regardless of what program can be a better gauge and will make a person more competitive in looking for a job. Hence, hiring and employment is a lot easier to find. This linksto the fact that when they are employed, earning on a regular basis can be guaranteed and hence, more capable to pay for the rehabilitation treatment expenses.

Table 6: Distribution of the Respondents According to Nature of Employment

Nature of Employment	Frequency *N*=95	Percentage
Permanent	82	86
Contractual	13	14
Total		100

Table 6 presents the distribution of the ninety five respondents according to their nature of employment. Eighty six percent belongs to permanent employment category.In terms of employment, 86% of the respondents are employed in a permanent or regular position. This implies that they are earning on a regular basis and hence, more capable to pay for the rehabilitation treatment expenses. Taking into consideration the type of occupation which is categorized according to the nature of the job, 65% of the respondents were employed as white collar job like those who are performing professional, managerial or administrative work. 9% were blue collar workers who were performing manual labor and 26% were pink collar worker who worked related to customer interaction, entertainment and sales. The percentage may not be a reflection of the prevalence of low back pain among white collar job employees but may be an indication that those who are earning more can better afford to submit themselves for rehabilitation sessions.

Table 7: Distribution of the Respondents According to Type of Occupation

Type of Occupation	Frequency *N*=95	Percentage
White-Collar Job	62	65
Blue-Collar Job	8	9
Pink-Collar Job	25	26
Total		100

Table 7 presents the distribution of the ninety five respondents according to their type of occupation. Sixty five percent belongs to the white-collar job category. Taking into consideration the type of occupation which is categorized according to the nature of the job, 65% of the respondents were employed as white collar job like those who are performing professional, managerial or administrative work. 9% were blue collar workers who were performing manual labor and 26% were pink collar worker who worked related to customer interaction, entertainment and sales. The percentage may not be a reflection of the prevalence of low back pain among white collar job employees but may be an indication that those who are earning more can better afford to submit themselves for rehabilitation sessions.

Table 8: Distribution of the Respondents According to Compliance to Treatment

Compliance	Frequency *N*=95	Percentage
Compliant	77	81
Non-Compliant	18	19
Total		100

Table 8 presents the distribution of the ninety five respondents according to their compliance to rehabilitation treatment regimen. Eighty one percent is compliant to treatment.For the compliance to rehabilitation regimen, 81% of the respondents (77 patients) were compliant to the prescribed rehabilitation regimen and its frequency. Their compliance was associated with the fact that they are employed and that they would prefer to go back to work immediately. Furthermore, they would want to really relieve the lower back pain which is very disturbing both physically and psychologically. According to Dickerman (2005), patients suffering from most types of low back pain are often referred for physical therapy for four weeks as an initial conservative (nonsurgical) treatment option before considering other more aggressive treatments, including back surgery. The goals of physical therapy are to decrease back pain, increase function and provide health education.

Table 9: Distribution of the Respondents According to Co-morbidity

Comorbidity	Frequency *N*=95	Percentage
None	51	54
Hypertension (HPN)	35	37
Diabetes Mellitus (DM)	1	1
Both HPN & DM	8	8
Total		100

Table 9 presents the distribution of the ninety five respondents according to the presence or absence of co-morbidity. Fifty four percent has no co-morbidity. In terms of **co-morbidity** which refers to the presence of other existing health problem aside from low back pain, more than half of them (54%) were fortunately no other health concerns. However, 35 respondents or 37 percent were at the same time suffering from hypertension and one respondent (1percent) with diabetes mellitus. Surprisingly, 8 respondents were suffering with low back pain while having both hypertension and diabetes mellitus. There may be no direct causal relationship between low back pain incidence and hypertension or diabetes but it can be surmised that overweight or even obesity can put a person in higher risk to develop hypertension and diabetes. This risk factor is also linked with low back pain incidence. Lower back pain is often caused by a torn or pulled muscle or ligament. This can occur after lifting a heavy object, a sudden movement, poor back posture, or a sports injury. A low back sprain or strain can happen suddenly, or can develop slowly over time from repetitive movements. While sprains and strains do not sound serious and do not typically cause long-lasting pain, the acute pain can be severe. Most commonly, mechanical issues and soft-tissue injuries are the cause of low back pain. These injuries can include damage to the intervertebral discs, compression of nerve roots, and improper movement of the spinal joints.

