Episode: *Ethics Talk: Therapeutic Music and Peace in Health Care*

Guests: Daniel J. Levitin, PhD and Judy Friesem
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[00:00:00] TIM HOFF: The artist Jean-Michel Basquiat is known to have said, “Art is how we decorate space. Music is how we decorate time.” This quotation is particularly apt as part of our introduction to this month’s episode on music and Peace in Health Care. Enjoy. [tender theme music on harp]

Welcome to *Ethics Talk*, the *American Medical Association Journal of Ethics* podcast on ethics in health and health care. I’m your host, Tim Hoff. Music moves us. The figurative meaning of that phrase is clear to anybody who’s ever heard a song that instantly transports them to an important life moment. But the phrase “music moves us” can also be literal, because human bodies respond to sound, which physically move around and through our bodies and other objects as waves. One reason that music is a particularly powerful form of sound influence on our bodies is because of resonance and entrainment. Animals, including humans, resonate with different sounds, synchronize movements rhythmically—think of tapping your foot to a beat—or it can even be induced to rest or to sleep in response to arhythmic music. But how does this happen? How can music so strongly affect both our minds and our bodies?

This episode considers some of the applications of music to health and health care, especially for promoting peace in our lives and in our clinical environments. In the first half of this month’s episode, we’ll talk with Dr Daniel Levitin about the neuroscience of music, how sound affects our brains, and how what happens in our brains affects our bodies. Later, therapeutic musician, flautist, and harpist Judy Friesem joins us to discuss how playing live music for patients at the bedside draws on our keenest observational, improvisational, and relational skills. Up first, Dr Daniel Levitin, neuroscientist, cognitive psychologist, and author of *I Heard There Was a Secret Chord: Music as Medicine*. Dr Levitin, thank you so much for being here.

DR DANIEL LEVITIN: Well, thank you for having me. [music fades]

[00:02:09] HOFF: Music can provoke a wide range of emotions in players or listeners and I’m sure in our audience’s ears: joy, wonder, melancholy, peace. But it’s sometimes easy to forget that sound waves are, in fact, physical forces. So I guess it’s no wonder that music, especially live music, can influence how we feel, what we remember, how we experience sound as a physical force on our bodyminds. How does that happen? What’s happening in our bodyminds when we experience sound, especially music?

LEVITIN: Well, I think what most people don’t appreciate or know even is that when music hits your eardrums, it sets off a complex chain of neurochemical events such that the different elements of music are processed in different specialized circuits of the

brain. So, rhythm is processed separately from pitch. That's separate from melody or harmony, the loudness, the timbre. All of these are separable in the brain. We perceive music as this holistic thing, but then again, we can direct our attention to one element or another. If you're listening to an orchestra, you can focus just on the violins if you choose to, which is evidence that these are separately processed in the brain, that they're separable. And what that means in terms of our bodymind is that different parts of the brain and body can react to these different elements of the musical signal.

[00:03:42] HOFF: And does the research bear out a difference between listening to recorded music and listening to live music? Is there a difference in the way that our brain processes live music, for example?

LEVITIN: Well, there is. In live music, you never know exactly what's going to happen, which is what makes it so thrilling. You don't know if the singer's going to pull off that amazing high note that you hope they're going to hit. You don't know if the whole orchestra or jazz combo is going to fall off the rails at any moment. I always thought that the excitement of the Rolling Stones was largely in the overall sound, which is like a train that's about to jump the track and you never know when. And it never quite does, but they're kind of loose and scrappy in an exciting way. You get that on the records. But you hear the record over and over again, and you know they're not going to jump the rail. Live, anything can happen.

The other thing that's going on live is you're surrounded by other people. And my lab was the first to show that when people listen to music together, our brainwaves actually synchronize. So, what Vinod Menon at Stanford and I showed was that the same music to the same people causes this kind of social bonding, and being in a crowd of people experiencing the same thing also causes social bonding and the release of oxytocin, a social salience, trust, and bonding hormone. So all those things together make the live experience different.

