Influence of Self-Efficacy & Pain Anxiety on Days Spent in Rehabilitation After Total Joint Arthoplasty

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This thesis represents my own work in accordance with all applicable Department of Health and Human Performance and university guidelines and expectations for intellectual work.

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Abstract

Self efficacy and pain anxiety are two psychological components that can impact a patient's rehabilitation outcome. To determine the effect and predictability of each factor, a three-part survey was administered to patients receiving treatment after total joint arthroplasty. Statistical tests of correlation indicate that self-efficacy and pain anxiety were strongly correlated with the total number of days spent in rehabilitation and were strong predictors of future rehabilitation outcomes. Given this information, it is imperative that health professionals complete a more thorough initial assessment when treating patients after total joint arthroplasty to ensure the most desirable outcome of each individual.

Introduction

Successful rehabilitation equates with a patient's return to healthy living. Unarguably, the ability to perform activities of daily living, no matter the complexity of the task, provides comfort to each patient, allowing him or her feel a sense of relief to living pain-free. Often times, the physical components of rehabilitation are immediately identified, which then become the sole focus of the professionals when treating a patient. This narrowed approach, consequently, may hinder the professional's ability to accomplish his or her task of restoring patient health. Because of this, attentiveness to other influential factors is equally essential for physicians, physical therapists and other rehabilitative specialists to assess during therapy. This will allow for a more broad initial examination, thus helping the professional to understand the motives, goals and values of each patient as he or she progresses in rehabilitation.

Total joint arthroplasty has developed into a valuable procedure that allows surgeons to alleviate pain resulting from damage to the articulating surface of a joint[1]. It has given patients a second chance to live pain-free and resume the lifestyle previously experienced prior to the diagnosis. Protocols for post-operative rehabilitation typically require patients to spend six to eight weeks in physical therapy for a total knee replacement and one month for a total hip replacement[2-3]. Despite this standard, however, health professionals have noticed a large variance in the duration of time spent in rehabilitation for both procedures[31,32]. In addition to assessing pre-existing health conditions prior to surgery, health professionals are evaluating influential factors that contribute to the deviation from average recovery times. With these influential factors uncovered, they will be able to adjust and cater their services to ensure a successful recovery and rehabilitation of each patient.

Over the past decade, health professionals have explored several psychological factors that have been theorized to influence the outcome of a patient's rehabilitation. Self-efficacy and pain anxiety, for example, have been identified as two such contributing factors. Self efficacy was a concept first established by Albert Bandura in the 1950s as a construct in his social cognitive theory[4]. He defined it as the "perceptions and judgments" of personal capability or the belief in oneself to accomplish underlying goals and objectives he or she encounters[4]. Past studies have used various forms of written tests and surveys to determine an individual's level of self-efficacy[5-8]. These surveys have been administered to patients, for example, pre and post-operatively to assess future implications of a specific medical procedure[5-6]. In addition to self-efficacy, pain anxiety, another influential psychological factor, measures a patient's anticipation and resulting consequences of an injury. Like self-efficacy, it has been identified as an influential component in the rehabilitation outcome for patients[9]. Studies examining both the neurological and psychological changes that occur with this anxiety have allowed health professionals to further understand the foundations of this phenomena[28]. By identifying these influential components, health professionals can gain a more extensive perspective on patient wellness, which will consequently aid in rehabilitating the individual back to health.

Because of the variance seen in the duration of rehabilitation after total joint arthroplasty, it is necessary for health professionals to further explore the underlying reasons this occurs. Aside from pre-existing or post-operative complications due to the procedure, the psychological factors previously discussed have been hypothesized to impact the outcome of a patient's rehabilitation. Thus, it will benefit therapists, surgeons and other rehabilitative professionals to further examine these psychological factors and the implications they have on an individual's

recovery, which can thus help health professionals learn the most appropriate methods of treating patients.

Theoretical Framework

Over 40,000 total joint reconstructive surgeries were performed in 2005[10]. This number is anticipated to rise as the technology of joint arthroplasty progresses and the population ages, thus making the procedure less invasive and more advantageous for the patient in rehabilitation[10]. Despite technological advances, however, postoperative complications still exist, which can ultimately hinder recovery. Like all surgical procedures, the patient is at risk for experiencing myocardial infarction, pneumonia and urinary tract infections[11-12]. Currently, the most prevalent complication is an infection inside the newly construction joint[11]. Of the 200,000 total joint replacement surgeries performed annually, it is estimated that approximately 2% (4,000) of patients will develop a bacterial infection, which requires immediate reopening of the incision for cleaning[11, 33]. Patients can also suffer other physiological complications including a deep venous thrombosis or the deposition of a fat embolism[12]. Though rare, pulmonary embolisms have been found to occur in 1%-4% of all cases, which have consequently resulted in death[12].

