

Joyce Y. Chung, M.D. and Lauren Y. Atlas, Ph.D.

Behind the Mask

August 3, 2022

Barr: Good afternoon. Today is August 3, 2022. My name is Gabrielle Barr, and I'm the Archivist with the Office of NIH History and Stetten Museum. Today I have the pleasure of speaking with Doctor Joyce Chung, the Executive Director of Graduate Medical Education at the NIH Clinical Center [CC], and Dr. Lauren Atlas, who is Senior Investigator in the Section on Affective Neuroscience and Pain at the National Center for Complementary and Integrative Health [NCCIH]. Thank you both for speaking to me about your research and experiences.

Atlas: Thank you for having us.

Barr: To begin, will you please introduce your study "COVID-19 and Mental Health: Predicted Mental Health Status is Associated with Clinical Symptoms and Pandemic-Related Psychological and Behavioral Responses," including when you all began thinking about initiating it, the study's core aims, and how you all went about designing it?

Chung: Well, the title that you named is the title of a preprint article that we put out based on the study. The actual name of the protocol is "Mental Health Impact of COVID-19 Pandemic on NIMH [National Institute of Mental Health] Patients and Volunteers." This is an effort that came out of the NIMH intramural research program, of which Dr. Atlas is an affiliated investigator. I think what's important to note about the study is that it is a collaboration between six or seven different labs at NIMH—so it's not just one person or group. It was really stimulating to work as a team and collectively across groups, which is not that typical. People at NIH tend to work in silos. What's really interesting about it is how we all banded together during the pandemic under a shared interest of looking at mental health.

Barr: Can you talk a little bit about how you went about compiling this survey and what some of your considerations were?

Chung: Well, I'll speak to that. The fact is that we were scrambling to get a study up quickly, so we took measures that we were familiar with and had used in other studies in the past. But what I think is important—and maybe Dr. Atlas can speak to this in particular—is a study survey that we created. We took a survey that was being created by colleagues at NIMH on mental health and COVID, and then we added to it. Maybe, Lauren, if you could say more about that, that would be helpful.

Atlas: Yeah. Basically, at the beginning of the pandemic, a whole bunch of us in many different labs who study outpatients and healthy volunteers, as well as our participants, all immediately had to go into lockdown. We wondered how this was affecting mental and physical health, particularly because of the increased isolation. We know that isolation and loneliness impact health, both physical and mental. Basically, a number of different labs came together. We generated hypotheses about what factors might contribute to mental health during the pandemic and combined published questionnaires and a novel questionnaire that we put together that measured things like social support, connectedness in the house, behaviors, isolation, whether people had left their house, and worries and beliefs about the pandemic itself. As more information came out about different symptoms and different factors that were affecting people's experience during the pandemic, we made one revision to the questionnaire. We asked participants to provide data every two weeks for a total period of six

months so that we could look at factors that predict mental health over the course of the pandemic. We collected data for the first year of the pandemic, starting in April of 2020, and we stopped enrolling people in October of 2020 and completed the study six months later.

Barr: Oh, okay, that's interesting. You said there were a bunch of different people that were a part of this study. Can you speak about how each of you lent your expertise and your own niche specialty to this study?

Atlas: Joyce, do you want to take that, or do you want me to?

Chung: One thing that I brought was that I had previously used online websites to screen people for studies at NIMH. Luckily, I had that experience to bring to the project. We obviously had to collect online data, we couldn't reach people and see them personally, face to face. I had enough knowledge about how to get that accomplished, and I was familiar with the team that could build that system for us. That was really important. That was one piece of, I guess, a technical side that I brought. I also had, in previous studies, worked with other groups in referring patients to their studies, so I already had connections around NIMH, which I think helped facilitate that.

Atlas: I'm not a clinician, so I'm interested in psychological predictors of health. I study the placebo effect. Dr. Chung and a number of other psychiatrists and clinical psychologists on the team really had the expertise in mental health, so they were able to address what happens if people are reporting suicidality or all sorts of things. How are we going to account for things that might happen over the course of the study in terms of mental health? There are a number of us who are proficient in longitudinal data analysis—so basically, how do we look at change over time? Cristan Farmer and I have really been doing that. Then there are investigators as part of the team who have expertise in machine learning, which can help us use techniques to predict whether somebody has mental illness or not, or how somebody might fare based on measures from other individuals. In the end, we ended up with 3,655 individuals who enrolled.