[00:05:23] HOFF: Listeners might've heard of music therapy when a patient plays or listens to live or recorded music with some health-promoting goal. This is an intervention that's administered and overseen by a licensed musical therapist. From your point of view as a scientist and musician, what exactly are music therapeutic interventions?

LEVITIN: Well, lately in the field, we've been making a distinction between music therapy and music interventions. So music therapy exists in a, as you say, in a therapeutic context with a therapist. It could either be dyadic or it could be group therapy, but there is a licensed music therapist helping to guide the session. And that session could be you listening to music and them helping to curate a playlist for you. It could be them giving you instructions about what to listen to at home. It could be music making: drum circles, community choirs, or songwriting. We see with some therapeutic programs soldiers who come back with PTSD experience songwriting as a way to recontextualize and get over the trauma. This is different than, say, when your dentist plays you music in the dentist's chair or when a surgeon or a member of the nursing

staff gives you music to relax to prior to surgery. That's what I would call a music intervention, because it doesn't involve a licensed therapist.

And then there's self-medication. We, all of us, use music at some point as a kind of medication. Most of us have a certain kind of music we know we want to use to help us get through an exercise workout or to help us wake up in the morning or to relax at the end of the day, music to serve as a social lubricant at a party. Those are self-administered music interventions.

HOFF: I'm glad you mentioned specifically the use for music for people returning especially from combat zones. I wanted to direct our listeners to a particular article from our March 2019 issue titled, *Why We Need a Music Player in Every Patient Room* that essentially makes that argument. That article actually cites some of your research.

LEVITIN: I saw that article, yeah. And there are music therapists now working in VA hospitals and having great success. And even just bringing music into a VA hospital performance to give the vets something to listen to and engage with that's out of the ordinary routine is very healthful.

[00:07:53] HOFF: Sure. Yeah, yeah. So given the benefits of integrating music interventions in health care, why do you think they're not more widely used to care well for patients?

LEVITIN: [delighted chuckle] I'm laughing because I'm just a simple country neuroscientist.

HOFF: [laughs]

LEVITIN: And that's really a public policy question, and I don't want to stray outside my lane. I don't know how it is that hospital administrators and physicians and health care companies, let alone Medicare, make decisions about such things. There's a friend of mine, Ben Goldacre, has this wonderful saying that, "there is no such thing as alternative medicine." There is medicine, and then there are things that don't work or haven't been shown to work, and that's what we call alternative medicine. As soon as it's been shown to work, it's simply medicine. And so, music is medicine. And why is it that it's not more widely used? Well, I think up until about 2008, there wasn't a lot of solid laboratory or clinical evidence for it. There were just a lot of anecdotes. And the plural of anecdote is not data. And although music had been used for 20,000 years with shaman and faith healers and among various indigenous peoples, so had a lot of things that were shown to be harmful.

It wasn't until the mid-2000s that the science caught up, partly based on advances in neuroimaging and in neurochemical technology. So, for example, our lab was the first to show that dopamine is released in the brain when you listen to pleasurable music. And then we showed a few years later that the brain produces its own endogenous opioids in response to pleasurable music. So, now we don't just have a phenomenon and evidence that it works, but we have an underlying mechanism, an explanation. And generally speaking, you want to know not just that it works, but how it works. And in the

last 15 years, we've converged on that. I led an NIH consortium with Francis Collins from the White House Science Office and Renée Fleming from the Kennedy Center last December. And among other things we did there was we brought in 50—five-zero—scientists who specialize in music and health, and we reviewed what we know. And the consensus was we do know quite a lot now.

[00:10:29] HOFF: Hmm, yeah. It's interesting to hear how much of the scholarship on the neuroscience of music is relatively young within the past few decades or so. Some of the findings that you've mentioned, like that dopamine is released when listening to pleasurable music, for example, those seem almost like common knowledge and are certainly in line, I think, with what music lovers have already been experiencing for thousands of years at this point. But I'd like to turn in the other direction. So, what should listeners know about the future of music research and of music in health care?

