Sleep Quality, Pain Catastrophization, and Orthopedic Health Literacy: Are These Factors Correlated to Functional Outcome Scores?

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No Conflicts to Disclose

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Our disclosures are in the final AOFAS mobile app.

We have no potential conflicts with this presentation.
Introduction

• Evidence increasingly indicates the importance of orthopedic health literacy, sleep quality, and a propensity for pain catastrophization in orthopedic patient outcomes.

• Using previously validated questionnaires including the Literacy in Musculoskeletal Problems (LiMP), Pain Catastrophization Scale (PCS), and the Pittsburgh Sleep Quality Index (PSQI), this study investigated the relationship between these factors and common functional outcome instruments including the Disability of Arm, Shoulder, and Hand (DASH) and the Foot and Ankle Outcome Score (FAOS).
Materials and Methods

- **Subjects:**
  - 245 patients presenting with chief complaints previously untreated were approached in the clinic of one foot and ankle surgeon and three hand and wrist surgeons
  - Inclusion criteria required age greater than 18 and English proficiency

- **Questionnaires:**
  - Enrolled patients completed a demographics form, LiMP, PCS, PSQI, and the DASH or FAOS based on extremity

- **Other Information Collected:**
  - Age, gender, BMI, duration of symptoms, number of children living at home, past surgical history, visit type (trauma/non-trauma), smoking status (current/non-smoker), diabetes status (yes/no), history of psychiatric disorder (yes/no), race (white/non-white), education level (more/less than bachelor’s degree), and insurance type (public/private)
Materials and Methods (cont)

- **Statistics:**
  - DASH and FAOS scores were normalized to the same scale (0 – 100, best to worst) and termed “functional survey” (FS)
  - Correlations were calculated between FS scores, subjective questionnaires, and demographic/clinical information. For the variables of race and education level, one-way ANOVA analysis was conducted to determine if FS scores differed based on these variables
  - Variables that were significantly correlated with FS score were entered into a multivariate linear regression analysis to assess their effect on FS score.
  - A p value less than 0.05 was considered significant
Results

- **Descriptives:**
  - 231 patients (131 hand/wrist, 100 foot/ankle) were enrolled and fully completed questionnaires
  - Mean age was 45.6 (± 16.8, range 18 – 82)

- **Correlative Analysis:**
  - The following variables significantly correlated with FS score: PCS, PSQI Global Score, visit type (trauma vs. non-trauma), and insurance type (private vs. public)
  - Health literacy, education and race were not significantly correlated with FS score
Results (cont)

- **Regression Analysis:**
  - Multivariate regression analysis was conducted with FS score as the dependent variable, and the factors PCS, PSQI Global Score, visit type, and insurance type as the independent variables.
  - The final model significantly accounted for 19.2% of variation in FS score. All coefficients significantly contributed to the final model.
<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>β Coefficient</th>
<th>R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire Model</td>
<td>-</td>
<td>0.19*</td>
</tr>
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<td>PCS Total Score</td>
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Legend: * indicates p<0.05 for the entire model or associated coefficient. Visit Type was defined as traumatic vs. non-traumatic. Insurance types were defined as public vs. private. For the variables visit type, and insurance type, coefficients are representative of the following states: trauma and private insurance.
Discussion

• There is a strong correlation between tendency to catastrophize pain, sleep quality, and FS score.

• Every 1 unit increase in the PSQI/PCS corresponds with a 1.8/0.38 point increase in FS score; indicating higher functional disability. Given the strong correlation at baseline, such factors as poorly controlled tendency to catastrophize pain may confound functional outcomes.

• No significant correlation was noted between health literacy and FS scores. This suggests that an increased level of orthopedic knowledge does not affect perception of functional disability.
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Results

Table 1. Summary of Multivariate Linear Regression Analysis with FS Score as the Dependent Variable

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