Barr: Wow, that's considerable! These were all former NIMH or people or there were others as well?

Atlas: No. It's 3,600 people from all over the world and every state represented. Of those, Joyce, it's like 250 or so that we had seen at NIH previously?

Chung: Yeah, around that number. We started off with recruiting people that we had already known or were in our studies, but it was then opened up to the general public, and it kind of took off. We posted it various places. We put it on listservs. People contacted us because they saw it on clinicaltrials.gov. It's obviously a convenience sample—we couldn't control exactly where this went to—but it was an online study that people could find or hear about. We were able to enroll that many people in a relatively short period of time because it was online. It kind of just had a life of its own.

Barr: That's amazing. That's quite a lot of people.

Atlas: Yeah, and everybody's being asked to complete a number of questionnaires every two weeks for six months. I saw recent numbers, and over 500 people completed every two-week interval for the entire six months. People really were engaged in this study. Part of the questionnaire was an open-ended, free response item, and a lot of people told us how meaningful it was to participate in the study, and that they felt like they were being heard, which meant a lot to us as the study team.

Barr: That's amazing. That's great. Can you talk a little bit about how you went about analyzing the results of such a large group of people, and what some of the findings were?

Atlas: Do you want me to go ahead, Joyce?

Chung: Yes, go ahead.

Atlas: We're doing this in a couple different stages. One of the challenges in this study, or any other online study, is that it's totally based on self-report. One thing that we realized early on is that we could leverage the people that we had seen in person to try to understand more about the people that we had never seen at NIH, right? That sample of 200-something individuals had all gone through a structured clinical interview to determine whether they had current or previous mental health conditions. Francisco Pereira, the head of the machine learning core at NIMH, and his team were able to look at the baseline questionnaire—so how people describe their current and previous feelings—and train a classifier, based on the people that we had seen at NIH, to predict somebody's likelihood of having had a mental health history even if we've never seen them. Basically, for each person, we were able to come up with a probability score of about how likely it is that that person has had a mental illness in the past. Using that, we can then sort of understand across everybody what the association is between likelihood of having mental health diagnosis and how people fared over the pandemic.

Our first set of analyses was really just looking at that baseline data to understand who is enrolling in our study, and then we've kind of built on that in a number of different ways looking at the longitudinal data. We've looked at what factors predict somebody's mental health based on validated questionnaires over time during the pandemic, and what we're seeing is that there aren't any really strong trends in mental health getting better or worse over time, but the people who started off with higher mental health burdens continued to show elevated mental health burden over the course of the whole pandemic. We are also finding that individuals who report greater social isolation or loneliness at a given time also report worse mental health at that same time, and furthermore, the loneliest people also have stronger relationships between their feelings of social isolation and their mental health. That's a paper we're working on right now, looking at the entire year of the study. We have also used natural language processing to look at the content of what people were talking about, which has similar sort of fluctuations in mental health and has nice associations with the stressors and changes in the environment. We see positivity when vaccines came out and things like that. Then we're looking at associations between worries and physical health and predictors of mental health based on different personality traits and things over time—a lot of different projects because we had such a diverse team on this.

Chung: There's just a lot of data that we collected. When you have such a great team of people, people are going to spin off different research questions that can be taken forward. It's been really interesting to do. Now, mind you, we only ran the study for a little over a year, so what we captured was really the first year of the pandemic in the U.S. I think that everyone would agree that the first year of the pandemic was the most threatening and difficult, particularly before vaccines were available. Even after they were developed, it took a while for people to get them, so it really captured the height of the stressors related to COVID. But it's not over. We chose not to continue, in part because we thought that it would be a different set of questions. We would probably have to rethink the study, because it became more of a thing that was continuous and we couldn't predict the timeline.

Barr: That's very interesting. One of the facets of the study that I thought was striking to me is that people were more concerned about their mental health than their physical health in this study. I thought that was really interesting. Can you all comment about that?

Atlas: I saw that in your notes, but I wasn't sure about that finding. Joyce, is that in the paper?

Chung: It was in the preprint. That preprint has some findings that we're still validating in our current paper that we're putting together, but I think what we were trying to do is differentiate between physical health worries and mental health worries. There were some dissociations there, but again, we're going to have to look at that across a whole sample.

Barr: What were some of the things that people wrote in? That must be very fascinating, to see what people said.

