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Response to Letter to the Editor: Practical non-pharmacologic pain interventions for hospitalized cancer patients

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We would like to acknowledge and thank Dr. Ali for their comments regarding our article on pain and opioid administration in hospitalized patients with cancer [3]. Dr. Ali importantly extends the discussion about our findings that psychosocial factors are associated with more severe daily pain among hospitalized cancer patients. Specifically, they expand upon our recommendations that nonpharmacologic behavioral interventions may be especially beneficial for patients with cancer and pain in the hospital setting.

Dr. Ali points to one particularly simple behavioral change that could be implemented —reducing sleep disruptions during hospitalization. Protecting quality of sleep is likely important for reducing pain beyond the inpatient period as well. We have previously reported that baseline sleep disturbance is an independent predictor of persistent pain after breast cancer surgery [5], and that sleep and pain continue to be interconnected throughout the first year after an index cancer surgery [2, 3]. Among an outpatient cohort of chronic pain patients with cancer, we also observed that sleep disturbance was a consistent factor associated with worse pain severity and interference [1], Thus, interventions aimed at promoting sleep hygiene may be a fruitful avenue for future research aimed at improving cancer pain outcomes.

Music as a non-opioid alternative has gained recent attention and, as Dr. Ali mentions, it may help reduce pain in patients with cancer who are hospitalized. Music interventions are low-risk and low-cost as most patients carry smartphones and can livestream preferred music of their choice at their own comfort. Notably, some evidence suggests that listening to one's own favorite music is associated with less pain [4]. Future research should aim to determine

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whether music, or other behavioral interventions, could be used within a hospital setting to reduce pain among patients with cancer.

Extending Dr. Ali's recommendations, communication with the care team that addresses a patient's catastrophic thinking about pain may itself reduce pain and opioid utilization during inpatient hospital stays. However, further research is needed to support this claim. We identified pain catastrophizing as a significant contributor to both more severe daily pain and greater opioid administration in the hospital [3]. Clinically, patients often have negative pain-related thoughts about their cancer that can contribute to worse pain and therefore greater opioid use, such as "this pain is never going to get better," or "this pain must mean my cancer is growing/getting worse." Patients frequently turn to their providers for reassurance or clarification of such concerns. Often, communication from the care team about the realities of a patient's illness or expectations about the effectiveness of such procedures or treatments related to their cancer or pain can help to quell these concerns. Open communication driven by the care team to acknowledge patients' worries and provide clarification may be an accessible avenue to improve pain catastrophizing during hospitalizations, and thus, indirectly reduce pain and opioid administration.

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