

BACKGROUND

- COVID19 restrictions lead to a wide adoption of telehealth service delivery modality in the healthcare sector ¹.
- Between 2020 and 2022, the Department of Pain Medicine embraced the synchronous telehealth mode for delivering a group-based pain management program (Multidisciplinary Activity Improvement Program [MAiP]) through the Pexip software program.
- While the effectiveness of face-to-face MAiP has been shown ^{2,3}, the impact of transitioning from face-to-face to telehealth delivery on MAiP's effectiveness remains unexplored.
- The online-MAiP, if shown to be effective, would offer an additional treatment modality for patients with chronic pain who face physical attendance challenges at pain centres.

OBJECTIVES

- This study aims to investigate the effectiveness, acceptability, and participant satisfaction of the online-MAiP.

METHODS

- **Design:** A single-group retrospective cohort design.
- **Participants:** Adult patients (N=22) completed the 8-week online MAiP at the Department of Pain Medicine, Liverpool Hospital between 2020 and 2022.
- **Observed variables:**
 - *Primary outcomes:* pain intensity, pain interference, depression, anxiety, stress, pain catastrophizing, pain self-efficacy, and treatment satisfaction.
 - *Secondary outcomes:* the number of major drug groups, daily morphine equivalent dosage (mg), and opioid medications used more than two days per week

Table 1. Primary outcomes and measures

| Variables | Measures |
|---|--|
| <ul style="list-style-type: none"> • Pain severity • Pain interference | <ul style="list-style-type: none"> • Brief Pain Inventory Short Form (BPI-SF) ⁴ |
| <ul style="list-style-type: none"> • Pain self-efficacy | <ul style="list-style-type: none"> • Pain Self-Efficacy Questionnaire (PSEQ) ⁵ |
| <ul style="list-style-type: none"> • Pain catastrophizing | <ul style="list-style-type: none"> • Pain Catastrophizing Scale (PCS) ⁶ |
| <ul style="list-style-type: none"> • Depression • Anxiety • Stress | <ul style="list-style-type: none"> • Depression, Anxiety, Stress Scale 21 (DASS21) ⁷ |

METHODS

• Treatment Satisfaction

- Participants' program satisfaction and acceptability were evaluated through four questions: (1) "Overall, how satisfied were you with the online MAiP program?" (2) "How has participating in the online MAiP program affected your confidence in managing chronic pain?" (3) "Would you confidently recommend the online MAiP program to a friend?" and (4) "Was participating in the online MAiP program worth your time?"

• Statistics

- Generalized Estimation Equation (GEE) modelling was employed to examine changes in the measures over time.
- Cohen's *d* with pooled standard deviations for effect sizes (ESs)

RESULTS

Table 2. Participants demographic and medical characteristics

| | N (22) | % |
|----------------------|----------------|-------|
| Gender | | |
| Female | 15 | 68.2% |
| Male | 7 | 31.8% |
| Age | | |
| Mean (SD) | 51.45 (±10.41) | |
| Range | 26 to 67 | |
| Insurance status | | |
| Yes | 5 | 22.7% |
| No | 17 | 77.3% |
| Number of Pain Sites | | |
| Mean (SD) | 16.2 (7.67) | |
| Range | 3 to 32 | |
| Duration of Pain | | |
| Less than 3 months | 0 | 0% |
| 3-12 months | 1 | 4.5% |
| 12 months to 2 years | 1 | 4.5% |
| 2-5 years | 4 | 18.2% |
| More than 5 years | 16 | 72.7% |

Table 3. Means and standard deviations for the observed means of primary outcomes

| | Estimated marginal means | |
|----------------------------|--------------------------|--------------------------|
| | Pre-treatment Mean (SD) | Post-treatment Mean (SD) |
| Depression | 24.7 (12.49) | 16.30 (11.74) |
| Anxiety | 17.10 (8.52) | 12.80 (8.91) |
| Stress | 24.10 (8.32) | 17.90 (10.39) |
| PCS [†] | 29.80 (11.35) | 18.80 (12.41) |
| Rumination [*] | 10.15 (3.42) | 6.05 (4.21) |
| Magnification [*] | 5.65 (3.60) | 3.75 (3.29) |
| Helpless [*] | 14.00 (5.35) | 9.00 (5.89) |
| PSEQ [‡] | 19.20 (7.64) | 28.10 (7.99) |
| Pain Interference | 7.25 (1.38) | 5.71 (1.75) |
| Pain Severity | 6.71 (1.20) | 5.91 (1.50) |

• Treatment satisfaction

- 85.71% of participants being very satisfied or satisfied.
- 86% of participants had their confidence improved in pain management.
- 86% of participants would recommend the online MAiP to others.
- 100% of participants found the online MAiP worth their time.

RESULTS

Table 4. Primary outcomes GEE results

| Variables | Standardized Effect Size (ES) | | | P-value |
|----------------------------|-------------------------------|------|------|---------|
| | ES | Low | High | |
| Depression | 0.64 | 0.37 | 0.91 | <0.001 |
| Anxiety | 0.44 | 0.26 | 0.62 | <0.001 |
| Stress | 0.66 | 0.31 | 1.01 | 0.001 |
| PSEQ [‡] | 1.16 | 0.68 | 1.16 | <0.001 |
| PCS [†] | 0.92 | 0.65 | 1.66 | <0.001 |
| Rumination [*] | 1.16 | 0.84 | 1.47 | <0.001 |
| Magnification [*] | 0.55 | 0.34 | 0.75 | <0.001 |
| Helpless [*] | 0.88 | 0.61 | 1.15 | <0.001 |
| Pain Interference | 1.01 | 0.63 | 1.39 | <0.001 |
| Pain Severity | 0.76 | 0.46 | 1.06 | <0.001 |

Note: Depression, anxiety and stress were measured by the Depression Anxiety Stress Scale 21 items, [†] Pain Catastrophizing Scale, [‡] Pain Self-Efficacy Questionnaire, * Subscales of the PCS

• Using Cohen's guideline (9): ES of 0.2, 0.5, and 0.8 as small, medium, and large⁹

• Effect sizes results

- ESs range from small to large for primary outcomes with significant mean differences
- Especially, medium and large ESs in
 - Depression, stress, PSEQ, PCS, pain interference, and pain severity
- Ess for secondary outcomes were statistically non-significant

CONCLUSIONS

- This study provides preliminary evidence to support the effectiveness, acceptability, and participant satisfaction of a group-based pain management program delivered online.
- Online pain management program can be additional services to improve patients treatment accessibility.
- Delivering online treatment programs would face technological challenges: computer availability, internet connection stability, and patients' ability to use technology.
- The limitations of this study include small sample size and lack of a control group

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For additional information please contact:

Ramony Chan, PhD
Senior Clinical Psychologist
Conjoint Lecturer UNSW
Department of Pain Medicine
Liverpool Hospital
Locked Bag 7103, Liverpool BC, NSW 1781 Australia
Ph: +61 2 8738 8771 Fax: +61 2 8738 7205
Email: ramony.chan@health.nsw.gov.au