Full-Length Article

The development of a music therapy pain assessment model

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Abstract

Pain is often defined by its symptomatology and etiology. Unrelieved pain can negatively impact every area of an individual's life, including personal relationships, employment, and one's involvement in social activities. Unrelieved pain may induce fear, anxiety, and depression. Disease management includes the evaluation of pain. In most hospitals, frequent scoring of pain intensity is a required evaluation. Assessing pain is an evaluated determinant of illness- the outcomes of which can influence the most pertinent domains of health and healing. Pain has been receiving growing attention in mainstream medicine. Music therapy and music medicine while having a unique place in treatment care interventions can benefit from assessment details which give voice to the multiple treatment options available to patients experiencing pain. When pain is not well-assessed, treatment outcomes are limited. This article will explicate salient aspects of music therapy assessment inclusive of opportunities for patient pain expression, referral sources, point/s of trauma, and options for music treatment within a myriad of assessment contexts and with particular attention to culture.

Keywords: pain; music pain assessment; music analgesia

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Pain is often defined by its symptomatology and etiology. Unrelieved pain can negatively impact every area of an individual's life, including personal relationships, employment, and one's involvement in social activities. Unrelieved pain may induce fear, anxiety, and depression. [1] Disease management includes the evaluation of pain. In most hospitals, frequent scoring of pain intensity is a required evaluation. Assessing pain is an evaluated determinant of illness- the outcomes of which influences the most pertinent domains of health and healing. As recouperation and discharge planning are so often at the forefront of hospitalists' thinking, at times, the nuances of how pain is evaluated may be lost in the shuffle of a quest to find and extinguish associated influences of a desired immediacy for change. Subtleties that lead toward resulting exacerbations may result from clinician haste.

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It is useful to follow the Joint Commission's thinking[1] in their recent development of standards for addressing pain. Useful policies informing clinical practice released by the joint commission included the following recommendations for pain assessment [2]:

i. identification of psychosocial risk factors that may affect self-reporting of pain
ii. involve patients to develop their treatment plan and set realistic expectations and measurable goals;
iii. focus reassessment on how pain impairs physical function (e.g., ability to turn over in bed after surgery);
iv. monitor opioid prescribing patterns; and promote access to nonpharmacologic pain treatment modalities.
v. Changes to promote safe opioid use during and after hospitalization and to prevent diversion include: identify high risk patients; have equipment available to monitor high risk patients; facilitate clinician access to prescription drug monitoring program (PDMP) databases and

[1] The mission of The Joint Commission enterprise is to enable and empower health care organizations around the world to build a foundation for quality care and patient safety: https://www.jointcommission.org

encourage PDMP use prior to prescribing opioids;

vi. educate patients and families regarding the safe use, storage, and disposal of opioids.

The Joint Commission recommends that hospitals try to identify opioid addiction and in doing so, encourage facilitation of referrals for treatment by informing clinicians about local addiction treatment programs.

In 2018, the Commission established a requirement for hospitals to promote and provide nonpharmacological pain treatments-such as music therapy. [3] This article will outline through review and clinical experience some of the essential elements music therapy and allied practitioners evaluating pain might take into account when providing pain assessment. Music therapy's capacity to treat pain may highlight unique opportunities for managing pain with greater likelihood of incorporating integrative strategies. These include identifying and resourcing ways of increasing the understanding of the disease process and how pain may be treated.

Referral

The referral of pain is accompanied by a seeming sense of urgency particularly if the referred patient is on hospice care or has a diagnosis of a disease of which pain is often a symptom, such as sickle cell disease, or appendicitis. Referrals are often also made for patients with pain of an unknown origin, or chronic pain that is debilitating, and/or where pharmaceutic interventions have failed, or for diagnostic reasons cannot be administered.

The nuances of how referrals are made are impressive, and so often reflect an extraordinary part of how impressions are made from one referring clinician to another. A central part of a referring conversation - particularly if a medical doctor or registered nurse is making the referral - is a best understood source of the pain and, thus far, which presenting inferences are made to be the plausible cause of pain. Pain can be part of the 'ruling out' of disease culprits.

