At-home physical therapy with a remote monitoring digital health platform leads to similar patient reported outcomes compared to traditional in-office physical therapy following shoulder surgery

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INTRODUCTION:

Physical therapy (PT) following shoulder surgery has traditionally occurred via in-office supervised visits. Recently digital health tools with remote patient monitoring (RPM) have emerged as an option to enhance the ability to both monitor and encourage engagement of home PT. The appeal of such tools has been accelerated by the impact of COVID-19 on the healthcare system. The primary purpose of this study was to compare patient-reported outcomes (PROs) following shoulder surgery of patients who completed at-home PT with a digital rehab application to patients who completed in-office supervised PT. The secondary purpose was to assess engagement among patients who used digital PT.

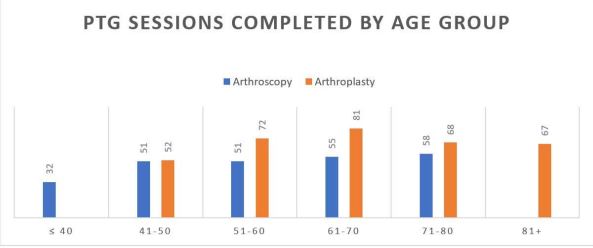
METHODS:

A retrospective matched comparative evaluation was performed of patients who underwent arthroscopic shoulder surgery or shoulder arthroplasty at a single institution between April 2020 and May 2021. Patients who underwent home-based physical therapy with a digital remote monitoring platform (PT Genie; Orland, FL) were identified and age and procedure matched (arthroscopy or arthroplasty) to a cohort of patients that underwent in-office physical therapy. The digital platform provided remote monitoring capabilities with measurement of range of motion. PROs measured preoperatively and at 1 year postoperative included visual analogue scale pain score (VAS), American Shoulder Elbow Surgeons Score (ASES), and Single Assessment Numeric Evaluation (SANE). Engagement measured as the number of sessions recorded was analyzed in the digital PT based on 6 age groups (≤40, 41-50, 51-60, 61-70, 71-80 and 81+). Statistical analysis using the student t-test to compare means was performed using SPSS version 17 (SPSS Inc., Chicago).

RESULTS: A total of 862 patients were identified, included 396 arthroscopic surgeries (198 in each PT group) and 466 in the arthroplasty group (233 patients in each PT group). The groups were similar at baseline other than a higher preoperative ASES score in the digital PT arthroplasty group (Table 1). There was no significant difference in any PROs between the two groups at 1 year follow up. The highest engagement in digital PT group was observed in the arthroplasty group and over the age of 50 (Figure 1).

DISCUSSION AND CONCLUSION:

There appear to be no difference in PROs following shoulder surgery whether physical therapy is performed in-office or at home via a digital platform. Interestingly, engagement with digital PT was highest in older patients, suggesting that the technology is not a large barrier. Although further study is needed to confirm these findings, benefits of digital PT with remote monitoring may include: 1) Decreased cost for the healthcare system, 2) Decreased travel time for the patient, and 3) Scheduling efficiency and improved access to the PT for the patient.



	Pre-OP					
	PTG-Arthroscopy	Non-PTG Arthroscopy	P value	PTG-Arthroplasty	Non-PTG Arthroplasty	P value
VAS	4.7	4.5	0.372	4.8	5.5	0.018
SANE	41.1	42.5	0.453	33.6	32.7	0.667
ASES	49.7	50.9	0.462	44.5	39.0	0.002
	1-year Post-OP					
VAS	2.2	2.1	0.763	1.3	1.7	0.169
SANE	69.5	70.0	0.469	72.1	70.6	0.619
ASES	78.1	79.0	0.207	80.6	78.6	0.394