Atlas: People talked about all different things. I mean, I should actually look at that so I can provide the right answer. Basically, the way that we approach what people were talking about was through a couple different approaches. On the one hand, we had manual coders using factors that we came up with at the beginning of the pandemic. Basically, how often were people talking about mental health? How often were people talking about physical health, or worries or concerns about their immediate circle? Things about their job, things about society and government? We had categories defined at the beginning. From that, about 55% of responses did have to do with mental health concerns. People's immediate circle was also quite high [as a concern]. Policy in government was the third broad topic that people talked about the most. But we were also able to look at the overall proportion of negative and positive valence terms—so what kind of language people use. Overall people's language was highly negative, and it was more negative for individuals who had a higher likelihood of having sought treatment for mental health. Basically, the negativity sort of decreased and then gradually increased over the course of the pandemic. But still, on the whole, people really seem to use that free response item to talk about what they were concerned about—for themselves, for their families, and for society as a whole. In the paper, we have these nice word clouds, talking about the different themes that came up. For me, just on a personal note, I realized early on that people might be telling us that the survey's broken. And then quickly I realized people were really talking about what was going on for them. We realized that there could be important clinical information in these responses. I basically went through the responses every week, and the clinical team reviewed any responses that looked like they were clinically meaningful, and when we needed to, did a case report or investigated.

Barr: I was going to ask about that—because people were talking about their mental health, did you have to intervene at all for any of these individuals?

Chung: Yeah. It was troubling—gave me a little bit of heartburn that we had so many people who were struggling. We had people definitely talking about feeling suicidal. We had people talking about how they were in a domestic violence situation. We had people who were escaping wildfires in California. We had really desperate situations for some people. It was hard to know how many people because we only could see the people who responded and wrote that, but it really gave us a human side to who these people were. Now we were very clear on our website, and in our consent, that we were not going to be able to intervene because we would not have information on them. We don't have their address. We might know a little bit about their ZIP code, but we couldn't really intervene. We did put a lot of information on our website about mental health resources, including the suicide crisis line and things like that, but it was really hard because we knew that there were individuals who are really having trouble. We would sometimes go into the cases and look a little bit more and see if this person who's expressing suicidal thoughts is actually in treatment, what type of illnesses they reported having, or if they are on medications. We often found that those people were actually in treatment. We were seeing people that were on medications probably were suffering from a mental illness and having more of an acute problem. But it was something where we knew from the start that the IRB was not expecting us to intervene.

Barr: That must have been really hard for you because you're trained to help. How do you see that your study has contributed to COVID mental health response actions by other agencies or even NIH?

Chung: It's a little unclear what the next steps would be. I would say that we also have an analysis going on with folks on the machine learning team, Dr. Francisco Pereira and his group, looking more at potential relationships between all the different circumstances, including the COVID rates in the community. It's a very large data set that they're looking at, trying to understand relationships between what's going on around this person, both individually and in their community, and what their mental health looks like. That might give us more information. But in general, what we did in our study was we enrolled a pretty high proportion of people who have mental health problems, and so because of that, we got to capture what their experiences were like over this pandemic period. As the National Institute of Mental Health, we're really interested in people who have mental health difficulties, because they're often considered to be the most vulnerable in terms of when the stressors are worse. We certainly had people who were kind of the "worried well" condition, but that contrast between where they start off and where they end, as Dr. Atlas was saying, was in terms of they start up and they stay up. They don't get a lot better over time, and you would think that maybe there would be an adjustment. That sort of patterning is important for us to understand in terms of the people who need the help, and even if they're in treatment, what else you could add to really help them cope better.

Barr: Definitely. If you were to do a subsequent study based on the past, I guess, year and a half, what sorts of questions would you look at that differ a little bit from the first year?

Atlas: If I can sort of throw something out there... One thing that I found interesting—this is sort of maybe also an add-on to the previous question—was that the World Health Organization said in November 2020 that mental health had not gotten worse during the pandemic. We set up this study, thinking that by the time we stopped collecting data, everything would be resolved. Here we are, two and a half years later, and the case rates are high in Montgomery County. We've got all these different variants. I've wondered a lot how our participants are doing. Obviously, the advent of the vaccines came out during our study, and so we did see that uptick in positivity. But obviously, not everybody's gotten vaccinated, and even toward the end of the study, there were people who said they still hadn't left their house at all. While I'm fortunate—I feel good that our study was longitudinal and has more fine-grained data than any other longitudinal study of mental health that I've seen so far in terms of what's been published—I still do find myself wondering what's gone on for our participants on since then. We have the ability to contact them again, but we have so much data at this point we're still going through that I don't know if we'll do that. I definitely think that, globally, we didn't think that this was going to be going on for years. That's one of the things—what leads to any long-term changes, or people who might have done well for the first year, who then have new onset mental health issues? That's one of the questions, as we're all still experiencing the unfolding layers—how are our participants doing?