Aside from physiological complications, functional problems with the implant can also hinder a successful outcome from the procedure. A study conducted in 2005 by Bhave, Mont, Tennis, Nickey, Starr, & Etienne examined such problems. It was found that hip adductor weakness and iliopsoas contracture were among the top complications following hip replacement surgery[13]. It was also found that quadriceps weakness and flexion contraction were the most common problems associated with knee replacement surgery[13]. In a similar study, dislocations and fractures of the newly constructed joint were also identified as risk factors to the surgical

procedure[14]. Fractures and dislocations were more common after total hip replacements, however the prevalence of this complication was determined to be less than 1% of all total hip replacement procedures. Because of these complications, it is important for patients to consider both the benefits and costs of having a total joint reconstruction.

Although the prevalence of physiological factors can influence rehabilitation outcomes, psychological factors can be of equal significance to a patient's experience in therapy. Self-efficacy, as explained by Bandura, does not equate with self-esteem[4]. As defined in his work, self-efficacy examines the person's perspective on his or her ability to accomplish a task whereas self-esteem, on the contrary, is concerned with judgments of self-worth[4]. He later emphasizes that there is no relationship between beliefs about capabilities and whether one likes or dislikes him or herself. A person may believe he or she is unable to accomplish a given task at hand, but without this disbelief impacting his or her worth as an individual. Because of its influence on an individual's perspective, health professionals have examined the ways in which it can affect arthroplastic outcomes. Past findings have indicated that self-efficacy was a valuable predictor of outcome expectancy and postoperative behaviors in total joint replacement patients[5, 34]. It has also been identified as an influential factor on functional performance upon discharge from therapy[15]. Additionally, self-efficacy has been used to assess the mental status of patients suffering from chronic low back pain. It was found that depression, insufficient coping strategies, and low self-efficacy were associated with an increase in low back pain[16]. In a similar study, it was determined that self-efficacy influenced the pain experienced from arthritis. Those patients with a perceived high self-efficacy experienced less pain and functional disability and a greater emotional wellness when coping with the negative consequences of their impairment[6].

Because of the findings in past studies, self-efficacy should therefore be further examined to determine its influence on a patient's outcome after rehabilitation.

Pain and temporary disability are inevitable for patients seeking surgery to alleviate chronic ailments. Although processes such as total joint arthroplasty can bring benefits to the patient, anxieties related to physical pain can inhibit optimal recovery from the procedure. Much of the current literature, including work by Asmundson & Taylor, has examined the role of pain-related fear in patients suffering from chronic low back pain[17]. It was found that increased anxiety sensitivity to pain promoted an increase in a patient's fear of pain[17]. In a similar study, clinicians noticed that when patients learned of the pain he or she would experience during a given medical procedure, a fear began to develop, which consequently grew into "avoidance-like" behavior, resulting in chronic, long lasting pain[18]. This, consequently, promoted a pain-related escape and avoidance attitude towards the patient's rehabilitation[18]. The idea of pain-related escape and fear avoidance was further examined to determine its effect on a patient's functional outcome upon discharge from rehabilitation. It was found that patients with an elevated pain-related fear would avoid daily tasks that exacerbated the risk of increased pain or injury/reinjury[19]. Researchers have also examined the relationship between pain and anxiety, and the impact of powerlessness on each factor[20]. Various factors, including social support, locus of control, and other psychological influences were identified as influential factors on a person's susceptibility to pain-related anxieties[20].

Given the preceding discussions, it is appropriate to investigate the influence of both self-efficacy and pain-related anxiety on the rehabilitation outcome of patients receiving therapy for a total joint replacement. Because of the results of past investigations, it is expected that patients with high self efficacy will spend fewer days in rehabilitation than patients with low self

efficacy. It is also expected that patients with elevated pain-related anxieties will spend more time in rehabilitation than patients with low pain-related anxieties. From this information, conclusions can then be formulated to determine the influence of each factor, which can thus help health professionals ensure the most successful rehabilitation for the patient.