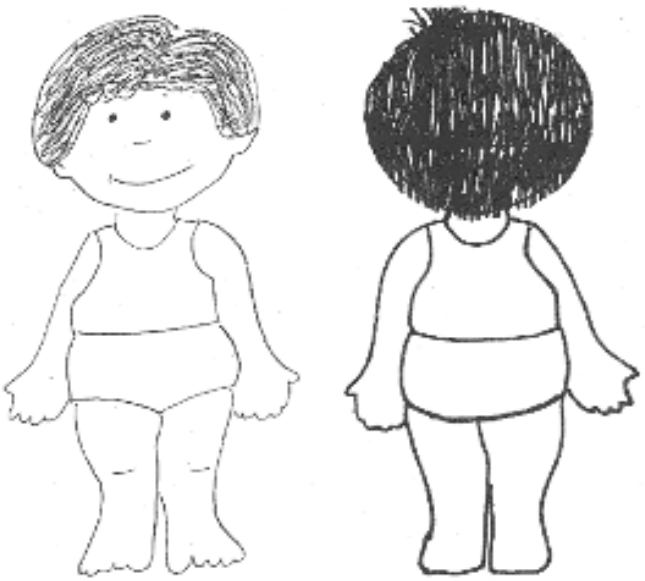
As anxiety is so often a part of a response to pain, referrals should be inclusive of not only how a person is experiencing discomfort, but also how the pain is being treated in terms of the patient's coping capacity. In instances where the team is assessing, and when for evaluative reasons medicine cannot be administered, music therapy referrals can provide an integral means of assessing, particularly as the therapist can take an active role in understanding and providing unique strategies for working with pain non-invasively. The information perceived culturally and socially from a music psychotherapy orientation of assessment [4] may present a myriad of resources for further future interventions provided during the patient's hospital stay. At the same time, the assessment may provide the medical and psychosocial team with an expanded picture of clinical findings.

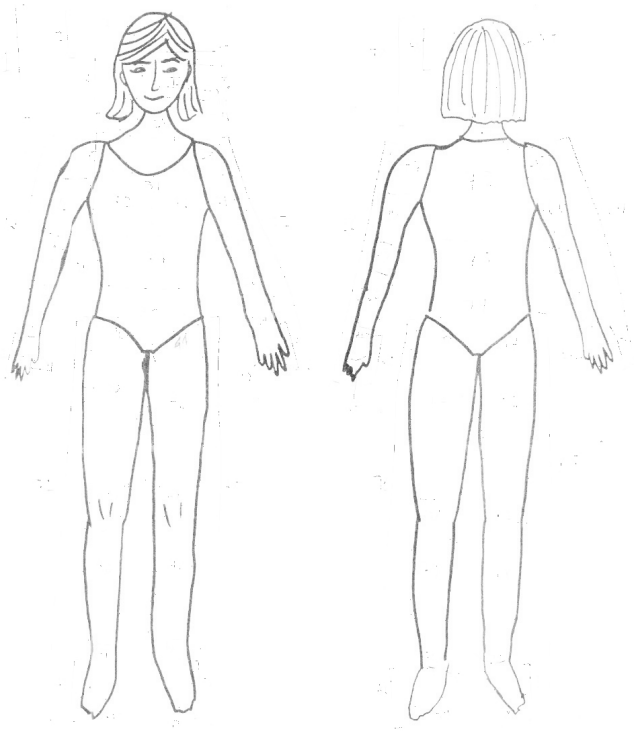
Defining pain: Color Analysis Scale (CAS) Assessment

In the first moments of meeting a patient who is experiencing pain, prior to offering any music, it may be useful to present a Color Analysis Scale [5, 6] via hard copy paper along with some primary colors and to remark how the patient has been referred by the team, and that you would like to understand their pain. Asking: "Can you select the color/s that best reflect on this drawing-the pain you have been experiencing while I set up" or "…and I'll be right back-take a moment to sketch how and where you feel pain-choose a color and mark up this body to depict your experience" This provides the patient with some time and space to consider and reflect upon their pain. It also offers a forum whereby the pain can be expressed and explicated in a creative, useful context-as a dynamic, rather than simply a number.

Providing a CAS offers an expansive means for pain to be expressed and addressed, in an interactive moment with the music therapist. While numeric scales may offer some means of quantitatively defining how pain is experienced, the use of color along a full front-back body continuum, (see fig 1) provides expansive opportunities for pain to be defined and expressed. Offering such an instrument implies that the therapist is welcoming of pain expression and is unafraid to bear witness and 'experience' the patient's expression of pain, in-the-moment.

