Comparison of a Pain Education Intervention to a Pain Education and Movement Intervention on Adults with Persistent Pain: A Randomized Control Trial Pilot Study

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Purpose & Hypothesis

Purpose: To determine if an intervention of pain education plus a movement education component had a greater effect in improving quality of life and degree of discomfort in individuals experiencing persistent pain, compared to only pain education, based on patient reported outcomes.

Hypothesis: Pain education and movement group will experience increased quality of function indicated by scores on Fear of Pain Questionnaire-III, Medical Outcomes Study Short Form-12, Patient Health Questionnaire, and Generalized Anxiety Disorder-7 tests.

Methods

Study Design: Randomized Control Trial of 2
- Group A only received pain education
- Group B received pain education and a movement education component.

Inclusion: Part of RFUMS community
- Experienced persistent pain for ≥ 3 months

Exclusion: Persistent low back pain
- Previous formal pain education
- Under the age of 18
- Pregnant individuals

Methods: Subjects completed 4 surveys before intervention. Both groups completed a pain education session. Group B stayed to participate in a movement education session and then were released. An email was sent to subjects to set up a follow up session 4 weeks later. Participants from both groups returned 4 weeks after initial sessions to retake the surveys.

Results

- Demographics 14 participants
  - Age: 23-61
  - Gender: 7 females, 7 males
- Large effect size
  - PHQ and VT- SF 12 scores for Group B
- Medium effect size
  - GAD 7 scores for Group B
  - PF, RP, BP, MH in SF-12 scores for Group B
  - FPQ III; PF and RP in SF-12 scores for Group A

TABLE 1. GROUP A OUTCOME SURVEYS STATISTICS

Outcome Measure	Group A Pre	Group A Post	Z-Score	Significance	Effect Size
FPQ III	63.88	57.88	0.842	0.40	0.21
PHQ	4.63	4.88	0.141	0.888	0.04
GAD 7	6.13	5.75	0.647	0.518	0.16
SF-12 PF	81.25	87.5	0.816	0.414	0.20
SF-12 RP	71.88	82.81	1.725	0.084	0.43
SF-12 BP	68.75	71.88	0.378	0.705	0.09
SF-12 GH	68.75	68.75	0.00	1.00	0.00
SF-12 VT	59.38	56.25	0.272	0.785	0.07
SF-12 SF	81.25	81.25	0.00	1.00	0.00
SF-12 RE	78.13	85.94	0.707	0.48	0.18
SF-12 MH	71.88	73.44	0.33	0.74	0.08

Abbreviations: FPQ III (Fear of Pain Questionnaire III), PHQ (Patient Health Questionnaire), GAD 7 (Generalized Anxiety Disorder 7), SF-12 (Short Form-12), PF (Physical Functioning), RP (Role Physical), BP (Bodily Pain), GH (General Health), VT (Vitality), SF (Social Functioning), RE (Role Emotional), MH (Mental Health). Alpha level (p<0.05). Effect size (large= >0.5, medium= 0.2-0.5, small= <0.2)

TABLE 2. GROUP B OUTCOME SURVEYS STATISTICS

Outcome Measure	Group B Pre	Group B Post	Z-Score	Significance	Effect Size
FPQ III	50.17	47.33	0.524	0.60	0.15
PHQ	3.33	1.00	2.032	.042*	0.59
Gad 7	2.50	1.00	1.289	0.197	0.37
SF-12 PF	79.17	100	1.633	0.102	0.47
SF-12 RP	83.33	95.83	1.633	0.102	0.47
SF-12 BP	83.33	91.67	1.414	0.157	0.41
SF-12 GH	79.17	75.00	1.00	0.317	0.29
SF-12 VT	45.83	70.83	1.857	0.063	0.54
SF-12 SF	100.00	95.83	1.00	0.317	0.29
SF-12 RE	95.83	97.92	0.577	0.564	0.17
SF-12 MH	79.17	91.67	1.41	0.157	0.41

Abbreviations: FPQ III (Fear of Pain Questionnaire III), PHQ (Patient Health Questionnaire), GAD 7 (Generalized Anxiety Disorder 7), SF-12 (Short Form-12), PF (Physical Functioning), RP (Role Physical), BP (Bodily Pain), GH (General Health), VT (Vitality), SF (Social Functioning), RE (Role Emotional), MH (Mental Health). Alpha level (p<0.05). Effect size (large= >0.5, medium= 0.2-0.5, small= <0.2)

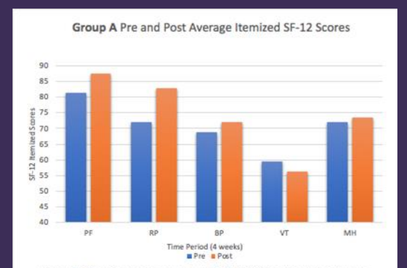

Figure 1. Abbreviations are components of SF-12 (12-item Short Form) survey: PF (physical function), RP (role physical), BP (bodily pain), VT (vitality), MH (mental health)

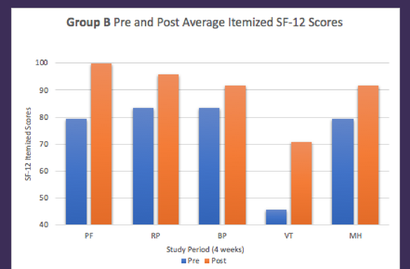

Figure 2. Abbreviations are components of SF-12 (12-item Short Form) survey: PF (physical function), RP (role physical), BP (bodily pain), VT (vitality), MH (mental health)

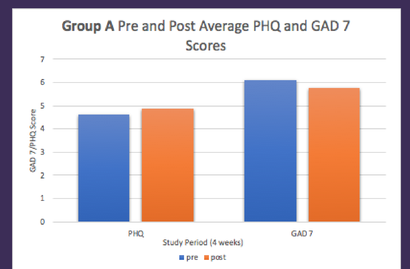

Figure 3. Abbreviations: PHQ (Patient Health Questionnaire), GAD 7 (Generalized Anxiety Disorder 7-item)

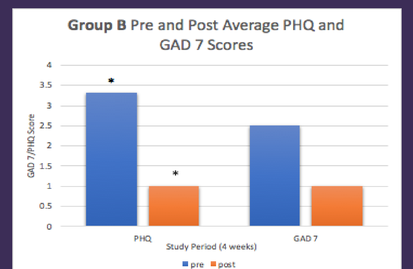

Figure 4. Abbreviations: PHQ (Patient Health Questionnaire), GAD 7 (Generalized Anxiety Disorder 7-item)

*=Statistical Significance; p<0.05

Conclusion

Results of this randomized control trial pilot study indicate that a pain neuroscience education with an added exercise intervention may be more effective in improving health related quality of life than pain neuroscience education alone. While these results cannot be applied to the general population due to the small number of participants and the specific population used to recruit, this study may guide further research in larger populations in order to be generalized to people experiencing persistent pain.

Limitations:
- Surveys were difficult for subjects to interpret
- Some participants were distracted during educational session
- Small sample size
- Many people in group B were already active
- Short period between pre and post surveys

Clinical Relevance

- Many people experiencing persistent pain seek physical therapy for relief.
- Applying persistent pain education combined with movement education has the clinical potential to increase patient health-related quality of life.
- Results of this research show that there is potential justification to combine pain neuroscience education with activity education as a tool to manage/treat persistent pain.

References

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