LEVITIN: Where the field is headed is procedure codes for the major health insurance companies. More awareness on the parts of doctors, nurses, hospital administrators, insurance companies, and caregivers. And I think in the next five years, we'll find artificial intelligence helping to choose music for you—not to write music, but to choose music from the roughly 200 million songs that are out there in the various streaming services—choose music for specific therapeutic goals that you and your caregivers set for you. So, it'd be one kind of music for depression, another kind of music for anxiety, another kind of music for pain relief. And that's going to be individual. There's no one music that will do it for everyone. And so, the individualized music prescription, as it were, and dose, will be facilitated by AI's ability to extract features from music that are compatible with your listening experience and your musical tastes, because music therapy won't work if it's music you don't like. [tender harp music returns]

HOFF: Dr Levitin, thank you so much for sharing your time and expertise with us.

LEVITIN: It was my pleasure, Tim.

[00:12:16] HOFF: Unlike music therapists, therapeutic musicians do not perform clinical interventions in patients' conditions. Rather, therapeutic musicians play live music at patients' bedsides to try to promote relaxation, distract from pain, and reduce agitation. Therapeutic musicians might play harp, guitar, hammered dulcimer, Native American flutes, or use their own trained voices or other instruments that are rich in vibration and resonance. Therapeutic musicians are trained to closely observe patients' responses to the live music that they make. With us now to discuss her experiences as a therapeutic musician is Judy Friesem. Judy, thank you so much for being here.

JUDY FRIESEM: I'm pleased to be here. Thank you for the invite. [music fades]

[00:13:03] HOFF: It might not be immediately apparent, but it takes energy for patients to listen to music, so the music may be slow and simple in structure or with or without rhythm. What are the tools that you use to package music for therapeutic purposes?

FRIESEM: Well, packaging is really a good word for this because therapeutic music is not performance, so it's different than what we usually think of. And though I know a

variety of music styles from familiar to new age, classical to world music, I don't come into a room with a set playlist, so I never know what I will play. I come in and I listen and I look for signs. I watch monitors. I assess what I think the patient will want and need. And is it relaxation? Is it distraction? Are they in pain, physical or emotional pain? In a coma? Or are they nearing their last breath? And so, I think of using two main tools: entrainment, or synchronization, and resonance, or vibration. So I try first to match where the patient is at. I watch their breathing, I watch their facial tension, I look for body movements, I try to read their energy and sometimes even match their sounds if they're moaning. And then once we connect, then music can bring someone to a place of stillness or calm. And from that place, we relax. We breathe deeper. Tension eases. We can even begin to heal. And I'm thinking of healing as an integrating body, mind, and spirit, not curing. And we know what breath alone can do for healing, right?

[00:14:49] Therapeutic music is usually simpler and slower because it isn't about complexity. In fact, too much texture or too many notes can be painful when someone is fragile. And so, we often play at heart rate rhythm, 60 to 80 beats per minute, to help stabilize the body and return to normal. Especially important after surgery. So I can, my tools, or I can switch out the tempo. I can change the rhythm. I can match the breathing in the moment as it changes. I can add texture, more notes or less notes. I can keep jumps between notes smaller or greater. If someone wants more engagement, I can repeat phrases. I can lull someone to sleep. So I have many, many tools. And I would say that the most frequent response, which can often be instant, is a deep sigh and a change in breathing. And that relaxation is critical, especially for people who are anxious or agitated.

[00:15:51] HOFF: You mentioned in your response the importance of resonance and the importance of entrainment. I also brought those up in the introduction to this podcast, which listeners will have already listened to by this point. But for folks who are unfamiliar, can you expand a little bit on those two important ideas?