Fig 1: *Blank Color Analysis Scale (CAS)*





Furthermore, at times the details afforded through the CAS, when reviewed and analyzed by the patient and therapist together [6] prior to music options, can provide the therapist with a sense of what intervention might be most advantageous. For example, a red color -sketched in the center of the abdomen, in the shape of a constricted ball, depicted for what is expressed by a patient as "throbbing, constant pain" accompanied by an abrasive, high-volumed vocal speaking pitch with accented phrasing speech patterns, may lead toward the option of tension-release drumming.

In another circumstance, a patient speaking in monotone, who is looking tired and using limited pulmonary effort, and seemingly holding onto their pain- choosing green and coloring a light small space on their chest region, saying the pain feels "stuck, like a hard, achy clump" might benefit from some flute or viola entrainment toward being led in phrasing to extend their exhale.

These are examples of hypothetical experiential interventions that cannot be made without a gathering of multiple descriptions afforded from viewing the CAS, once complete with the patient, and in conversation of the meaning of their illustration. Table 1 indicates samples of question categories and the importance of their affiliated contents that lead toward the clinical gestalt of a pain assessment experience as evaluated through the CAS tool.

Table I: *Color Analysis Tool (CAS) guide*

Diagnosis or R/O Area affiliated?	Color	Point of Trauma (time it started- where & what were you doing- with whom)	Tempe-rature	Description	First time or Repeating
What do you think is causing your pain? (use quotes)					

The CAS provides an open door for a full investigation of the pain experience. Noting the colors, temperature and location of where the pain is situated on the body through the pain body diagram (fig 1) will lead toward a refined clinical consideration of whether or not the pain is occurring in the assumed pertinent expected area. Charting the CAS, as part of the medical record, along with the areas of answered questions, and the patients words set in quotations will provide team members with detailed information which can lead toward better treatment outcomes.

Pre-pain Assessment

Part of the assessment during the clinical interviewing while establishing a therapeutic relationship is creating a portfolio of who the patient was prior to being a "patient." Understanding the lifeworld and perceptions of a person's day-to-day routine prior to delving into what has made them feel unwell can be helpful in gauging their experience of pain, while also providing insight into how much anxiety is a part of the experience. Additionally, it can be useful in establishing resources which may be helpful in their pain treatment.

Assessing solo and with other/s

The most useful clinical picture may be provided when the therapist has opportunity to see the referred patient alone, and also in the context of their significant other/s. Patients of all ages and diagnoses may be prone to protect their loved ones from seeing their expression, revealing perhaps the actual true extent of the pain misery they are feeling. In other situations and circumstances patients may be more apt to trust and accept music when their loved ones are in their presence at their bedside during the music therapy treatment. This is why it is

useful to assess and evaluate the most advantageous context for treatment. It is unfortunate that this is such an important clinical miss not only in music therapy assessments, but in other disciplines' assessment times as well.

Point of trauma

Another often missed question of significant relevance is where and when the pain began for the patient. The associated place and time may be of critical importance. If nothing else, it may lead toward identifiers that lend themselves to deepened investigations of the importance of the pain episode. In some circumstances, causal factors contributing to the pain etiology may be uncovered through such detailed questioning.

Past painful experiences and history of hospitalizations may ensue from asking, for example, how the current pain compares to past experiences of pain. Therapists can be open to learning about past hospitalizations and instances of pain through the numbers, colors, and the very language used by the patient to describe their painful episode.

Culture

It is important to consider how pain expression and/or lack thereof can be reflective of a person's family history where allowance or silencing may have been learned and/or enforced. Adults have shared with me that as children they grew up in families where their parents would say: "children should be seen and not heard." I have worked with patients who experienced pain and were told by their siblings: "no pain-no gain"or "what doesn't kill you makes you stronger" as if, enduring pain should be recognized as an achievement. This can be problematic and cause undue stress as suppression can tax the body's capacity to receive and express discomfort authentically.

Treatment

Once the CAS is complete-there are a variety of options that the music therapist may choose to provide. The choice of which of these options may be fitting is the result of the patient's expression of pain which may include but are not limited to the following options :

i. Vibration/gonging [5, 6]
ii. Drumming [5]
iii. Singing/Wind or String play-rubato style [5]
iv. Breath elongation [5, 7, 8]
v. Tonal Intervallic Synthesis [6]
vi. Music Visualization [7, 9]
vii. Music Sedation/Sleep [10, 11, 12]

It is helpful before assuming any of the aforementioned experientials to explain the clinical thinking behind what is being offered in an informative, gently directive way to patients-with options for the patient's choosing not to receive, and/or to learn about other options. Just as it may be useful for some to hear about all of the existent options, and then perhaps to not receive any. In such instances, having control and/or simply knowing all of these options exist for them may feel supportive.