Table 10: Distribution of the Respondents According to Surgical History

Surgical History	Frequency N=95	Percentage
None	94	99
With History	1	1
Total		100

Table 10 presents the distribution of the ninety five respondents according to the presence or absence of spine surgical history. Ninety nine percent has no surgical history. Considering the surgical history of the respondents, only one patient (1%) had underwent a spinal surgical operation. In terms of **co-morbidity** which refers to the presence of other existing health problem aside from low back pain, more than half of them (54%) were fortunately no other health concerns. However, 35 respondents or 37% were at the same time suffering from hypertension and one respondent (1%) with diabetes mellitus. Surprisingly, 8 respondents were suffering with low back pain while having both hypertension and diabetes mellitus. There may be no direct causal relationship between low back pain incidence and hypertension or diabetes but it can be surmised that overweight or even obesity can put a person in higher risk to develop hypertension and diabetes. This risk factor is also linked with low back pain incidence. Lower back pain is often caused by a torn or pulled muscle or ligament. This can occur after lifting a heavy object, a sudden movement, poor back posture, or a sports injury. A low back sprain or strain can happen suddenly or can develop slowly over time from repetitive movements. While sprains and strains do not sound serious and do not typically cause long-lasting pain, the acute pain can be severe. Most commonly, mechanical issues and soft-tissue injuries are the cause of low back pain. These injuries can include damage to the intervertebral discs, compression of nerve roots, and improper movement of the spinal joints.

Table 11: Distribution of the Respondents According to Type of LBP

Type of LBP	Frequency N=95	Percentage
Acute	62	65
Chronic	33	35
Total		100

Table 11 presents the distribution of the ninety five respondents according to the type of low back pain. Sixty five percent is suffering from acute type of low back pain. It is equally important as well to explore and look into the **type of low back pain** that the respondents were suffering from as categorized into acute or chronic. Out of the 95 respondents, 65% (62 patients) were suffering from acute while 35%, chronic LBP. This is consistent with the findings of Ehrlich (2003) which states that acute low back pain is the most common presentation and is usually self-limiting, lasting less than three months regardless of treatment. Chronic back pain is a more difficult problem, which often has strong psychological overlay: work dissatisfaction, boredom, and a generous compensation system contribute to it (Ehrlich, 2003).

Table 12: Distribution of the Respondents According to Pain Scale

PAIN SCALE	Frequency N=95	Percentage
No Pain (0)	0	0
Mild (1-3)	17	18
Moderate (4-7)	61	64
Severe (8-10)	17	18
Total		100

Table 12 presents the distribution of the ninety five respondents according to pain scale. Sixty four percent is suffering from moderate level type of low back pain. Exploring further the pain felt in terms of severity, all was in pain of course but in different levels. Sixty-four percent (61 patients) of them were in moderate pain while mild and severe were on 18 % per category. Most of these respondents were the ones suffering from acute low back pain.

In terms of Rehab services rendered, Perpetual Succor Hospital is offering comprehensive gym, sports conditioning and medical rehabilitation services such as Gym Services (Sports Rehab such as core therapy training and Plyometrics; Individualized and supervised exercise program; Aerobic exercise program including use of Cross Trainer, Treadmill and Exercycle; Free Weights resistance exercise training; ENRAF Nonius Pneumatic Powered Machines - for specialized individual muscle training; Therapeutic Balls for Balance Training; Clinical Evaluation; Medical Referral System to Laboratory tests; Invasive/Non-Invasive Imaging Studies; Electrodiagnostic Tests such as EMG (Electromyography), NCV (Nerve Conduction Velocity), SSEP (Somatosensory Evoked Potentials); Musculoskeletal and Work-related tests; Functional Assessment; Orthoses/ Protheses prescription; Joint and Soft Tissue Injections Botulinum Toxin injections for pain spasticity and facial asymmetry; Tilt Test; Balance Training; Movement Training; Strength Training; and Functional Training.

Cebu Rehab Medics, Inc. is a full service physical therapy / occupational therapy / speech therapy / rehabilitation clinic designed to implement personalized, maximally effective, comprehensive rehabilitation programs for medical, industrial, sports and other neuromusculoskeletal – related injuries. Services being offered are Disability Grading and Evaluation; Sports Medicine; Accident and Work Injury Rehabilitation; Physical Therapy; Occupational Therapy; Speech Therapy; Pediatric Rehabilitation; Individualized Fitness Programs (Geriatrics and Osteoporosis Programs); Bracing (Orthotics); Artificial Limb Prescriptions (Prosthetics); Splinting; Spasticity Management; Bracing; and Soft Tissue and Joint Injections.

The Cebu (Velez) General Hospital is offering services such as Physical and Rehabilitation Medicine (Physiatry) Evaluation & Prescription; Neurophysiology Laboratory (EEG & EMG-NCS); Physical Therapy Evaluation and Treatments (including Laser, Shock Wave Therapy & Dynamic Deep Wave Therapy); Occupational Therapy Evaluation & Treatments; Speech-Language and Swallowing Evaluation & Therapy; Walk Unit: Treadmill with Harness and FES for Post-Stroke & SCI; Orthotics & Splinting; and Hydrotherapy Unit.

