

Dr. Lynn McPher...: Hello, this is Dr. Lynn McPherson and welcome to Palliative Care Chat, the podcast brought to you by the graduate studies in palliative care at the University of Maryland, Baltimore. My guest today is me. How interesting is that? But I'm super excited that I'll be chatting with Dr. Jaime Goldberg, who is a research specialist at the School of Medicine and Public Health at the University of Wisconsin-Madison. I know Dr. Goldberg because she also teaches in our Master of Science program. She is a social worker extraordinaire. And Dr. Goldberg, thanks for being with me today to go through this.

Dr. Jaime Goldb...: Of course. Thank you. It's such an honor to get to interview you. So Dr. Dr. McPherson, I am curious, first and foremost, with all of the degrees and letters that you have after your name, what possessed you to pursue this PhD that you just completed completed?

Dr. Lynn McPher...: Well, my family would say it's inherent being psychotic or something. But my feeling was when we first started the graduate studies in palliative care, we started with a master of science and then developed graduate certificates as part of that. But then I had so many students asking me, "Can't we have a PhD?" So I thought, "Well, that's a great idea." But if we're going to offer a PhD and I'm going to be in charge of it as the program director, I should probably have a PhD. So I was mostly, well, I love learning. This is why I have 475 degrees, I think. But I thought it was important that I understood the backstory of how you go about crafting a professional as a PhD. So that was my initial impetus for doing this. But I really enjoyed the heck out of the whole process. And I learned so much and it's really sparked such a new line of research for me personally.

Dr. Jaime Goldb...: That is amazing and inspiring that you took the time to go through the process to be a better educator-

Dr. Lynn McPher...: Thank you.

Dr. Jaime Goldb...: ... for your students. So let's talk about that new line of research. What is it?

Dr. Lynn McPher...: Well, the title of my research was The Effects of Medication Information Delivery Format on Cognitive Load and Knowledge Retention of Informal Caregivers. I know that's a mouthful. It sounds like a whole paper right there. But I was [inaudible 00:02:21] pulled together all of my interests. So as you know, my practice has been in hospice and palliative care my entire career. And I'm very interested in, we don't do the most awesome job ever preparing informal caregivers to take on this role in medication management. It's a big ask of informal caregivers. So I'm interested in medication and therapy, the appropriate use of medications at the end of life, I'm interested in education. And how can we better prepare these people to take on that role? It's a very scary role for people who are not healthcare providers. So they kind of pulled everything together for me.

Dr. Jaime Goldb...: Amazing, amazing. And what did you find? How did you go about this and what did you find?

Dr. Lynn
McPher...:

Well, first it was identifying what is an informal caregiver. It's defined as a relative spouse, partner, or friend who provides care and support to someone at home without pay. And as you very well know, we ask them to do so many things, physical, psychological, spiritual, emotional support. And one of these tasks is medication management, which is really multifaceted. It's procuring and maintaining an adequate inventory of the medications. I think one of the biggest challenges is we provide hospice patients with something called a comfort pack or a comfort kit. It's a small box with a few doses of five or six different medications to be used as needed. Generally, the prescriber signs off on the order for the comfort kit and says, "To be used per nursing discretion." So if the nurse is educating the family, the informal caregivers, if she has pain, you can use this medication or this medication. Comfort kits generally have acetaminophen rectal suppositories and morphine, for example.

So one of the biggest tasks for the informal caregiver is to decide, first off, they have to be a diagnostician. They have to look at the patient and decide what the heck is going on here. Imagine you're 82-years-old, your husband is 84, and he's dying of something awful, a God-awful cancer. And he's not really in his right mind. He may not even be completely conscious, but he's having some behavioral disturbance. Maybe he's agitated, maybe he's doing the jitterbug in bed. So is this anxiety? Is it depression? Is it psychosis? Or is it physical discomfort? So sometimes we can't distinguish those behaviors in someone who is nonverbal, and then we're asking this 82-year-old woman to do that. So A, number one, just to figure out what's going on. And then number two, what to take from the comfort kit to administer. After she administers it, which can be a challenge. If someone is nonverbal or not even conscious, they may have to use what's called a high concentrate oral solution, like an Intensol.