An option might be stated as such:

"You've expressed that you have not slept in the past 24 hours, and that you'd rather be in your Beach house by the sea-I'd like to try some music sedation with you, if this sounds like a good option…."

Perhaps one of the most important questions that is not on the table but can be an outgrowth of the CAS tool as culmination and wrap up of description and identification of these central mechanisms is: "*what do you think is causing your pain?*"

While such an inquiry might seem strange and/or obvious, sometimes people having pain can have incredible intuition about their pain, and instead of sharing their ideas or experience, they are expecting that the doctors as diagnosticians will know more about their pain than themselves. While this may indeed be the case, I have witnessed patients as exemplary diagnosticians and their intuition, knowledge, and/or expression of pain-including their fears or fragilities-should not be ignored. Melzack and Wall support such inquiry in their seminal Gate control, and the Neuromatrix theories which identifies the cognitive/discriminatory domain as a principal factor in a patient's experience of pain. [13, 14]

Through the years in treating both children and adults, in in-patient and out-patient settings, the CAS has been influential in my team's diagnosing sexual and physical abuse. In other instances, through detailed descriptions of colors and patient shadings in unexpected areas, the CAS has assisted doctors in identifying co-morbidities.

The CAS is a useful under-studied assessment tool that can lead patients toward deeper self-inquiry about what kind of music and sound interventions they wish to be involved in. Once the CAS inquiry has taken place and the pain is described with detailed definition, some sounds of the instruments -as in my Tour of the Room assessment model [4] may be provided, and/or the patient can choose or be offered several choices of experientials in which they may or may not choose to partake. Important to note: they are not required, and certainly should not be pushed to play-an instrument or sing a song. Rather, their choice can be to have the therapist play a selected instrument or sing a song of the patient's choice. In such cases, it is useful to ascertain and not assume which version of the

selected tune the patient desired. The naming of a performing artist they have in mind can be helpful and appreciated-rather than assuming knowledge merely from a requested title.

Best practice treatment relies on assessment

The International Association for the Study of Pain (IASP) recently revised their definition of pain: "An unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage." [15]

As music therapy is a uniquely positioned modality in the healthcare setting, with music being a prime evoker that is sensory in nature, its potential as an effective treatment option in transforming how actual, or potential tissue damage is perceived is undeniable.

The IASP's expanded addition of six key Notes and the etymology of the word pain for further valuable contexts are notable and listed below-along with potential music qualifiers.

IASP's Six Key Notes [15]	Music Therapy Assessment Correlates
Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.	Music psychotherapy assessment [4] Song of kin [16]
Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons.	Choose an instrument that has a sound which reflects the experience of pain. [5] Gonging/vibration [5], [17] Distraction versus integration [18]
Through their life experiences, individuals learn the concept of pain.	Past hospitalizations, Fragile treatment areas [10], [5], [19], [20], [21]
A person's report of an experience as pain should be respected.	Color Analysis Scale (above Table 1, 6) Processing of music experiential pre & post treatment (above, Table 1, 4, 5)
Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.	Selection of options for addressing the obstruction of pain in the moment-assessing underlying mechanisms [5, 10, 21, 22, 23]
Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain.	Breathing entrainment assessment & Crying/vocalization evaluation, entrainment [21, 23, 24]

Examples of pain treatment studies in music therapy

It may be useful within the music therapy assessment time to consider the kind of pain a patient is experiencing in terms of treatment strategizing. Defining the type of pain as acute, chronic, or procedural implies what may be involved, in terms of treatment availability and duration. Mediators include, but are not limited to, prostaglandins, bradykinins, histamine, serotonin and arachidonic acid. The severity of the pain sensed is dependent on the number of receptors stimulated, the duration of the stimulus and the amount of mediators released locally [25]