Chung: I would just add that our demographics for participants were pretty skewed. It was mostly white, middle aged, educated women, and I think that is not the group that's probably the most vulnerable in terms of mental health. They may have mental health problems, but they're still of a certain demographic. If I had to do it now, I would probably be very, very targeted in trying to get people who are more disadvantaged or from younger groups or minority groups or groups with less resources, because that's where we could miss what the real impact is. We always have to take what we find with a grain of salt. Again, we were limited by the convenience sampling, but we still felt like that was the best we could do given the circumstances we did the study under.

Barr: Definitely. Dr. Chung, I'm going to ask you a couple of questions based on some of the other studies that you've been involved in. Will you speak about your role in creating, disseminating, and analyzing the results of a

study that looked at the mental health impact of contact with COVID-19 patients on health care workers in the United States?

Chung: I will just speak briefly about that. This was a study done out of Dr. Carlos Zarate's group, and I was a co-investigator. They actually took many of the same survey instruments we put together from the study that we were just discussing and then really looked at healthcare workers. They were particularly interested in people who were working in healthcare settings, as a lot of people were. They only did a baseline—they didn't do a longitudinal study—but they were able to basically find, as you could imagine, that the people who had the most exposure and close contact with COVID patients were the most distressed. And I think that goes without saying. We know that it was difficult, and the anxiety and worry about getting infected and bringing it home and all those other things are very real. That's what I would say about that study.

Barr: Very interesting. Another study that you've been involved with is Dr. Michael Sneller's longitudinal study about COVID-19 sequela and immunity. Can you comment about how you've contributed to that?

Chung: Yeah, I'm delighted to do so. Dr. Sneller is an infectious disease specialist at the National Institute of Allergy and Infectious Diseases (NIAID), and he's an expert in outbreaks. For instance, he had done a nice study in the past on Ebola in Africa, and he was putting together a study of COVID as a medical longitudinal disorder early on in the pandemic. His intention was to follow people over time who had survived COVID, and then also recruit a set of controls who had not had COVID. That's the design of the study. I was asked early on to help him design a mental health component, largely because there were reports that people were traumatized by their experiences in the hospital when they were short of breath or intubated in the ICU or having confusional episodes. There was also concern about neurocognition in those patients who were quite ill. We didn't know what the patients would be like who we ended up recruiting—again, it's one of these things where you kind of have to go with whoever you can get enroll. But it turns out that this was a really important study for a different reason—because it ended up being a study of long COVID or post-acute sequelae of SARS-CoV-2. Because this is a longitudinal study, it's going to go at least three years out. They have over 500 people enrolled, including controls. This is a study that really helps us characterize what is going on with people who persistently have symptoms. We published a recent baseline paper that found that really there's nothing on the standard tests that we do, like pulmonary function tests or laboratory tests, that differentiates people who had COVID in the past and recovered and people who are controls, which is very surprising. The other thing is that within the group of people who have persistent symptoms after COVID and those who have no persistent symptoms, there were also no real differences. The only differences that seemed to stand out were things that had to do with mental health, which is primarily anxiety. It's really interesting. It's really made me happy that we were looking at mental health features in this population. Otherwise we would have missed this finding. Whether or not that's a consequence of having persistent symptoms or part of the syndrome is a little hard to tease out, but we will be following people over time. We're also looking at their cognition using standardized batteries. It's a really great study. In fact, in some ways, having no findings is reassuring.. People don't seem to have a lot of organ damage—things that would make you worried. It doesn't mean they don't suffer and have symptomatology that affects their functioning. But again, we have a lot more data to collect and more time to do that, so we'll see. It's been very fun.

Barr: It's really fascinating. Have there been other emotions that these individuals have demonstrated? Obviously, they're very anxious about their persistent symptoms, but have you seen any increase of depression or rage amongst people who can no longer do some of the things they used to do, or any other sorts of emotional or mental responses?