So here is somebody who's agitated and moving about in bed. You have to get them in a [inaudible 00:05:04], so tie them down and administer this liquid in the buccal cavity. So after we get that done, assuming we pull that off, then the caregiver has to monitor their response to the drug therapy. And if anything untoward develops, they have to decide, what am I going to do about it? Am I going to do nothing? Am I going to call 911? Am I going to call the hospice? Should I just wait? What the heck should I do? So that's a lot for them to do. So there are so many barriers there. So that was really the upshot of why I wanted to do this. So when we look at what do hospices do to prepare people who are not healthcare providers for this role, they can do a lot of different things.

Certainly, I mean, my hat is off to hospice nurses. That admission visit is like four hours long. And they have to talk the patient, the family through signing about 312 documents. It is a task to begin with like nothing else. And we all know that we ask informal caregivers to do things that 20 years ago we would swear you had to have a highly skilled nurse to do these things. And now we put it all on these informal caregivers. So I think that's a busy, busy visit. And they have many, many things to teach them. But one of them is teaching them about the medications in the

comfort pack. And I do think that most hospices have adopted the approach where the admission nurse will start the education process, but then as the patient and family transition to their assigned nurse case manager, they will also repeat those instructions.

Some hospices will provide some written information, but you and I both know it's probably the front of or back of one page written in a four point font, and it's using medically jargon, which can be very difficult for even you and I to understand, let alone an informal caregiver. So those I think are some of the challenges that we face, although we do our very, very best job. So since my PhD was in health professions education, they asked that our research have to do something with an educational theory. Well, I've been a teacher for a very long time. And I always pride myself in snappy slides and really super cool graphics. Well, very early on in my didactic training, I learned about the cognitive theory of multimedia learning. What the heck is that? This is the theory promulgated by Dr. Richard Mayer from California who says people learn better from words and pictures than either words or pictures alone.

And I was like, "Wow, that is really, really interesting." So part of this cognitive theory of multimedia learning deals with cognitive load. What the heck is cognitive load? It's how hard does your brain have to work to learn something new? And there are really three types of cognitive load. The first is intrinsic cognitive load, which is the actual complexity of the task. Now, depending on the task and depending on the learner, so for example, if it was you and I and it was a social work concept, the cognitive load intrinsically would be way lower for you than for me because you've been around the park with social work and in fact have a PhD in it. But it would be quite a bit harder for me intrinsically. Extraneous cognitive load is all that work I put into pretty graphics. It is things that we throw into the learning activity that are not at all essential to the task, and as a matter of fact, can be distracting. And you're burning brain cells on things you really don't need to do.

So we would hope that in our designing educational pieces, we would reduce intrinsic cognitive load and extraneous cognitive load, leaving the true germane load, which is the mental effort that leads to actually understanding this new information. So we hope to increase germane cognitive load and reduce the other two. Now, Dr. Mayer formed 15 principles in designing educational learning objects that would optimize reducing intrinsic and extraneous and increasing germane cognitive load. So I was thinking, "Okay, what's a great example of something that includes words and pictures?" And like many, many people, I am dead in love with the idea of an infographic. Who does not love an infographic? Have you seen infographics, Dr. Goldberg?

Dr. Jaime Goldb...: Yes. They're amazing.

Dr. Lynn
McPher...: Yes, they are.

Dr. Jaime Goldb...: And they're so helpful for learning.

Dr. Lynn McPher...: Yes, they are. So there are so many things like Canva and so forth that can help us design infographics. So I was very interested in, has anybody looked at the use of an infographic? And does it alter educational outcomes? Well, there's a fair amount of research looking at this. But I have to say, much of that work was not really a hundred percent well-designed research. And it wasn't controlled research or objective assessments and so forth. There were a few studies that have come out in recent years. So I thought it would be very cool to look at one group of informal caregivers who were given an infographic about a medication that we often use in hospice and palliative care, and then have another group of people who got the exact same content only using it as a text document. So one is an infographic, one is text, same exact reading level.