Acute pain implies an intense discomfort, usually of a short duration, and it requires quick action. Drumming is often indicated in such referrals as collaborated release can dissipate one's tendency to hold on to the pain. Associated at times with an emotional response of anger, a 'felt sense' of tension pushed out of the body within the context of a structure with monitored groove and pulse can provide an experience of control and excitement. While such rituals have been used in rites of passage such as firewalking and body piercing, it is difficult to both find a formal study on acute pain and drumming, and/or to ask a patient if they will participate in research during an experience of acute pain, particularly when it involves participation of often necessary shedding or extinguishing of inhibitions. It may be useful to point out at this time, that creating an 'audio-mess' of dissonance, where the music does not sound appealing may feel unusually satisfying for people experiencing acute pain. Notable as well is assessing when music and music therapy is not indicated is an integral part of assessment [26]

A recent review considered music listening for pain reduction. 18 randomized controlled trials with 1173 participants isolated 10 studies that showed music was effective in reducing the pain experience in patients in the Intensive Care Unit. Interestingly, the longer the intervention (20-30 minutes), the more effective the reduction, when compared to music listening of less than 20 minutes. [27]

A nice example of procedural pain was undertaken by music therapist Whitehead-Pleaux and her integrative team-a physical therapist and medical doctor's investigation music and verbal support during a most painful procedure for children-donor site dressing changes. [28] What's important to emphasize is that the study assessed both pain and anxiety and used validated assessment tools in doing so-assessing psychological, behavioral and physiological data. Other assessments included the Wong Baker Rating Scale, the Fear thermometer, the Nursing Assessment of Pain Index, heart rate and respiration rate. Additionally, while less convenient perhaps than using recorded music, the implementation of live

music and the certified music therapist and milieu team provided for an experience of patient-centered interventions.

Chronic pain is characterized by its duration of 12 weeks or longer. It may have started from an illness or injury, from which one may have since recovered, yet, the pain may have sustained. There may have been an ongoing cause of pain, such as arthritis or cancer. Many people suffer chronic pain in the absence of any past injury or evidence of illness.

A recently conducted pilot study is an example of addressing a disease that typically has associated chronic pain- Sickle Cell Disease. [29] In seeking to assess feasibility, acceptability, and efficacy of a 6-session music therapy intervention for adults with Sickle Cell Disease and chronic pain, participants in this trial completed measures of self-efficacy, quality of life, and coping skills pre and post-test and control conditions.

This study involved in-person music therapy where participants used music experiences and were shown how to gain access for resourcing themselves. They were instructed on how to learn new self-management techniques with the advice of a music therapist. Findings indicated their enhanced ability to cope with pain, and furthermore the music therapy group demonstrated 100% attendance, improvements in self-efficacy, sleep disturbance, pain interference, and social functioning, compared to controls. Sickle cell is an important disease for focus as its sufferers endure chronic pain, and periodic acute pain crises. [30]

Palliative care is inclusive of the management of pain. There are numerous studies and supportive programs reflecting the advanced practice of music therapy in this area. In particular, in the area of music therapy and pain symptom management, a recent study [31] found that among 293 patients, significant improvements in pain, anxiety, depression, shortness of breath, mood, facial expression, and vocalization scores were noted. 96% of the patients studied had meaningful responses to their music therapy treatment. Vocal and emotional interventions were shown to reflect the most influenced symptoms. In another study, live music, in particular was found to render more profound efficacy than recorded music. [32]

Rounds: inclusive treatment

This article has presented an inclusive model of music therapy pain assessment reflective of clinical practice experience as relevant and applicable to policies set in place by the Joint Commission and the IASP. The crystallization of assessing occurs when information gathered through the music and reflective processing with patients is brought to the inter-disciplinary team. Similarly, the relevant medical information and impressions shared with music therapists broadens the way we understand the patients we treat. Provisions of case explanation and relevant sharing of music therapy exemplars will further comprehensive growth and expand the options we choose in developing pain treatment management. At the same time, frequent experientials whereby live music can be shared with the team as exemplars of pain interventions will fortify their understanding and likely increase referrals of patients most in need of pain- relieving music therapy options. Research of clinical options addressing patients' pain experience may be enhanced by bringing in doctors, nurses, social workers, chaplains, physical therapists, and child life specialists into the research team as co-investigators.

Addressing patients' beliefs and supporting their understanding of pain is critical in potentially influencing their reactions to the music therapy provided. Use of interdisciplinary pain teams can lead to improvements in patients' pain management, pain education, outcomes, and satisfaction. (33) Attending interdisciplinary rounds assures the most comprehensive inclusive means of addressing pain as a communal priority of disease management. The CAS, and areas of consideration for assessing presented in this article as integral to treatment options are inclusive of patient experience, which should never be under-estimated, most particularly when assessing and treating the pain experience.

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