FRIESEM: So, entrainment. If you want to try, just try walking and then singing at a different pace. For me, it really is near impossible. We automatically connect and respond to what we hear and feel, and that's entrainment. Yet, when someone is at the end of their life and about to transition, I play without any discernible rhythm because rhythm holds us here. So think drum beat and think of how that steadiness calls us to the present. And dying requires the opposite. We need to let go, and non-rhythmic music can help us get there.

And the other tool that feels really important to me is resonance or vibration. And those invisible sound waves can literally touch us. We are truly moved physically by the sound waves. We don't see them, but they're real. And this may explain why we tear up or feel goosebumps when we hear music that is beautiful to us. Sometimes that vibration can move something on my windowsill if it matches the same frequency. We know that sound waves can shatter glass, it can move through dense water. And think ultrasound, how that sound wave can get us an image inside the body. So sound is pretty, pretty powerful. And as a harpist, I can allow the richness of the strings to ring out. I can let those sound waves move through the room and even through us.

And the only other tool I just feel a need to mention is the importance of space. So music is food for the brain, and it can be overwhelming. But it's the space between the notes where we make sense of the music.

[00:17:59] HOFF: You've talked a lot about music's ability to engender peace in listeners at this point. Do the people you work with ever, are they ever seeking some of the other emotions that music can famously build up in somebody? Wonder, joy, excitement, energy, anything like that?

FRIESEM: A great, great question. I see everything. When I'm playing for people with dementia or Alzheimer's, mostly they want to connect. And then I'll play familiar music, and that can bring, that can be a catharsis. That can bring back memories. And again, I watch very closely to make sure that I'm not, with the music, causing some angst. Sometimes people just want distraction, and I'll play some—I love Latin music—and I'll play some dance tunes and watch their feet move. I'd say I don't rock out on it, [giggles] but I try to go just about anywhere. And I'll also learn music if somebody has a favorite. So, yes, I try to, I follow the listener. I follow the patient what they want.

[00:18:59] HOFF: That improvisation that you've noted—being ready to play in response to patients' mood or needs or even just requests—is a key feature of therapeutic musicianship. What do you see as the ethical and relational importance of improvisation in playing bedside music for patients?

FRIESEM: That question really got me to think, and I love it. So yes, it is, for me, all about connection. So, relational is what it is. I have my music memorized so that I can pay attention in the moment. And if I lose focus, it's great practice for staying present. I lose track, so I'm very much in the moment, and I can riff off of what I'm playing and follow, as I said, follow the patient. That, to me, is the key to therapeutic music.

And ethics, ethics to me is moral character and choices, and to me, music has to be non-judgmental. I play for people from all walks of life and backgrounds, sometimes with questionable intentions and a hard-chosen life path. But it doesn't matter. I go deeper. I go through that to connect to the spirit or perhaps soul of the person. It's heart-to-heart work, and when someone is open and receptive, it can profoundly affect someone. It's probably important to know that I don't play any kind of religious music unless specifically asked, because I don't know how that's going to impact someone. Early on, I was walking through the hospital corridor hallway, and I was playing *Edelweiss*, which to me is *Sound of Music*. Everybody loves it. But then I heard weeping in the room, and it turns out that it was a woman's wedding song, and she was recently widowed. So, music is very powerful, and I take that seriously. So, ethics: music doesn't judge. I take people where they're at, I try to match them, and it's all about relational.

[00:21:09] Just another short story. I play for a man now who's 80 and recently diagnosed with cancer, and he's now paralyzed from the waist down. And he had a very active life of travel and work, and he was having, he was depressed. He was having a really hard time coming to grips with his limitations. I asked if he loves music. He said he doesn't sing anymore, so I just started to play. And within 15 minutes, he started

singing along. He was making up words. He was making up his own tune. Doesn't matter. He was having a great time. His wife was laughing, and he said he didn't know where that came from. He hadn't felt so free in a very long time.

