Bidirectional Associations Between Patient Activation and Engagement in Digital Care Pathways

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Background

Patient activation, often measured by the Patient Activation Measure (PAM), reflects an individual's knowledge, skills, and confidence in managing their own health. Higher patient activation is linked with improved clinical outcomes and reduced healthcare utilisation.[1,2]

Although previous studies have demonstrated the positive influence of digital engagement on patient activation, few have examined the bidirectional relationship between the two.[3]

Aim

This study aimed to examine the bidirectional relationships between baseline patient activation and digital engagement within the Digital Care Pathways (DCP) at Northern Health.

- **Research Question 1:** Is baseline PAM Score associated with subsequent level of digital engagement?
- **Research Question 2:** Does digital engagement, in turn, contribute to improvements in PAM scores?

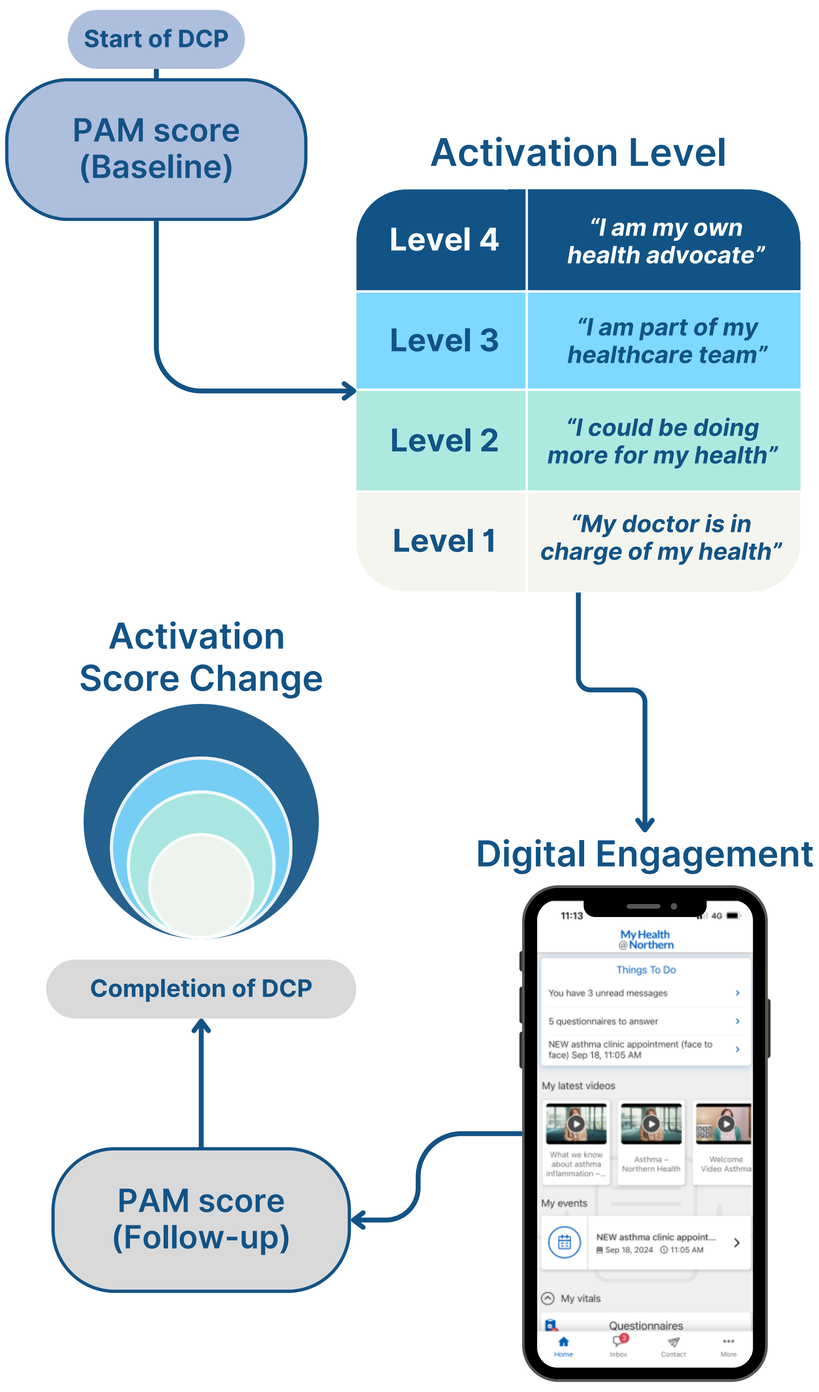

Figure 1: How digital engagement shapes patient activation

Method

A retrospective cohort study was conducted using data from 217 patients who completed a PAM assessment as part of their participation in the digital care pathways at Northern Health between April 2024 and June 2025.

Two analyses were conducted to address the study's research questions:

- **Analysis 1:** A correlation analysis was performed to examine the association between baseline PAM scores (range: 0–100) and subsequent digital engagement levels, measured as engagement ratios (range: 0.00–1.00).
- **Analysis 2:** A pre-post analysis was conducted to evaluate whether digital engagement contributed to improvements in PAM scores over time.

Results

Research Question 1: Is baseline PAM score associated with subsequent level of digital engagement?
(Correlation Analysis Results)

- A modest, statistically significant positive correlation was observed between the baseline PAM score and the engagement ratio in patients with low baseline PAM levels 1-2 (n = 89, r = 0.26, p = 0.01).
- No significant correlation was found in patients with high baseline PAM levels 3-4 (n = 128, r = -0.01, p = 0.89).

Subgroup (Baseline PAM Level)	Participants (n)	Correlation Coefficient (r)	P value	Finding
Low (Levels 1-2)	89	0.26	0.01 (p < 0.05)	Modest, statistically significant positive correlation
High (Levels 3-4)	128	-0.01	0.89 (p > 0.05)	No significant correlation

Table 1: Correlation between baseline PAM score and digital engagement ratio by subgroup

Research Question 2: Does digital engagement, in turn, contribute to improvements in PAM scores?
(Pre-Post Analysis Results)

- Among patients with both baseline and follow-up PAM scores (n = 61), those in the low baseline PAM group showed a significant improvement in activation (mean change = +5.21, 95% CI: 1.52–8.90, p = 0.01).
- No significant change was observed in the high baseline PAM group (p = 0.41).

Subgroup (Baseline PAM Level)	Participants with both baseline and follow-up PAM scores (n)	Mean PAM Score Change	95% CI	P Value	Finding
Low (Levels 1-2)	19	5.21	1.52-8.90	0.01 (p <0.05)	Significant improvement
High (Levels 3-4)	42	-1.54	-5.31-2.22	0.41 (p >0.05)	No significant change

Table 2: Influence of digital engagement on changes in PAM scores by subgroup

Conclusion

This study highlights a bidirectional relationship between patient activation and engagement.

These findings suggest that:

- Northern Health's digital care pathways help empower less-activated patients, and;
- tailoring digital health strategies based on baseline PAM levels may enhance patient engagement and activation.

References

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