Materials and Methods

The participants in this study included patients seeking physical therapy for a total joint arthroplastic procedure. After receiving and signing a consent form, each participant (n = 22) completed a three-part survey consisting of the Pain Anxiety Symptoms Scale-20 (PASS-20), Self Efficacy for Rehabilitation Outcome (SER) and Self Efficacy for Expected Outcomes (SEE) scales. A shortened version of the original 40-item Pain Anxiety Symptoms Scale (PASS), the PASS-20 measures a patient's fear and anxiety in response to pain[21]. The PASS-20 consists of a total of 20 statements in which are divided into one of four categories measuring each of the following components related to pain anxiety. Each statement addresses four generic pain-related factors in which a patient may encounter during his or her activities of daily living: (1) cognitive (i.e., I can't think straight when in pain), (2) escape/avoidance (i.e. I go immediately to bed when I feel severe pain), (3) fear (i.e., I think that if my pain gets too severe, it will never decrease) and (4) physiological (i.e., I begin trembling when engaged in an activity that causes pain[21]. Each statement is rated on a six-point Likert scale ranging from 0 (never) to 5 (always). Past studies have revealed that, like the original PASS, the PASS-20 has strong factor stability, reliability, and internal consistency[22]. Specifically, the PASS-20 was found to have an alpha level (α) of .81 and correlates highly with the original PASS ($r = .95$), which was also found to have psychometrically sound reliability and validity[21, 23]. Scoring the PASS-20 involves

summing each section of the survey and dividing the sum by five (the number of questions per section) to obtain an average score for each category.

Following the guidelines of Bandura's Social Cognitive Theory, the SER and SEE scales assess each participant's beliefs about their ability to perform activities of daily living after arthroplastic surgery[24]. Like the PASS-20, the SER and SEE scales have both produced strong validity, reliability, and high internal consistencies, resulting in a Cronbach's coefficient alpha of .94 and .94, respectively[24]. The SER survey asked patients to complete the sentence, "During my rehabilitation, I believe I can do…" with 12 separate ending statements. Statements 1-5 directly address specific activities of daily living in which involve the newly constructed joint (i.e., "…therapy that requires me to stretch my leg). Statements 6-11 address generic activities of daily living as well as the patient's quality of life as a result of the newly constructed joint. All statements on the SER are arranged on an 11-point Scale ranging from 0 (I cannot do it) to 10 (Certain I can do it). Scoring the SER involved summing and averaging all 12 items. The SEE survey asked patients to respond to nine separate statements related to his or her perceived ability to accomplish the specific task mentioned. Statements 1-5 directly assess common activities of daily living (i.e., I could/can walk around inside my room easily) whereas statements 7-9 assess the patient's psychological wellness as a result of his or her newly constructed joint (i.e., "I can deal with the discomfort I am having from surgery). Statement six directly addresses the newly constructed joint, providing a subjective opinion on its healing process (i.e., My hip/knee/shoulder is healing normally). All statements are arranged on a 5-point Likert Scale ranging from 0 (strongly disagree) to 4 (strongly agree). Like the SER, scoring the SEE included averaging all nine statements, producing one overall score for the survey.

An identical PASS-20 survey was administered to all patients. However, alternate versions SER and SES surveys were given to each patient, depending on the reconstructed joint. The SER for total knee and hip placements consisted of the same statements for all 12 items with no variations. However, because of the specificity of statement six on the SES, each patient completed a survey that identified the specific joint on which surgery had been performed (i.e., my knee/hip/shoulder is healing properly). Statements 1-5 on the SER for shoulder replacements addressed upper extremity tasks (i.e., …"Therapy that requires me to stretch my arm) as opposed to the lower extremity tasks give for hip and knee replacements (i.e. "…Therapy that requires me to stretch my arm" for the shoulder SER versus "…Therapy that requires me to stretch my leg").

The "success" of each patient's rehabilitation outcome was determined by the total number of days spent in physical therapy, which was indicated on the top of each completed survey. Upon collecting all completed surveys, statistical analyses were performed to test for correlation between the days spent in therapy, self efficacy, and each component of the PASS-20. In addition, all null hypotheses, h_o (i.e., self efficacy does not influence the number of days in rehabilitation) were tested against alternative hypotheses, h_A (i.e., the higher a patient's self efficacy, the fewer days he or she will spend in therapy) producing one-tailed (unidirectional) p-values for each correlation. All results were to be evaluated for statistical significance at the alpha level, $\alpha = .05$.

Results

Table 1 provides baseline measurements for all variables used in this study including mean, standard deviation, and variance. Table 2 provides information regarding correlation coefficients, corresponding p-values, and other important statistical analyses. Correlation coefficients for the SER and SEE scores showed negative correlations with days spent in

rehabilitation, providing values of r = -0.6536 (p = 0.000488) and -0.378 (p = 0.041098), respectively. This correlation indicates that as scores on the SER and SEE surveys increased, the number of days spent in rehabilitation decreased. Correlation coefficients for all components of the PASS-20 survey produced positive correlations with days spent in rehabilitation, providing values of r = 0.5135 (p = 0.007197), 0.1631 (p = 0.233949), 0.4872 (p = 0.010845), and 0.4835 (p = 0.011317) for the cognitive, escape/avoidance, fear, and physiological factors, respectively. This indicated that as scores on the PASS-20 survey increased, the duration of rehabilitation increased as well.