So that's what I did. I had to use our Master of Science students to help me with this project to pull off recruitment. So I made it a learning activity for them as well. So students, I had 60 students, were charged with finding two people who had served as an informal caregiver and provided medication management to anyone at any point. It could have been a hospice patient, but it didn't have to be. So I mailed to the students two infographics that I had prepared and two text passages I had prepared. I used hydromorphone and I used hydroxyzine. And I designed these infographics according to the principles that Dr. Mayer developed as part of the cognitive theory of multimedia learning. And there are several principles. We had 15, seven of them were applicable to this project.

So just as one example, in the infographics and in the text, of course, I addressed several questions as put forth by the National Council on Prescription for medication information. Things everyone should know about their medications, like what is the name of the medication? What is it supposed to do? What are the side effects? So for example, when I got down to the bottom of the informational leaflet, I said, "What should I do if one of these things occurs?" And instead of saying, "Call the nurse," the principle of personalization says it should be, "Call your nurse." So it's personalizing it. And it's astounding how the research has shown from Dr. Mayer just that one simple switch increased learning. What do you think about that?

Dr. Jaime Goldb...: That is just incredible to me. And it feels so palliative care to me that we really think about each and every word that we say. And just saying, "Your Medicaid," or, "Your nurse," or really personalizing it changes the entire tenor of the sentence.

Dr. Lynn McPher...: Absolutely. So I looked at two different things. My first research question is, would using an infographic versus a text change knowledge retention in a quiz given immediately after viewing this informational leaflet? And the second question is, using a survey to garner information and impressions from the informal caregiver, did the infographic versus the text passage influence their cognitive load? So the way it worked methodologically was my students found two individuals, my students went to a Google Doc and picked a date and a time. And basically, my student was just the facilitator. Hand them this piece of paper, take it back, hand

them this new paper. And I narrated the entire research project. So first, we collected some demographic information, of course. And then the participants were given the leaflet, either the infographic in group A or the text in group B. They had 90 seconds to read and observe that infographic. And then that was taken away. And then they were given a quiz and they had two minutes to take the quiz.

And it exactly questions specifically what was on the medication information leaflet. So we did that and then they were given the survey, which included questions that would query their perceptions of their intrinsic, extraneous, and germane cognitive load. So we did that first with hydromorphone, which is Dilaudid. And then I repeated the entire experiment again using hydroxyzine, which is Vistaril or Atarax, and antihistamine. So then I did the data analysis. I did an independent samples T-test on the quiz performance. And unsurprisingly, the infographic considerably outperformed the text. P less than 0.001. I was very excited. And then also I did a MANOVA looking at the difference in the cognitive load. And indeed we did see that the infographic reduced intrinsic and extraneous cognitive load and increased germane cognitive load. So I was very excited with the results.

Dr. Jaime Goldb...: That's so exciting. It just sounds like such a well-thought-out process and project and so, so important for really changing the way that we help caregivers, informal caregivers, to be able to help their person-

Dr. Lynn Thank you. Thanks.

McPher...:

Dr. Jaime Goldb...: ... who is ill. So I'm curious, what next with these infographics? It feels to me like every single hospice agency in the country or the world should have these infographics.

Dr. Lynn Sounds like a new business line for me, doesn't it?

McPher...:

Dr. Jaime Goldb...: Yes, it does.

Dr. Lynn Well, I think this research has several implications, certainly, one, as you just mentioned. And I do do a monthly little recording for the hospice that I work with called Farm Smart. And I just launched one looking at what are the most, most important pieces of information a hospice nurse has to convey to the informal caregiver? So I just wrapped up one on acetaminophen. And I did create an accompanying infographic for their use. So I'll continue with the most common drugs that we use. But I think this line of research is also very informative for people like you and I who are going to be teaching social workers and pharmacists and other healthcare practitioners of the future that maybe in our own teaching we should be employing the cognitive theory of multimedia learning. I know I'm very sensitive to not including pretty pictures in my slides now just for the sake of a pretty picture. I think this has important implications also for faculty members and teachers all over as they are educating their learners to perhaps harness the power of the cognitive theory of multimedia learning.

Dr. Jaime Goldb...: Absolutely. And I appreciate that you mentioned the multidisciplinary or interdisciplinary team. I'm curious how you think or how you envision doctors or social workers or chaplains, how they might be able to use these tools as members of a hospice team.