Chung: I would say that there are definitely things that we typically call adjustment disorders or even potentially post-traumatic type symptomatology. It's not necessarily the full syndrome of PTSD [post-traumatic stress disorder], but there are people who have had very significant stressors in their lives. They may have lost a parent to COVID. They may have lost employment or income because of their illness. There are lots of things that people went through during their illness. They felt stigmatized by other people. When they would run into other people, people would back off and say they didn't want to get close, even though the person was fully recovered. There was just a lot of fear. The worry was coupled with fear and uncertainty. The other thing we saw was a lot of positive coping, when people would just say, "I learned to really appreciate my life, and I really felt like I was lucky that I didn't get sicker." There was a whole range of things that we were able to look at—like the resilience piece. In both studies, there are people who, despite the stressors, did as well as could be expected and really showed their strength.

Barr: Are there any plans in the future to look at the mental health of family members or those who are close to those who have long haul COVID-19?

Chung: Not in our studies. I'm not familiar with if there are others.

Barr: I think that'd be so interesting, because some of these long haul COVID people are really sick for a long time.

Chung: Well, the Sneller study has people who they consider close contacts, who could be a spouse or a family member who did not have COVID, or a couple who both had COVID, and one may have persistent symptoms and one may not. I don't think that's a main aim of the study, but they did understand that people were living in the same household and had differing risk rates. One of the interesting things that's happening with that study right now is that many of the people in the control group have now contracted COVID, so they've moved into a third group. They're actually having trouble finding people who have not had COVID, because it's becoming so common and almost like, as they say, "If you get it, it's like not unlike having had a cold."

Barr: Yeah. Do either of you plan to take part in other COVID-19 research or initiatives?

Atlas: I am currently enrolled in a study for people who have COVID. Yesterday was my tenth day after having had symptoms. I managed to not get COVID for over two years, and then I contracted it, I guess, two and a half weeks ago. As soon as I got my positive test and heard back from OMS [Occupational Medical Service], I enrolled in a study from NIMHD [National Institute on Minority Health and Health Disparities] that is trying to understand who goes on to have long COVID. I am doing physiological monitoring every day for 30 days, and then I will be doing it a couple days a month for the next five months. It was nice to be able to participate in research, not as the PI [principal investigator] but instead as a participant. My husband had COVID first, and then I did. As soon as I did, I realized there are still so many questions we don't understand, so I was like, "What else can I help with?"

Barr: Did you know about this study or were you assigned at random?

Atlas: I had seen signs in the Clinical Center saying, "Have you recently tested positive?" At the end of the OMS guidance about when you can return to work, it has where you can search the studies if you want. I think there were maybe 70 NIH studies that were available. For this one, it has to be within five days of testing positive. They sent a Fitbit! [holds up arm]

Barr: It's wonderful that you are contributing in that way.

Atlas: It's fun to be on the other side of it. For my group, other than the longitudinal studies we've described and the free response measure, since we are interested in the placebo effect, we've been looking at the relationship between worries about COVID and reporting of physical symptoms, because that was another thing. For the symptoms themselves, so many of them really are in that border of, "I just coughed, do I have COVID?" Or "Are these allergies?" Or "Was that a normal cough?" For me, right away, I was interested in this. We're hearing about it all the time. We're anxious about it. That's exactly what we think gives rise to the nocebo effect, where people report negative symptoms that are primarily driven by expectations and beliefs and not a physiological response to a disease or a medication. What we do find is it looks like people who are more worried are reporting more symptoms. But in trying to disentangle directionality—because of course, having more symptoms may make you more worried—we're not seeing an association within individuals over time. It doesn't seem like your worries on time one, predict your symptoms on time two. It's probably these two things going hand in hand, rather than really being a nocebo affect, but it's hard to parse those associations out. We're also very interested in pain in my lab, so we're looking at the relationship between mental health and concerns about COVID during this time in individuals who report having chronic pain prior to the pandemic. And finally, the relationship between distress and alcohol use during the pandemic, because one of my postdocs is interested in substance use disorders, and we did have a lot of participants in this sample who reported treatment for substance use disorders and chronic pain. That was another thing that we were able to look at here.

Barr: That's interesting. Where are you with those studies that you just mentioned?