Table 1

Instrument	Mean	Variance	St. Dev.
SER	8.4364	3.9091	1.9771
SES	3.1773	0.4723	0.6873
PASS-20 Cog.	2.1636	1.1529	1.0737
PASS-20 Esc./Av.	1.7818	1.1425	1.0689
PASS-20 Fear	0.7318	0.5232	0.7233
PASS-20 Physio.	0.8591	0.7244	0.8511
Days in Rehab.	69.7727	3754.4697	61.2737

Descriptive statistics for each psychometric assessment

Table 2

Measurement (in relationship with days in rehab.)	Correlation coefficient, *r*, w/Days In Rehab.	Correlation of Determination, r^2, w/Days In Rehab.	P-Value	Slope of Regression Line
SER	-0.6536	0.4272	0.000488	-20.255814
SEE	-0.378	0.1429	0.041098	-33.705605
PASS-20 Cog.	0.5135	0.2637	0.007197	48.112046
PASS-20 Esc./Av.	0.1641	0.0269	0.233949	9.407396
PASS-20 Fear	0.4872	0.2374	0.010845	41.269598
PASS-20 Physio.	0.4835	0.2337	0.011317	34.805043
PASS-20 Cumul.	0.4402	0.1938	0.020273	37.364917

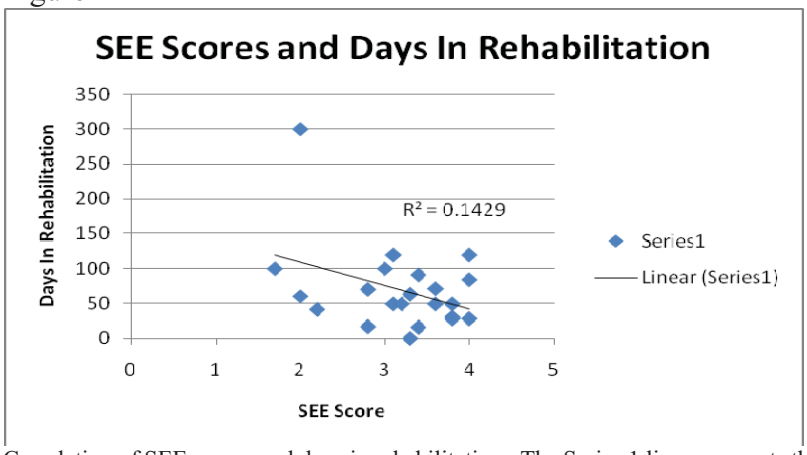
Correlation coefficient, r, coefficient of determination, r^2 of each measurement with days spent in rehabilitation. Also, p-values after a one-tailed, unidirectional test for significance.

The correlation coefficient, *r,* between the SER scale and days spent in rehabilitation indicated a strong relationship between the two variables. Figures 1 and 2 represent the spread of the data for the relationship between SER and SEE scores and days spent in rehabilitation, respectively. The regression line shows that for every one point increase in SER score, the number of days spent in rehabilitation is decreased by approximately 20 days. This value was slightly less than what was shown by the SEE data, which showed that for every one point increase in SEE score, the duration of rehabilitation for a patient would decrease approximately 34 days. Table 2 provides a more thorough breakdown of correlations, predictor values, and p-values for each relationship.

Figure 1

Correlation of SER scores and days in rehabilitation. The Series 1 line represents the line of regression (best fit).

Figure 2

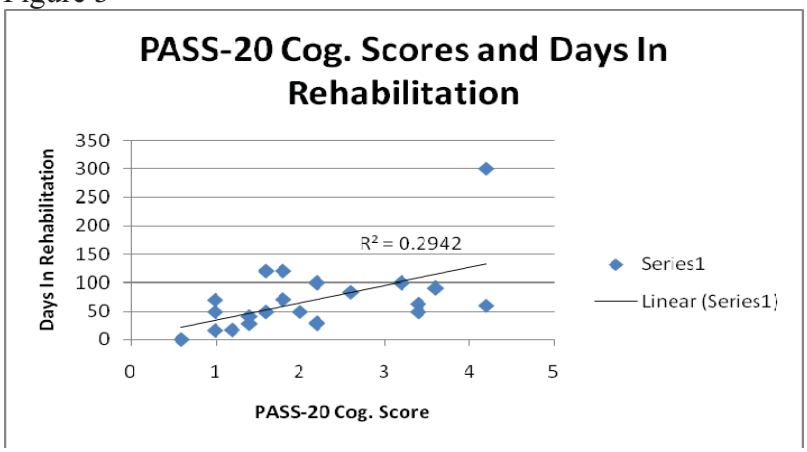


Correlation of SEE scores and days in rehabilitation. The Series 1 line represents the line of regression (best fit).

