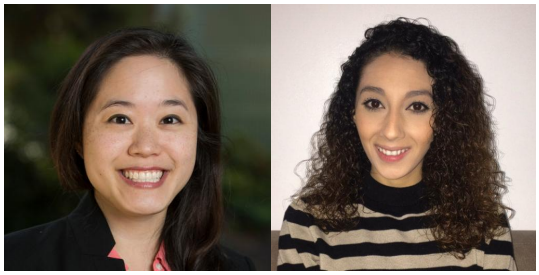
COVID Information Commons (CIC) Research Lightning Talk



Transcript of a Presentation by Rachel Wu and Lilian Azer (University of California, Riverside), March 2022

Rachel Wu CIC Database Profile

Title: *Older adults' learning and adaptation as resilience processes to counter social isolation during the COVID-19 pandemic*

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Transcript

Rachel Wu:

Slide 1

Hello my name is Lillian and I am a graduate student that's been working with Rachel Wu at University of California, Riverside on this NSF-funded COVID-related project which I'll be presenting today. I'll be mainly talking about results from our first wave of data on subjective executive functioning and skill learning during the pandemic and how it may predict these mental health outcomes.

Slide 2

The stay-at-home order has been a double-edged sword for older adults where it can serve as both as a protective and a risk factor. In this figure here, we see that as a level of social interaction moves from the left to the right, mental health and physical health can be at risk, depending on which side of the spectrum individuals lie on. On the left side, we see that individuals who have less social interaction are at a greater risk of perceived loneliness, but then they are protected from potentially getting infected with COVID-19. On the right side we see that if individuals have increased levels of social interaction, then the risk for perceived loneliness decreases, but the risk for getting COVID-19 increases. When we began data collection for the present study, the number of confirmed cases in Riverside County were less, so individuals had more opportunities for social interactions, making them somewhere in the middle of this figure. But towards the end of our data collection period, the number of confirmed cases tripled, making individuals more likely to be on the left side of the figure. This was especially true for older adults since the confirmed cases and COVID-19 related death among older adults was greater than

- in older adults - than it was for younger adults at the beginning of the pandemic. During the pandemic, social interaction using virtual means gained a lot of popularity, and this allowed individuals to socially interact with others. But due to the digital divide, older adults may have not been able to reap those benefits of virtual communication as a form - as a form of social interaction. And it could have left them at greater risk for perceived loneliness, leaving them somewhere on the left of this figure. In fact, some studies found that during the pandemic older adults were more at risk of perceived loneliness and have reported worse mental health than younger adults and their lack of proficiency with technology could have been to blame.

Slide 3

So in addition to the lack of social interaction leading to increased perceived loneliness, there are other factors that are related to mental health outcomes. These next two factors that I will discuss will lead us into our research question and aims. First, we know that prior to the pandemic, an extensive number of research studies have looked at the relationship between executive functioning and loneliness, depression, and overall well-being of older adults. These studies found that there's a bi-directional relationship between these mental health variables and executive functioning where older adults, who have worse objective and subjective executive functioning, tend to report increased feelings of perceived loneliness and depression and worse overall well-being and vice versa. But one important thing to keep in mind is that these studies showing the bi-directional relationship between executive functioning and these mental health variables are typically conducted only in older adults. But now we have this unique opportunity to study this relationship between these outcome variables and executive functioning across adulthood. Another factor that has been studied prior to the pandemic in relation to mental health outcome variables is activity engagement. One form of activity engagement is learning a new skill or participating in leisure activities. Studies have found that engaging in leisure activities was associated with lower prevalence of perceived loneliness and depressive symptoms and overall better well-being and it could also increase self-esteem. With the stay-at-home order we have another unique opportunity to study how skill learning as a part of activity engagement can predict perceived mental health outcomes such as perceived loneliness, depression, and well-being.

Slide 4

In addition to engaging in leisure activities predicting better mental health, Leanos and colleagues found that learning new multiple real world skills can contribute to improving executive functioning. This leads us to another novel aspect of our present study where the older adults who participated in Leanos and colleagues' cognitive learning intervention were also recruited for this study.

Slide 5

In the present study, we are interested in answering four research questions: first, does subjective executive functioning predict perceived loneliness, depression, and overall well-being across adulthood? Second, we were interested in learning if novel skill learning predicts the same mental health outcome variables across adulthood. Third, we wanted to investigate if participants with prior - participants who participated in the prior cognitive learning intervention predicts the same mental health outcomes during the pandemic. And lastly we wanted to investigate if age predicts three mental health outcome variables during the pandemic.