Atlas: We're currently drafting manuscripts, so the analyses are done and we're circulating manuscripts within the group. We are generally seeing across the board that the people who have already sought help for these conditions show the strongest relationships between mental health and their symptoms across all the different conditions, pretty much. It's basically like the variations across individuals that existed before the pandemic really did predict how people did. But I agree with Joyce that the hope is we can also identify resilience factors that can detect who might have had a preexisting risk but did better over time, basically.

Barr: In addition to being scientists and physicians, you're also people who've been living through this pandemic for the past two and a half years. What opportunities and challenges did COVID-19 present to you as individuals in your personal lives, but also in the other things you do as part of your job?

Chung: Let me start with my role. I worked on the study, but I'm also a clinician. I'm a psychiatrist, and I work on a consult service at the NIH, where we see patients who are enrolled in research protocols at the Clinical Center who need mental health evaluations and treatment. Throughout the pandemic, I never stopped coming to the hospital. I came in kind of in a rotating way, every other week with one of my colleagues, and I would see patients in the hospital. These patients who were there during the pandemic were the most ill because hospitalization could not be avoided. These were people with serious treatment resistant cancers or serious immune deficiencies, undergoing experimental treatments to try to save or extend their lives. These were really sick patients, and many of them had mental health needs. Now the issue for me was that most of these people did not have a good immune system. They were on chemotherapy. They have immune problems, and I was very concerned about getting COVID and giving it to patients. We had very good procedures in place, but we didn't really know how it was spread and how to protect ourselves and our patients. It continued to be an issue for me psychologically to try to both deliver care and also try to minimize risk. We also resorted a lot to telehealth techniques to try to minimize long periods of in-person contact. The assessments of mental health that we did for the Sneller study, for instance, used a telehealth platform. Having to treat and evaluate people using a video call is quite different, but we learned how to do that. So one of my hats was being a doctor and taking care of patients and trying to protect them and protect myself.

Atlas: For me, I'll kind of speak to maybe three things. First of all, professionally, I'm a cognitive neuroscientist, and I study healthy volunteers. Our research program was put on hold in March 2020, and we weren't allowed to collect human subjects in outpatient studies—healthy volunteers—until April 2021. During that time, the trainees in my lab who had been in my lab prior to the pandemic all got into graduate school and things like that, so I had almost complete turnover in my research group during the time that we weren't able to be in person. What that meant was sort of twofold. On the one hand, we got so many analyses done in that first year. We launched this study with Joyce and NIMH, and it provided so much purpose, and gave me something to focus on. I mean, I felt in that first year that my job as group leader was to focus on how we were doing emotionally, and just keep the groups and make sure we are supporting each other. I think that wrapping up analyses from our previous projects and launching this study gave us some focus in terms of feeling good about our science and feeling like we could contribute something, but I would say that 2021 was really challenging because still only now are we really back in the flow of where we were in terms of patients prior to the pandemic. It has taken a full year to rebuild my lab, and so I would say, as a tenure track researcher, that's quite challenging, and I think it's challenging for my trainees who are here for specific training. If we don't have the subject flow, it's very hard to meet expectations. Personally, during that time, I was finding myself quite isolated and having a certain level of anxiety about the pandemic. Reading the free responses made me feel connected to society in a way that was so personally meaningful. I realized we're all going through this and I'm not alone, and it was very different from talking to friends or talking to family. Just hearing from so many people and understanding that we're all living through this together helped me have some perspective on the bigger picture of what we're living through. I have individuals in my family who were struggling with mental health during this time so it also, in that way, made me feel less alone. I unblurred my [Zoom] background because I also took up a new hobby of stained glass during the pandemic.

Barr: I was wondering about that. It's beautiful.

Atlas: I learned to make stained glass, and I made a little company where I made stained glass brains! They got really popular on Instagram. Now that I'm doing work again, I've stopped my stained-glass hobby, but that was also something that kept me going emotionally. It just gave me an outlet. It gave me a coping thing, so it helped during that time.

Barr: How many have you made?

Atlas: Oh my gosh, I've made hundreds, definitely. I make small ones. It was a very fun outlet for a while. I have a lot of the glass. Hopefully I'll get back into it sometime, but for now, I'm taking a pause.

Barr: Well, thank you both for all the work that you've done throughout the pandemic. I wish you all continued success. Lauren, I hope you feel a lot better.

Atlas: Thank you.

Chung: Thank you so much and thank you for inviting us.

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