Table 13: Distribution of the Respondents According to Category of PT

Type of Primary PT	Frequency N=95	Percentage
Licensed PT	57	60
PT Interns	38	40
Total		100

Table 13 presents the distribution of the ninety five respondents according to category of PT. Sixty percent being treated by a licensed PT. With regard to the category of therapists actually treating or handling the rehabilitation sessions of the respondents, more than half of them (60%) were handled by a licensed physical therapist while the others were treated by physical therapy interns. It is noticeable in this finding that PT interns were given an opportunity for hands-on experience to handle actual patients in the centers with the supervision of their Clinical Instructors.

Table 14: Distribution of the Respondents According to Treatment Outcomes

Treatment Outcomes	Frequency N=95	Percentage
Successful	66	69
Non-successful	29	31
Total		100

Table 14 presents the distribution of the ninety five respondents according to Rehab treatment outcomes. Sixty nine percent belongs to the successful outcome category. For rehabilitation treatment outcomes, sixty-nine percent or 66 respondents revealed a successful outcome. This can be explained by the fact that majority of the respondents were compliant to the prescribed rehabilitation sessions.

Predictors of Low Back Pain

Table 15: Regression Analysis of Factors versus Treatment Outcomes

Predictor	Coef SE	Coef	T	P
Constant	1.3690	0.7473	1.83	0.071
Age	0.09358	0.05141	1.82	0.072
Sex	0.06793	0.05897	1.15	0.253
Civil Status	0.01235	0.05359	0.23	0.818
Educational Attainment	-0.06518	0.07538	-0.86	0.390
Type of Occupation	0.03628	0.04223	0.86	0.393
Nature of Employment	-0.15732	0.09682	-1.62	0.108
Compliance to treatment	0.43271	0.08915	4.85	0.000*
Co-morbidity	0.16391	0.03879	4.23	0.000*
Surgical History	-0.7497	0.2966	-2.53	0.013*
Type of LBP	0.41766	0.06886	6.07	0.000*
Category of Therapist	0.08299	0.06006	1.38	0.171
Pain Scale	0.04691	0.05115	0.92	0.362

**significant at 0.05*

Table 15 presents the analysis of predictors of low back pain treatment Outcomes. It is noticeable that only four factors are significantly influencing the treatment outcome among the respondents. The table shows that of the twelve (12) factors identified, only four (4) clinical variables are significant predictors of low back pain treatment outcomes. These are (a) compliance to treatment regimen, (b) Co-morbidity, (c) Surgical history and (d) Type of low back pain.

Compliance to treatment regimen with a *P* value of 0.000 implies that the respondents who are compliant to rehabilitation sessions are likely to have successful outcomes as supported in the tables 8 and 14. The goals of physical therapy are to decrease back pain, increase function and provide health education according to Dickerman (2005). Hence, if the patients are more compliant, then it follows that the goals of therapy can be better achieve.

For presence of co-morbidity (*P* value of 0.000) and surgical history (P value of 0.013),if the respondents are not having any other illnesses or surgical history, then the better is the treatment outcomes. The absence of co-morbidity and any surgery is an indication that the condition of the respondent is not that complicated.

In terms of type of LBP, acute LBP can be treated easier than those with chronic type. Of the 95 respondents, 65% (62 patients) were suffering from acute while 35%, chronic LBP. This is consistent with the findings of Ehrlich (2003) which states that acute low back pain is the most common presentation and is usually self-limiting, lasting less than three months regardless of treatment. Chronic back pain is a more difficult problem, which often has strong psychological overlay: work dissatisfaction, boredom, and a generous compensation system contribute to it (Ehrlich, 2003).

Furthermore, the R-squared value of 70.4% signifies that only 29.6% can be affected or influenced by other factors that are not included in this study.

Best Practices of Rehab Centers

For the three (3) rehabilitation centers, patients were comprehensively taught on their home exercise program and proper body mechanics in order for them to continue the rehabilitation by themselves even at home. Furthermore, one center also practices strict monitoring of patients' compliance to prescribed rehab sessions. In charge personnel monitors by communicating with the patients when they won't show up on their schedules. Health insurances are also accepted in the centers to facilitate treatment to those with insurance coverage.

