# A Pilot Study: Impact of Health Literacy & Factors on Orthopedic Patients Adherence to Therapy Home Programs

**Dorothy Peterson Bethea, Ed.D, OTR-L, FAOTA**
**Cynthia S. Bell, Ph.D, OTR-L**
**Megan Edwards Collins, Ph.D, OTR-L**
**Elizabeth A. Fain, Ph.D, OTR-L**
**Winston-Salem State University, North Carolina, USA**

**WSSU**

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# Introduction

**Occupational therapists at local hospital wanted to investigate if their home programs (HP) provided to patients after surgical shoulder repair were effective in helping them adhere to post-operative therapy instructions.**

- Avg. length of stay is 2-3 days
- No current objective measure of HP readability and patients' health literacy (HL) levels
- No outcome measure of adherence for f/u
- Use of "Ask Me 3 Method" in teaching home programs
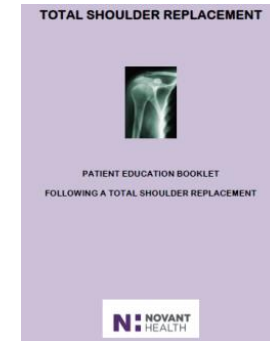


**Definitions:**

- ***Health Literacy:*** *ability to obtain, process, communicate, and understand health information and services that are necessary to make proper health decisions (Healthy People 2020).*

- ***Adherence:*** *degree to which pts. follow prescribed Tx. recommendations (Vermeire, Hearnshaw, VanRoyen, & Denekens, 2001).*

- ***Readibility:*** *the degree a reader can understand text dealing with a particular topic (https://www.eduplace.com/state/author/pikulski.pdf).*

## Literature

Findings:

- 12% of Americans have proficient HL (Kutner, Greenberg, Jin, Paulsen, 2006)

- High rates of low HL among elderly, minority populations, & low income/education levels (Kutner et al., 2010)

- Adults with adequate reading levels are 50% less likely to be hospitalized HL. (Kelly, 2003)

**National Focus:**

- Pfizer Principles for Clear Health Communication (Doak & Doak, 2004)

- AOTA Societal Statement on Health Literacy (AOTA, 2011)

## Research Q's

- $RQ_1$: How does the literacy level of orthopedic patients with post-surgical shoulder surgeries impact their understanding of the HP instructions?

- $RQ_2$: What factors are affecting adherence of orthopedic patients with shoulder surgery in their home program?

# Methods

**Design:** Randomized, two-group experimental (post-test only) design & convenience sample

**Participants**

| Inclusion Criteria | Exclusion Criteria |
|---|---|
| Adults 18 years + | Previous shoulder surgery |
| Dx.: TSR, rTSR, Humeral Hemiarthroplasty, ORIF | |
| Speak/read English | |
| 6 or below on SBT | |

**Randomly assigned to:**

HP1 – Control group

HP2 – Treatment group revised with Pzifer Principles of Clear Communication (Doak & Doak, 2004)

**Timeline:** *Day 1: Surgery*          *Day 2/3: Therapy HP/DC*          *Day 12-14: Follow up survey*

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# Participants Demographics

Figure 1.

Mean Age = 69

Age Range = 51- 83

65% of participants were 70 years +

Avg. Years of Education = 15

Table 1

*Summary of Demographic Variables (n = 28)*

| Variables | N | % |
|---|---|---|
| **Gender** | | |
| Male | 15 | 53.6 |
| Female | 13 | 46.4 |
| **Home Program** | | |
| HP1 (old) | 14 | 50.0 |
| HP2 (new) | 14 | 50.0 |
| **Diagnosis** | | |
| TSR | 14 | 50.0 |
| rTSR | 7 | 25.0 |
| Humeral ORIF | 6 | 21.4 |
| Hemi-arthroplasty | 1 | 3.6 |
| **Years of education (mean)** | | 15.1 |
| **Education** | | |
| No degree | 1 | 3.6 |
| High school/GED | 11 | 39.2 |
| Some college/Trade school | 6 | 21.4 |
| Associate's degree | 1 | 3.6 |
| Bachelor's degree | 4 | 14.3 |
| Graduate/Professional | 4 | 14.3 |
| Missing | 1 | 3.6 |

# INSTRUMENTS

**Pfizer Newest Vital Sign (NVS)**
Validity = 0.76

**Medical Outcomes Survey General Adherence Scale (MOS)**
Reliability = 0.81

## Medical Outcomes Survey General Adherence Scale

This survey is designed to examine your ability to carry out your post-surgery home program that was given to you by your occupational therapist. It will take no more than 5 minutes to complete. Please answer all questions with honest responses. Your responses will be kept confidential and anonymous.

Please answer based on how true the following statements were in the past 2-3 weeks. Select the appropriate response from **1 = None of the time**, to **6 = All of the time**

How often was each of the following statements true for you during the past 2-3 weeks?

(Circle one number on each line).

| | None of the time | A little of the time | Some of the time | A good bit of the time | Most of the time | All of the time |
|---|---|---|---|---|---|---|
| 1. I had a hard time doing what the therapist suggested I do. | 1 | 2 | 3 | 4 | 5 | 6 |
| 2. I followed my therapist's suggestions exactly. | 1 | 2 | 3 | 4 | 5 | 6 |
| 3. I was unable to do what was necessary to follow my therapist's treatment plans. | 1 | 2 | 3 | 4 | 5 | 6 |
| 4. I found it easy to do the things my therapist suggested I do. | 1 | 2 | 3 | 4 | 5 | 6 |

5. Generally speaking, how often during the past 2-3 weeks were you able to do what the therapist told you?

(Circle One)

None of the time........................... 1
A little of the time.........................2
Some of the time .......................... 3
A good bit of the time................ 4
Most of the time........................... 5
All of the time.............................. 6

# Results

Flesch-Kincaid Readability Tests
• Flesch Reading Ease Score (FRES)/Flesch-Kincaid Grade Level (FKGL)
(http://www.readabilityformulas.com/flesch-reading-ease-readability-formula.php)

| HP1 (Original) | HP 2 (Revised) |
|---|---|
| Grade Level 7.0 | Grade level 5.3 |
| Readability ease 71% | Readability ease 80.1 % |
| Means score 4.67 | Means Score 5.35 |

Slight difference in means

Univariate ANOVA: differences in experimental and control groups.
Not significant at .05;  P value *F (1, 25) = 3.28, p = .08*
*May indicate trending toward more substantial results when data is looked at over time and with greater numbers.*

# Results

| Tests | Score | Mean Score | Interpretation | Comments | Factors |
|---|---|---|---|---|---|
| NVS (Health Literacy) | 0-6 | 2.89 | Possible limited HL | | Literacy level |
| MOS (Adherence) | 0-6 | 5.0 | Self-reported adherence "most of the time" | Factors affecting adherence (pain, sleeplessness, nausea) | Pain Sleep Nausea |
| Pearson Bivariate | Negative, correlation between HL (NVS) and age was significant (r = -0.379, $p$ = .05) | | | | Age |
| | | | | | |

n=28

# Conclusion & Relevance

**STUDY LIMITATIONS**: Analysis support the need to increase participants' numbers and research over longer periods.

**PRELIMINARY CONCLUSION:** Subjecting therapy HP to readability and communication guidelines may help with health literacy by addressing readability and thus comprehension.

While document readability and health literacy play some role in therapy program adherence; factors like age, symptoms and alertness must be considered.

**RECOMMENDATIONS:** Consider readability and standards communication guidelines when designing therapy home programs for best practice.

Continued research on multiple factors and their effect on patient adherence to therapy home programs.

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*Other references are available.*