Dr. Lynn McPher...: I think that's a twofold answer there. I think just understanding this cognitive theory of multimedia learning and being cognizant of the intrinsic load. And what do we mean by an extraneous load? Don't include music if you don't need music. And then the germane. So just understanding that principle and how that translates into best educational practices. And then of course, the other part is the practical application to educating these informal caregivers who are not doctors, nurses, and pharmacists. These are laypeople, often elderly with their own health problems. Often in hospice, we worry the caregiver will die before the patient. So we have to use-

Dr. Jaime Goldb...: Totally.

Dr. Lynn McPher...: ... an evidence-based approach to our own teaching of people and in educating other people to take care of the patient that they're involved with.

Dr. Jaime Goldb...: Absolutely. And just to, as a social worker, to underscore that this is everybody's responsibility. So we might not be prescribers and we might not be the ones who are doing the actual education about the particular medication, but we can support using a tool like this. We can review it with patients and families. So just, again, to underscore how important it is that everyone on the team is onboard with helping informal caregivers with their task of caring for their person, and that includes medication management.

Dr. Lynn McPher...: And that's an excellent point. Dr. Dennis Lau, who was on my committee, did so much of the work looking at medication management and informal caregivers in hospice. And he did a lovely study interviewing not only nurses, but social workers and physicians and asking them, "What is your role here?" And there is a tremendous role for social workers to reinforce the message from the nurse.

Dr. Jaime Goldb...: Exactly.

Dr. Lynn McPher...: You are so right. We all need to be on the same page.

Dr. Jaime Goldb...: Absolutely, absolutely. And I'm thinking about the PhD students who might be listening to this. And I'm wondering, as you are looking back on your process, is there anything that you wish you would've done differently or had known about that would be helpful for them as they're going through their process?

Dr. Lynn McPher...: Well, one thing that I did observe is, it's funny how when you're taking a didactic course and it's breaking your back like statistics, for example, or whatever it may be, I took some survey methods. And then subsequent to even getting your degree,

I just was speaking with one of my young learners and he wants to do a survey. And I remember thinking, "Boy, I wish I'd paid attention more in that course because it'd be very valuable now." So really seize the day in your training and get as much as you possibly can because you never know when it'll be helpful in the future. Did you have that same experience, Dr. Goldberg?

Dr. Jaime Goldb...: Absolutely, absolutely. I get questions now all the time and I'm like, "Oh, gosh, I wish I would've retained more of that information." But you are getting so much information thrown at you and you're reading so much. It's hard to absorb everything.

Dr. Lynn
McPher...: Yeah. Well, I do want to thank my committee because now that I'm on the other side of the desk and I'm serving on committees for our students, it is such a lot of work. And they put their heart and soul into it. So I would like to thank doctors Christina Cistone, Violet Kulo, Karen Gordis, Hyun-Jin Jun, Dennis Lau, and Andy Stanfield. Really the experts in what we do for a living. And I really appreciate their blood, sweat, and tears in this process.

Dr. Jaime Goldb...: Yeah. It's all a labor of love and it takes a village.

Dr. Lynn
McPher...: Absolutely, absolutely.

Dr. Jaime Goldb...: It absolutely does.

Dr. Lynn
McPher...: Well, thank you so much for allowing me to chat with you on this, Dr. Goldberg. I could talk [inaudible 00:19:33]-

Dr. Jaime Goldb...: Of course.

Dr. Lynn
McPher...: ... about this.

Dr. Jaime Goldb...: I love it, I love it. Such, such important work that really will transform the way that we help informal caregivers. You are a visionary in this field, and we are just so fortunate to have you continuing to innovate and do just really incredible, incredible work that just gives such contributions to the field.

Dr. Lynn
McPher...: Well, thank you so much. And I didn't even have to pay her to say that. Well, thank you again. So let's wrap up. Again, this is Dr. Lynn McPherson. I'd like to thank Dr. Jaime Goldberg for giving me the chance to discuss my research. This presentation is copyrighted 2023 University of Maryland, Baltimore. For more information on our graduate studies and palliative care, which are all online, or for permission requests regarding this podcast, please visit graduate.umaryland.edu/palliative. Thank you.