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CORR Insights®: Can an Integrative Care Approach Improve Physical Function Trajectories after Orthopaedic Trauma? A Randomized Controlled Trial

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Where Are We Now?

Psychosocial factors are increasingly being recognized as critically influential on patients' outcomes after orthopaedic trauma [7, 10]. While the randomized trial by Zdziarski-Horodyski and colleagues [13] found that an early psychosocial intervention did not improve recovery of physical function compared to usual care, the work is nonetheless important because the authors have identified important flaws in both their psychosocial intervention as well as their study design which should inform future studies and help guide researchers in the direction of more effective treatment strategies. The authors may have focused on a group of patients in which psychosocial barriers to recovery were not prevalent or severe enough in the to benefit from treatment or the treatment provided may have simply been ineffective. These are opportunities for improvement moving forward.

Psychosocial factors like anxiety, depression, poorer social support, lower levels of educational attainment, and smoking all have been shown to be associated with complications, persistent pain, and poorer function after trauma [6-10], and because of this, the American Academy of Orthopaedic Surgeons, in conjunction with the Major Extremity Trauma Research Consortium, recently published a clinical practice guideline (CPG) on the topic [1]. This CPG highlights eight factors that clinicians should evaluate in order to identify patients at risk for having psychosocial factors adversely affect their recovery after orthopaedic trauma: Anxiety, posttraumatic stress disorder, depression, psychiatric conditions, smoking, lower educational attainment, less social support, and limited self-efficacy (less-effective coping strategies) [1]. Age, BMI, race/ethnicity, gender, low income, lack of employment, comorbidities, preinjury exposure to combat related circumstances also were identified as potentially relevant risk factors [1]. Importantly, however, this CPG did not identify or evaluate any treatment strategies.

Where Do We Need To Go?

We do not know enough about the evaluation and treatment of psychosocial impediments to recovery after orthopaedic trauma. As Zdziarski-Horodyski and colleagues [13] have suggested, other clinicians and researchers should continue to develop and study treatment strategies to mitigate these barriers. Lessons learned from this study and others should be incorporated as additional psychosocial interventions are conceived and tested.

Future research should test interventions that seek to accelerate recovery after serious injury in the patient groups identified to be at greatest risk in the recent CPG [1]. I believe, in particular, patients with anxiety, depression and

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limited self-efficacy would be especially important groups to focus on, as these risk factors are common, deleterious to clinical outcome, and treatable [1, 7, 9, 10].

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We also need to understand the best timing and frequency for any intervention. Initiating an intervention while patients are hospitalized, as was done in the current study [13], may not have improved efficacy as patient engagement and recall under these circumstances can be compromised [4]. Acutely traumatized inpatients may be in pain, overwhelmed or head injured and often are under the influence of sedating medications. There may be a time or times where an intervention would be better received and more effective—perhaps after patients are through their unexpected and often disorienting initial hospitalizations.

Researchers have also yet to identify a psychosocial intervention that improves recovery after orthopaedic trauma, providing another clear target for future research. Treatment-group patients in the current study participated in a psychosocial self-empowerment program that the authors called the "Transform 10" [13], as well as a movement plan to supplement their conventional physical therapy program [12]. While they had regular meetings with a "facilitator" during their hospital stay, patients were primarily on a self-guided program after discharge. This self-guided program was conspicuously low-tech and levels of engagement and participation were not assessed. This is potentially relevant as patient engagement has previously been identified as important in improving comfort and function [3].

Finally, we must work to develop an intervention that is scalable. Some psychosocial programs that are resource intensive may help the relatively few patients who are able to gain access but may not be available to a large number of patients with orthopaedic trauma in the current healthcare environment. Patients with orthopaedic trauma can have limited healthcare literacy, are often underinsured, and are burdened by the financial hardship of the trauma itself [11]. Creative solutions may be needed to ensure that efficacious treatment is cost-effective and available to those that need it most.

How Do We Get There?

Clinicians must determine both how to identify psychosocial factors and also how to intervene effectively. Screening tools for the aforementioned risk factors are needed. Factors such as age, BMI and smoking status, are easily assessed though a standard history and physical exam. Some orthopaedic surgeons, however, may not be well-equipped to assess for the presence of anxiety, depression, or resilience issues [10]. Orthopaedic surgeons who treat trauma patients are at a particular disadvantage as these acutely injured patients can be more difficult to evaluate. This is an area where standardized screening tools have demonstrated efficacy, and in this case, could help to identify individuals and populations who could benefit most from intervention [5]. Any future studies of psychosocial interventions should certainly screen for these factors and report on their prevalence.

Future research on psychosocial interventions should also focus on the timing and frequency of these interventions as they may be more effective if initiated outside of the initial hospital stay. At the first clinic follow-up visit, for instance, patients may be more comfortable, of clearer mind, and generally just better equipped to participate. The efficacy of shifting resources from the inpatient to outpatient setting and should be analyzed in future research.

In light of previous research, identifying a treatment strategy that works should also be a high priority. As an alternative to Zdziarski-Horodyski's folder and notepad [13], smartphone-based interventions may be effective in this domain. Leveraging now-ubiquitous smartphones could allow for more-frequent patient interactions and increased participation. Preliminary reports using phone-based technologies to engage orthopaedic patients have been promising, with a series of automated perioperative text messages improving satisfaction in arthroplasty patients [2]. This methodology could be easily adapted to postdischarge trauma patients and would also allow for objective measurements of engagement and participation through a series of automated perioperative text messages improving satisfaction in arthroplasty patients

Cost-effectiveness studies are contingent upon the identification of effective interventions but will be necessary to justify psychosocial interventions in a resource limited healthcare environment. Having an effective intervention is of limited value if it is unavailable to the patients that need it most. Many trauma patients may gain access to fracture care regardless of insurance status by virtue of presenting to an emergency room but these same under or uninsured patients may have a difficult time accessing care for

psychosocial issues postinjury. Again, web or smartphone-based programs may maximize access for orthopaedic trauma patients who might otherwise have limited access to the postdischarge healthcare system.

In the meantime, we as clinicians should actively seek evidence of psychosocial distress in our patients and leverage locally available resources in an effort to minimize disability. Surgeons can begin with destigmatizing psychosocial disability, engaging patients in initial discussions about psychosocial care, and collaborating with mental health practitioners in their healthcare system [10].

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