Slide 6

We began data collection in mid-June where the number of COVID - confirmed COVID cases in Riverside County was about 10,000, and by the end of our day data collection period, which was mid-July, the

number of cases in Riverside County tripled. We restricted data collection only to those who lived in the Inland Empire which is depicted here in the red and striped area on this image of California. The Inline Empire includes the palm desert Riverside County and San Bernardino County. Data collection was restricted to this area because of the diversity of the participants that live here, the conservative physical distancing restrictions in this area, and the extreme shortage of healthcare professionals in this region.

Slide 7
We had two experiments in our study. In our first experiment we included participants over the age of 18 years old, and in our second experiment we included adults who are over the age of 58 years old in order to match the age of those in the intervention sample. I want to highlight here on this table the diversity of our participant pool in terms of ethnicity and education. As you can see, one third of our participants in experiments one self-reported Hispanic or ethnic Hispanic or Latino ethnicity, and if you take a look at our educational attainment, we had a wide range of educational attainment across our participants.

Slide 8
In our results, we found that subjective executive functioning significantly predicted all three of our mental health outcome variables. On the x-axis of these figures we have subjective executive functioning where higher scores mean that participants have worse subjective executive functioning and lower scores mean that participants have better subjective executive functioning. On the y-axis, we have the three outcome variables: first. we have perceived loneliness. In the middle, we have depression. And in the last figure we have overall well-being. We found that those who have worse subjective executive functioning during the pandemic were predicted to report more perceived loneliness, depression, and worse overall well-being.

Slide 9
Next, we found that the number of hours spent learning new behaviors or skills significantly predicted self-reported symptoms of depression. On the x-axis we have the number of hours spent learning a new behavior or skills within the last week. And on the y-axis we have self-reported depression. We found that participants who spent more time learning new behaviors or skills during the pandemic were predicted to report more symptoms of depression.

Slide 10
In our next analysis, we found that there was a significant interaction between intervention status and subjective executive functioning on predicting overall well-being during the pandemic. Again, we have subjective executive functioning on the x-axis where higher scores mean that participants have worse executive functioning and we have overall well-being on the y-axis. Those who were in the intervention group had - and had worse subjective executive functioning during the pandemic - were predicted to have worse overall well-being. Participants in the non-intervention group who had worse subjective executive functioning during the pandemic were also predicted to have worse overall well-being, but the intervention group felt these effects at a greater degree.

Slide 11
In our last analysis we found that age significantly predicted perceived loneliness during the pandemic. On the x-axis, we have the age of the participants in years, and on the y-axis we have perceived loneliness. We found that older adults were predicted to have less perceived loneliness than younger adults.

Slide 12
To summarize our results and briefly discuss some possible mechanisms for the results we observed: first, we found that more subjective executive functioning during the pandemic predicted worse overall well-being and increased feelings of perceived loneliness and depression across adulthood. These results are consistent with prior studies which found that worse subjective executive function predicts worse mental health. The results we observed could be due to increasing emotional distress in relation to increasing subjective cognitive complaints during the pandemic, so having greater emotional distress that's a result of worse cognitive functioning could be driving the relationship between worse subjective executive functioning and poor mental health.

Next, in contrast to prior studies we found that spending more time learning a new behavior or skill was related to increased symptoms of depression. Studies pre-pandemic found that engaging in leisure activity improves mental health, but in the present study we saw that it's actually making it worse. In particular, studies pre-pandemic that looked at skill learning or leisure activities typically involve some sort of social aspect like playing a sport or joining an exercise group, and during the early stages of the pandemic when our data was collected, this social aspect was slightly diminished. The results we observed could possibly be due to a lack of social interaction while engaging in these activities during the pandemic. If participants are spending more time learning a new skill in isolation, this could have increased or this could lead to increased symptoms of depression in a short period of time. But we're studying to learn how learning a new scale or behaviors longitudinally can impact mental health outcomes.

Third, we found that adults who participated in the prior cognitive learning intervention and reported worst subjective executive functioning during the pandemic also reported worse overall well-being. These participants may have had increased accessibility to the negative effects of the physical distancing restrictions on their mental health, especially if they had lower self-reported executive functioning. The loss of in-person learning opportunities for these participants could have been perceived as substantial, especially since the intervention group participants engage an average of 15 hours a week of in-person learning activities. For adults who did not participate in the cognitive learning intervention, the relationship between worse subjective executive functioning and worse overall well-being was also present, but it was much smaller.

Lastly, we saw that participants who were older reported less perceived loneliness than younger participants and it could be that younger and middle-aged adults have had their lives more disrupted during the pandemic because of school or work closures, and this could have led to increased feelings of loneliness. We have collected two more waves of data and we plan on investigating these outcome variables longitudinally.

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I'd like to thank all of our collaborators and the NSF RAPID grant for funding this project.