In terms of Rehab service offerings to enhance client satisfaction, various best practices include offering comprehensive gym, sports conditioning and medical rehabilitation services such as Gym Services (Sports Rehab) such as core therapy training and Plyometrics; Individualized and supervised exercise program; Aerobic exercise program including use of Cross Trainer, Treadmill and Exercycle; Free Weights resistance exercise training; ENRAF Nonius Pneumatic Powered Machines - for specialized individual muscle training; Therapeutic Balls for Balance Training; Clinical Evaluation; Medical Referral System to Laboratory tests; Invasive/Non-Invasive Imaging Studies; Electrodiagnostic Tests such as EMG

(Electromyography), NCV (Nerve Conduction Velocity), SSEP (Somatosensory Evoked Potentials); Musculoskeletal and Work-related tests; Functional Assessment; Orthoses/Protheses prescription; Joint and Soft Tissue Injections Botulinum Toxin injections for pain spasticity and facial asymmetry; Tilt Test; Balance Training; Movement Training; Strength Training; and Functional Training).

Furthermore, rehabilitation clinic designed to implement personalized, maximally effective, comprehensive rehabilitation programs for medical, industrial, sports and other neuromusculoskeletal – related injuries. Services being offered are Disability Grading and Evaluation; Sports Medicine; Accident and Work Injury Rehabilitation; Physical Therapy; Occupational Therapy; Speech Therapy; Pediatric Rehabilitation; Individualized Fitness Programs (Geriatrics and Osteoporosis Programs); Bracing (Orthotics); Artificial Limb Prescriptions (Prosthetics); Splinting; Spasticity Management; Bracing; and Soft Tissue and Joint Injections.

In addition, services such as Physical and Rehabilitation Medicine (Physiatry) Evaluation & Prescription; Neurophysiology Laboratory (EEG & EMG-NCS); Physical Therapy Evaluation and Treatments (including Laser, Shock Wave Therapy & Dynamic Deep Wave Therapy); Occupational Therapy Evaluation & Treatments; Speech-Language and Swallowing Evaluation & Therapy; Walk Unit: Treadmill with Harness and FES for Post-Stroke & SCI; Orthotics & Splinting; and Hydrotherapy Unit are also available.

CONCLUSION

Based on the findings, a conclusion was drawn that of the twelve (12) variables explored, only four (4) clinical variables are significant predictors of low back pain treatment outcomes. These are (a) compliance to treatment regimen, (b) co-morbidity, (c) surgical history and (d) type of low back pain. It is therefore imperative that physical therapists should focus on these clinical variables in treating patients with low back pain to achieve better prognosis and treatment outcomes.

RECOMMENDATION

It is highly recommended that focusing on these four (4) clinical variables in treating patients should be emphasized and be given importance to achieve successful treatment outcomes and promote improvement of services to client through evidence-based research. The rehabilitation centers would take into consideration the results of the study and that they will find a better way encourage compliance of patients to rehabilitation treatment utilizing the proposed evidence-based action plan. With this development, the problem with regard to compliance and result of rehabilitation treatment will be addressed and will greatly contribute to overall wellness and successful outcome of low back pain treatment. It is therefore recommended that the rehabilitation centers should follow the evidence-based action plan.

REFERENCES

Buchner, M., Neubauer, E., Zahlten-Hinguranage, A., & Schiltenwolf. (2007). Age as a predicting factor in the therapy outcome of multidisciplinary treatment of patients with chronic low back pain--a prospective longitudinal clinical study in 405 patients. *Clin Rheumatol,* 26(3), pp 385-92.

Chou, R. & Huffman, L. H. (2007). Nonpharmacologic therapies for acute and chronic low back pain: a review of the evidence for an American Pain Society/American College of Physicians clinical practice guideline. *Annals of Internal Medicine*, 147 (7), pp 492-504.

Dickerman, R. D. (2005). Spine Health. Retrieved from: http://www.spine-health.com/treatment /physical-therapy/physical-therapy-low-back-pain-relief

Ehrlich, G. E. (2003). Low Back Pain. Bulletin of the World Health Organization, 81, pp 671-676.

Lu, H. & Javier, F. (2011). Prevalence and Treatment of Chronic Pain in the Philippines. *Philippine Journal of Internal Medicine*, 49(2), pp 61-69.

Macfarlane, G., Thomas, E., Papageorgiou, A., Croft, P., Jayson, M. & Silman, A. (1997). Employment and physical work activities as predictors of future low back pain. *Spine*. 22(10), pp 1143-1149.

Manchikanti, L. (2000). Epidemiology of Low Back Pain. *Pain Physician*, 3(2), pp 167-192.

McIntosh, C. D., Hall, H. & Hoffman, C. W. (2014). Prognostic factors associated with low back. *Journal of Primary Health Care*, 6(1), pp 23-30.