Figures 3 through 7 represent the spread of the data for the relationships between the PASS-20 cognitive, fear, escape, and physiological factors and days spent in rehabilitation. For the PASS-20 cognitive, fear and physiological factors, regression lines indicated that for every one unit increase in score, the number of days spent in rehabilitation is increased by approximately, 48, 41, and 35 days, respectively. For the PASS-20 escape/avoidance factor, the

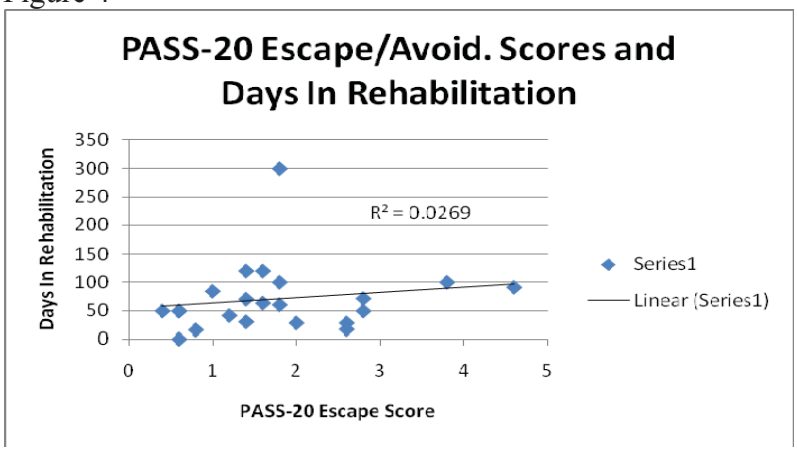
regression line indicated that for every one unit increase in score, the number of days spent in rehabilitation is increased by approximately 9 days.

Figure 3



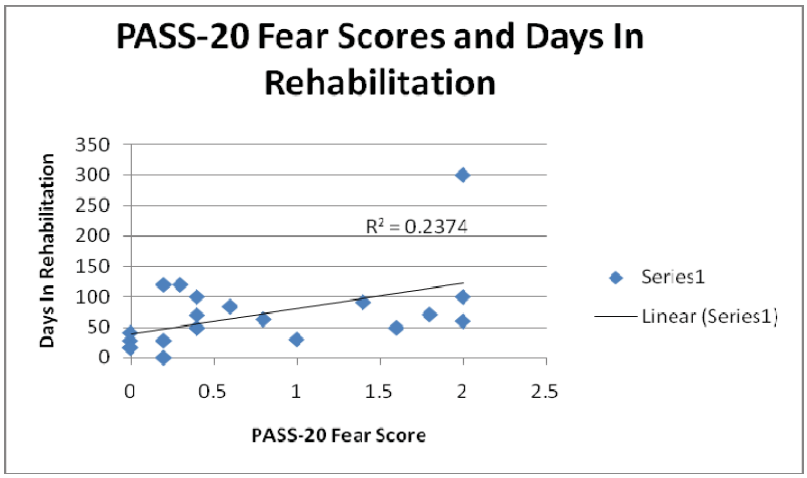
Correlation of PASS-20 Cognitive scores and days in rehabilitation. The Series 1 line represents the line of regression.

Figure 4



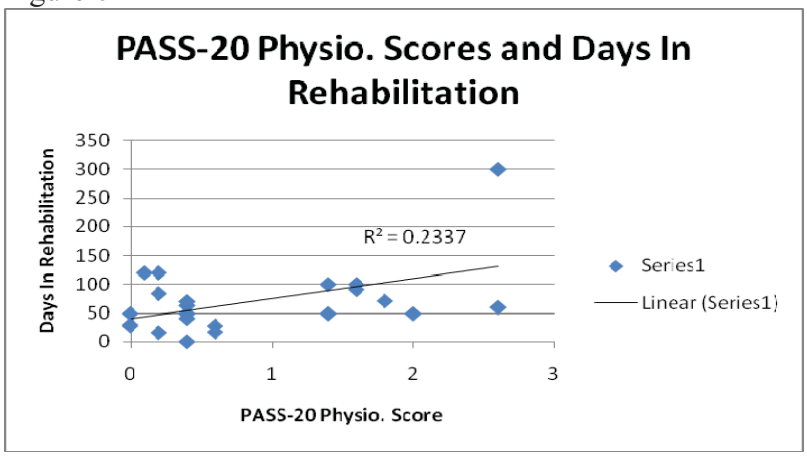
Correlation of PASS-20 Escape/Avoidance scores and days in rehabilitation. The Series 1 line represents the line of regression.