[00:21:49] HOFF: Mm. Yeah, that's beautiful. Thank you. Thank you for sharing that. I think our audience has already started to draw these connections based on the stories that you're telling. But since this episode is part of our theme issue on Peace in Health Care, I'd like to invite you to reflect on the theme of peace in your work as a therapeutic musician. Do you have any other specific experiences that you think relate to how well-placed music in health care can help promote peace and healing in health care environments?

FRIESEM: Great. Well, I love that question because my other life is as a mediator, and it's my life's journey to work towards peace in the world and within as best I can. And I know that music resets me and brings me back to what's important. So, peace. Years ago, I was reading a conflict resolution text because I was studying that, and I came across the phrase "resonance is the single most important factor in affecting change." And that's the same as in music, and how wonderful that is. Once we listen deeply, whether it's conflict work or music or probably any other field of people work, and really connect, everybody is impacted. And music touches everyone in the room. We can close our eyes, but we can't really close our ears easily. So, staff in busy hospitals, overworked caregivers, family and visitors in the room, especially when they're stressed, I've seen the tension ease markedly. I've seen new mothers ease after giving birth. More peaceful babies latch on when they've had trouble doing so. And so, when we're relaxed—and music can help us get there—and peaceful, we have more options. We're freer to respond.

[00:23:39] And yet, when it comes to peace, I'd say what I've learned as I age especially, is that what's most important to me is peace within. I say no one wants a distraught harpist. So, to do this work with clear intention, I really need to be peaceful and grounded. And I take that kind of as my charge, something I need to do. So how I enter a room matters. I move slowly. I come in slowly with calm and joy, for there's really no place to go and no hurry and no place I'd rather be. And I only play what I love because life is too short. And I have to trust that that radiates out through the strings. So I take care of myself. I give myself time to absorb and assimilate. I have daily spiritual practices to help me stay balanced. And I would say that this work isn't easy, and it's not meant to be easy. And if it gets so, then I really need to step away.

So, one note about peacefulness: I played last week for a woman who's 93. She was in bed and fragile, no clear response. As I played, she quickly closed her eyes and relaxed and had some deep sighs, and her caregiver said that she had not seen this woman that peaceful in her five years of being by her side. And this was after 30 minutes of playing. And the caregiver was tearful and calm as well.

HOFF: Mm. Yeah, thank you for sharing that story and for highlighting the caregiver's response. I think that's a maybe under-discussed part of this conversation about how

creating peaceful environments is good not only for the patients, not only for clinicians, but also for patients' loved ones and caregivers.

[00:25:30] But to wrap up, I said it once and I'll say it again, our audience is a bunch of smart cookies, and they've already probably been drawing out lessons to take away from your discussion. But what would you like health professions students and clinicians to know about live bedside therapeutic music?

FRIESEM: I would say that therapeutic music is an art based on the science of sound. So there is a lot of research out there to support how music impacts us. And too, there's the mystery. There's the art part of it. And I think music can be profound, reaching places where medicine can't go. And so, put it together, and I think it's a pretty powerful combo. [tender harp music returns] I predict that someday there'll be a prescription for music. I don't know.

[00:26:15] HOFF: [chuckles] Well, Judy, thank you so much for your time on the podcast today and for sharing your stories and your expertise with us.

FRIESEM: Thank you, Tim, for asking for me to share what I love. This is honored work, and I trust that what comes through my heart and harp will add a bit of healing and peace in the world. So, thank you.

HOFF: That's all for this month's episode of *Ethics Talk*. Thanks to Dr Levitin and Judy Friesem for joining us. Songs in this episode, titled *First Snow* and *Stillness*, were composed by Anne Crosby Gaudet and performed by Judy Friesem. To read the full issue on *Peace in Health Care*, visit our site, journalofethics.org. And for all of our latest news and updates, you can find us on X @journalofethics. Catch us next month with an episode on *Evidence-based Design in Health Care*. Talk to you then.