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Improving access to and quality of self-guided physical therapy exercises at home for patients residing in regions with limited resources

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**Improving access to and quality of self-guided
physical therapy exercises at home for patients
residing in regions with limited resources**

Elizabethtown Community Health Center, Elizabethtown, NY
Smith House Health Care Center, Willsboro, NY

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Family Medicine Clerkship - rotation 4
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The University of Vermont
LARNER COLLEGE OF MEDICINE

Problem Identification

- Musculoskeletal pain is a major cause of disability worldwide – 20-33% of the population experiences it ¹
- Improperly managed musculoskeletal pain has been shown to result in: excessive imaging, overuse of opioids, overuse of surgery, misdiagnosis ¹
- A mainstay in the management of this pain includes non-pharmacological physical modalities such as those used by physical therapists ¹
- There is a limited number of physical therapists in Essex County, New York to provide necessary care to patients with common musculoskeletal complaints which require physical therapy (PT) as part of their treatment plan
- One solution that many primary care practices use to bridge this gap is to provide resources for patients to complete PT exercises on their own at home
- This is not ideal, as many patients struggle completing these exercises without guidance due to difficulty following the printed instruction
- Some patients also mentioned anxiety rooting from uncertainty whether they perform the exercises correctly and how incorrect performance may result in impairment of healing and/or further injury
- **This project sought to develop an improved set of resources to provide patients so they can better engage in home, self-guided PT**
- AHEC focus area: medical practice transformation, virtual learning and telehealth



Cost

- Public Health Cost
 - In 2016, an estimated \$380.9 billion was spent on musculoskeletal disorders in the US, this was more than any other major category of disease ²
 - According to a 2018 systematic review, arthritis and back/spinal pain both were in the top-12 clinician-report and patient-reported 'reasons for visit' to primary care globally ³
 - Poorly managed musculoskeletal pain results in poor quality of life, drug use, missed work, and substantial cost for the healthcare system and disability insurance ²
 - According to the Essex County, NY 2022 Community Health Assessment, among the top reasons preventing access to necessary healthcare included: no specialists locally, no appointments with specialists, did not have insurance, copay/deductible too high ⁴
- Unique Cost Considerations
 - Ability to pay for formal PT
 - In 2022, 5% of Essex County is uninsured ⁴
 - In 2022, 8.1% of Essex County was uninsured (this nearly doubled from 2020 and 2021 rates) ⁴
 - According to the 2022 Community Health Assessment for Essex County New York, the biggest factor making it harder for adults to be healthier was issues with transportation ⁴
 - Referring to public transit, "with a lack of frequent and fast routes, this service provides limited relief from reliance on personal vehicles to get around." ⁴
 - Some patients may not have the resources to skill set to access video-based materials (regarding ability to access video resources)
 - 13.9% of households in Essex County do not have internet access ⁴
 - 10.5% of households in Essex County do not have a computer, smartphone, or tablet ⁴

Community Perspective

A long-time patient of the practice

- Regarding scheduling their PT appointment:
 - *“It took a long time to get on the schedule.”*
- Regarding home exercises provided by their physician:
 - *“It would be easier I had someone to teach them to me or instruct me.”*
 - *“Sometimes I’m worried I am not performing the exercises correctly.”*
 - *“Also, there are a lot of distractions at home, such as young children, making the exercises challenging to complete.”*

Bill Doherty, PT - Director of Rehabilitation for UVMHN Elizabethtown Community Hospital

- *“ We have a long waiting list. We only have 8 therapists at any given time and are limited by physical space right now.”*
- *“Part of the reason we have such a long waiting list is that we do spend a lot more time with patients here than is typical across the industry, up to 45-60 minutes per session, plus we are always 1:1 ... We find that this results in the best outcomes. Plus, in a small community like this, the patients won’t tolerate factory work. You need to spend the time with them.”*
- *“We have satellite offices in Ticonderoga and Willsboro... and there is a practice at CVPH, but they have a waiting list until mid-November.”*
- *“We do our best to triage need – kids always get in, post-surgical patients get in. We try to offer what we can to the rest, but they don’t always take it”*
- *“We are building a new facility with more space which is supposed to be complete by the end of next year; we plan to hire more therapists and expand our capacity.”*

Intervention and Methodology

- The American Association of Orthopedic Surgeons (AAOS) has patient-education resources available that describe how to complete stretches and other strength-building exercises at home for musculoskeletal complaints involving different areas of the body
- This project chose three of the most common musculoskeletal complaints (shoulder pain, back pain, knee pain) and modified the AAOS materials to include QR codes and links to video-descriptions of each of the exercises
- The purpose of this is to provide patients with higher-quality home resources to work towards improvement of their symptoms in the absence of immediate availability of formal physical therapy
- Videos are meant to provide additional instruction on how to perform the exercises as well as confirmation of correct performance

Results

- These materials provide patients with a means of treating their musculoskeletal pain in the absence of available physical therapy
- There was a very small sample of actual patients that received these materials before the end of the project's timeframe
- The family medicine practice has been provided hard copies and electronic copies of these resources to continue to distribute
- According to Bill Doherty, PT: *“Home exercises can be difficult, I don’t usually give my patients exercises to do at home until at least their second visit because they often need guidance in order to do the exercises correctly. **I think it is a great idea to supplement home materials with videos.**”*
- According to a patient in the practice: *“**Videos would be helpful** as long as I have access to the iPad”*

Evaluation of effectiveness and limitations

- There was a short period of time that these materials was available during this rotation and therefore effectiveness was not able to be assessed. Proposed ways in which it could be in the future include:
 - One could determine what proportion of patients who were provided these materials regularly engage with the exercises for the recommended 4–6-week period in order to determine the feasibility of this intervention
 - One could retrospectively compare improvement of symptoms based on progress notes of patients who were provided with these material vs patients who were not
 - One could determine what proportion of patients' pain resolves prior to receiving a formal PT appointment while only engaging in home PT
 - One could assess subjectively reported pain-level and functional-level in patients who receive this intervention vs a control group
 - One could perform a prospective randomized control trial comparing groups assigned to home PT vs formal PT vs no PT
- Limitations
 - These home exercises may be challenging for some patients to perform alone even with video instruction
 - Some patients may not have the ability to access technology/internet in order to benefit from video instruction
 - Some injuries may not be amenable to physical therapy/exercise-therapy and without formal PT, there is no one to evaluate this

Recommendations for future interventions/projects

- The AAOS has many additional patient materials for various musculoskeletal complaints that could be modified in the same way to expand the breadth of resources available to patients
- Qualitative or quantitative research into the effectiveness of this intervention (see evaluation of effectiveness section)
- While access to physical therapy is a barrier to engaging with this important treatment for musculoskeletal pain, one could survey patients to get their perspective on barriers (i.e. financial, transportation, access, motivation, etc.) stopping them from engaging with formal PT

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