Figure 5



Correlation of PASS-20 Fear scores and days in rehabilitation. The Series 1 line represents the line of regression.

Figure 6



Correlation of PASS-20 Physiological scores and days in rehabilitation. The Series 1 line represents the line of regression.

The data also revealed strong coefficients of determination, r^2, for some of the measurements as well. The largest r^2 value was found in the relationship between SER scores and days spent in rehabilitation with a value of $r^2 = 0.4272$. This indicates that 42.72% of future rehabilitation outcomes can be predicted using a patient's SER score. The correlation between SEE and days in rehabilitation produced an r^2 value of 0.1429, indicating that 14.29% of future outcomes can be predicted using this scale. The PASS-20 Fear, Physiological, and Cognitive Factors produced similar r^2 values (0.2374, 0.2337, and 0.2637, respectively), whereas the correlation between the PASS-20 Escape/Avoidance and days spent in rehabilitation only produced a value of 0.0269. Given these data, it can be said that the PASS-20 Fear, Physiological, and Cognitive factor

measurements more appropriately predicts a rehabilitation outcome than the PASS-20 Escape/Avoidance measurement.

From these data, it was determined that the SER scale was the strongest predictor of days spent in rehabilitation. In general, the PASS-20 and SEE scales showed less predictability than the SER scale, but still produced coefficients of determinations that were significant. Specifically, the Cognitive, Fear, and Physiological factors were determined to be the significant predicting components of the PASS-20 scale in the total number of days spent in rehabilitation.

Discussion

The results of this study concur with current literature on self efficacy and its impact on a patient's rehabilitation: high self-efficacy is associated with less time spent in rehabilitation. Because of the high coefficient of determination between the SER and days spent in rehabilitation, (0.4272) as well as the resultant p-value ($p = 0.000488$), it can be said with confidence that these results did not occur due to chance. Thus, the SER can be used as a strong predictor of the outcome of a patient's rehabilitation. The relationships between the PASS-20 Cognitive, Fear and Physiological measurements and days spent in rehabilitation, all of which had similar correlation coefficients and coefficients of determination, also produced low p-values (0.007197, 0.010845, and 0.011317, respectively). As with the SER relationship, these p-values indicate that the results from these measurements have a very low probability of occurring due to chance. Thus, it can be said that self efficacy and pain anxiety are strong predictive factors of time spent in rehabilitation.

Excluding the PASS-20 Escape/Avoidance values, the correlation coefficients and coefficients of determination show strong relationships between each variable and days spent in rehabilitation and thus, high predictability for future outcomes. As previously established, it was

indicated that scores on the SER could 42.72% of future outcomes for patients receiving treatment after total joint arthroplasty ($r^2 = 0.4272$). Comparatively, it was determined in a 2002 study that insulin resistance as a predictor of an individual's Body Mass Index (BMI) had a correlation coefficient of $r = 0.63$, thus resulting in a coefficient of determination of $r^2 = 0.3969$[30]. Additionally, the American Heart Association has recognized smoking (in males) to be a predictor of high cholesterol ($r = 0.52337$, $r^2 = 0.2739$)[29]. These values have only slightly higher predictability than the SEE scale, approximately the same predictability as the PASS-20 cognitive, fear and physiological factors and lower predictability than the SER scale. In comparison to other relationships in nature, Zuckerman recognized intelligence scores between twins as having a correlation of approximately 0.7 ($r^2 = 0.49$)[28]. The author's findings also discovered that the correlation between twins and personality had a correlation coefficient of approximately 0.5, which is also a lower value than the SER/days spent in rehabilitation relationship[28]. Thus, it can be said with confidence that the SER and PASS-20 scales are good predictors for future outcomes in rehabilitation.

While it is appropriate to attribute much of a patient's outcome to self efficacy and pain anxiety, it is important to identify other influential factors that can influence rehabilitation. Complications, as mentioned, can be the result of improper care by either the patient or physician. In addition, pre-existing conditions such as obesity, diabetes, rheumatoid arthritis, poor soft tissue and prevoius local surgical prodecures can increase the likelihood of infection during recovery, thus hindering the patient to successfully rehabilitate[25]. Despite these potential complications, however, individuals who had higher levels of self-efficacy spent fewer days in rehabilitation, regardless of other factors or the outcome of the procedure.

In addition to self-efficacy and pain anxiety, the results of this study could have been associated with other psychological factors that were not examined. The distribution of the data for the SER and SEE scores indicated that most patients held a high level of self-efficacy, no matter the number of days spent in rehabilitation. From this information, it could be speculated that other social or cognitive factors may impact a patient's recovery, or more likely, their answers for the surveys. For example, overestimation of self-efficacy may help provided an explanation for unachieved goals[26]. If a patient overestimates his or her capabilities upon discharge, scores for assessing self-efficacy would not produce accurate measurements. Patients in rehabilitation for a long duration who are physically unable to perform activities of daily living, but indicate high self sufficiency on the SER and SEE, may provide data that should be further investigated. Other reasons, including social labeling, could have impacted the results of this study as well. Despite the anonymity that was maintained throughout this study, individuals may have still experienced the effects of social labeling and the expectations that entail with the "role" in which they believe they fulfill[27]. An individual may fear judgments or other negative social outcomes if answering the surveys truthfully. As with overestimation, this factor should be further investigated to understand it's influence on the time spent in rehabilitation for total joint arthroplasty.

It is important to consider the scales of each measurement and the implications they contribute to each correlation. The SER, which produced the strongest statistical results, was based on an 11-point Likert Scale (1 to 10). In contrast, the SEE, which was based on a 5-point Likert scale (0 to 4), produced one of the lowest statistical results of this study. The larger scale of the SER allows for patients to indicate a more appropriate answer along the 11-point scale whereas on all sections of the PASS-20 and SEE, patients were only allowed to answer each

statement on a 5 and 4-point scale, respectively. This would illustrate a "compressed variance" on the scatter plots, which would thus appear as a "no correlation" distribution of the data.

Conclusion

The process of determining a successful rehabilitation is complex and is based on multiple factors. The implications of this study indicate that self efficacy and pain anxiety are contributing factors to the total number of days spent in rehabilitation. It is appropriate to conclude that patients who had higher levels of self-efficacy significantly stayed in therapy for shorter amount of time. Likewise, patients who had lower anxiety about pain spent less time in rehabilitation as well.

Because of the strong correlation between self-efficacy and thus, strong predictability of future outcomes, health professionals should consider using the most appropriate approach to treating patients. The results of this study indicate the need for ongoing examination and more complete understanding of the psychological and cognitive characteristics of a patient seeking treatment. This is a necessity to maintain ethical conduct as a professional, ensuring the most beneficial outcome in rehabilitation for the patient. Additionally, it is equally important to consider and further investigate other influential factors, both physiological (i.e. body mass index, diabetes, etc.) and psychological (locus of control, attributal style, etc), that may contribute to the patient's rehabilitation outcome. Yet regardless of these outside factors, it is imperative to the health professional to consider the implications of self-efficacy and pain anxiety on the outcome of patients in therapy.

Health professionals have a responsibility to promote the overall well being of patients, no matter the reason for seeking treatment. The results of this study indicate the importantance of a more comprehensive evaluation of each patient, examining his or her health in multiple

dimensions, not just the physiological. Successful rehabilitation outcomes reflects the abilities of the therapists, nurse, and doctors interacting with the patient as well as the reputation of the health profession as a whole. An extensive evalution will allow the professional to further investigate all contributing factors that influence the duration of a patient's rehabilitation. This will help bring optimal, beneficial outcomes for each patient, allowing the the team of rehabilitation specials to fulfill his or her role as a competent, compassionate health professional.

APPENDIX A – Sample Knee and Hip SER/SEE

Pt. # _____

INSTRUCTIONS: The Self-Efficacy for Rehabilitation Outcome Scale (SER) provides 12 statements that conclude the sentence, "During my rehabilitation, I believe I can do….." Please complete this survey by choosing the most appropriate number for each statement. **This scale is rated on an 11-point scale ranging from 0 (I cannot do it) to 10 (Certain I can do it)**. If you have any questions, please ask for clarification.

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
I cannot do it										**Certain I can do it**

Self-Efficacy for Rehabilitation Outcome Scale (SER) (Hip/Knee)

During my rehabilitation, I believe I can do...

1. Therapy that requires me to stretch my leg _____

2. Therapy that requires me to lift my leg _____

3. Therapy that requires me to bend my leg _____

4. Therapy that requires me to stand _____

5. Therapy that requires me to walk _____

6. All of my therapy exercises during my rehabilitation _____

7. My therapy every day that it is scheduled _____

8. The exercises my therapists say I should do, even if I don't understand how it helps me _____

9. My therapy no matter how I feel emotionally _____

10. My therapy no matter how tired I may feel _____

11. My therapy even though I may already have other complicating illnesses _____

12. My therapy regardless of the amount of pain I am feeling _____

INSTRUCTIONS: Please complete this survey by choosing the most appropriate number for each statement. This scale is rated on a **five-point scale ranging from 0 (Strongly Disagree) to 4 (Strongly Agree)**. If you have any questions, please ask for clarification.

0 = Strongly Disagree
1 = Disagree
2 = Neutral/Unsure
3 = Agree
4 = Strongly Agree

Self-efficacy Expectation Scale

1. I could/can walk around inside my room easily. _____

2. I could walk in the hallway easily. _____

3. I could/can get into or out of the shower easily. _____

4. I could get assistance from others if I need it. _____

5. I could/can straighten up my bed area or room if I need to. _____

6. My (hip/knee) is healing normally. _____

7. I can deal with the discomfort I am having from my surgery. _____

8. I can deal with any emotional ups or downs since my surgery. _____

9. I can accept help if I need it. _____

APPENDIX B – Sample Shoulder SER/SEE

Pt. # _____

INSTRUCTIONS: The Self-Efficacy for Rehabilitation Outcome Scale (SER) provides 12 statements that conclude the sentence, "During my rehabilitation, I believe I can do….." Please complete this survey by choosing the most appropriate number for each statement. **This scale is rated on an 11-point scale ranging from 0 (I cannot do it) to 10 (Certain I can do it)**. If you have any questions, please ask for clarification.

0	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
I cannot do it										**Certain I can do it**

Self-Efficacy for Rehabilitation Outcome Scale (SER) (Shoulder)

During my rehabilitation, I believe I can do...

1. Therapy that requires me to stretch my arm _____

2. Therapy that requires me to lift my arm _____

3. Therapy that requires me to bend my arm _____

4. Therapy that requires me to reach with my arm _____

5. Therapy that requires me to push or pull with my arm _____

6. All of my therapy exercises during my rehabilitation _____

7. My therapy every day that it is scheduled _____

8. The exercises my therapists say I should do, even if I don't understand how it helps me _____

9. My therapy no matter how I feel emotionally _____

10. My therapy no matter how tired I may feel _____

11. My therapy even though I may already have other complicating illnesses _____

12. My therapy regardless of the amount of pain I am feeling _____

INSTRUCTIONS: Please complete this survey by choosing the most appropriate number for each statement. This scale is rated on a **five-point scale ranging from 0 (Strongly Disagree) to 4 (Strongly Agree)**. If you have any questions, please ask for clarification.

0 = Strongly Disagree
1 = Disagree
2 = Neutral/Unsure
3 = Agree
4 = Strongly Agree

Self-efficacy Expectation Scale

10. I could/can grab, push or pull items around inside my room easily. _____

11. I could grab, push or pull items around in the hallway easily. _____

12. I could/can get into or out of the shower easily. _____

13. I could get assistance from others if I need it. _____

14. I could/can straighten up my bed area or room if I need to. _____

15. My shoulder is healing normally. _____

16. I can deal with the discomfort I am having from my surgery. _____

17. I can deal with any emotional ups or downs since my surgery. _____

18. I can accept help if I need it. _____

APPENDIX C – PASS-20 Survey

INSTRUCTIONS: Please complete this survey by choosing the most appropriate number for each statement. This scale is rated on a **six-point scale ranging from 0 (never) to 5 (always)**. If you have any questions, please ask for clarification.

0	**1**	**2**	**3**	**4**	**5**
Never					**Always**

Pain Anxiety Symptoms Scale

Cognitive Factor

1. I can't think straight when in pain_____
2. During painful episodes it is difficult for me to think of anything besides the pain_____
3. When I hurt I think about pain constantly_____
4. I find it hard to concentrate when I hurt_____
5. I worry when I am in pain_____

Escape/Avoidance Factor

6. I go immediately to bed when I feel severe pain_____
7. I will stop any activity as soon as I sense pain coming on_____
8. As soon as pain comes on I take medication to reduce it_____
9. I avoid important activities when I hurt_____
10. I try to avoid activities that cause pain_____

Fear Factor

11. I think that if my pain gets too severe it will never decrease_____
12. When I feel pain I am afraid that something terrible will happen_____
13. When I feel pain I think I might be seriously ill_____
14. Pain sensations are terrifying_____
15. When pain comes on strong I think that I might become paralyzed or more disabled_____

Physiological Anxiety

16. I begin trembling when engaged in an activity that causes pain_____
17. Pain seems to cause my heart to pound or race_____

18. When I sense pain I feel dizzy or faint_____
19. Pain makes me nauseous_____
20. I find it difficult to calm my body down after periods of pain_____

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