Dr. John Whyte: Hello, and welcome to the podcast featuring the American Journal of Physiatrists’ podcast featuring the American Journal of Physical Medicine & Rehabilitation article, “Relationship of Preinjury Depressive Symptoms to Outcomes 3 Months After Complicated and Uncomplicated Traumatic Brain Injury.”

Today’s podcast will include a question-and-answer session with author Dr. Angelle Sander, associate professor and Director, Division of Neuropsychology and Rehabilitation Psychology, Department of Physical Medicine and Rehabilitation, Baylor College of Medicine; and Director of TIRR Memorial Hermann’s Brain Injury Research Center in Houston.

I’m Dr. John Whyte, Director of the Moss Rehabilitation Research Institute, and I will be hosting this 15-minute podcast.

Welcome to the program, Dr. Sander.

Dr. Angelle Sander: Thank you.

Dr. John Whyte: In recent years, increased attention has focused on the prevalence of depression and anxiety as important consequences of traumatic brain injury, as well as factors that may affect recovery from TBI. Can you describe for us the particular focus of this article and where it fits into this larger program of research about mental health?

Dr. Angelle Sander: The focus of this article is definitely in keeping with the emphasis on the relationship between emotional distress—specifically depression—and
recovery from TBI. We already know that post-injury depression is related to poor outcomes after TBI. Unfortunately, by the time a person with depression actually comes to the attention of a physician or other rehabilitation professional, their outcomes may have already been negatively affected.

This study indicates that knowledge of depressive symptoms experienced in the month prior to injury, can be used to predict those people who are at risk for poor outcomes, and that can help target them for closer monitoring so that they can be provided with treatment options at the first signs of depression after injury.

In our study, we did find that people with moderate to severe preinjury depressive symptoms were more likely to endure severe affective and behavioral problems after injury. This does indicate that possibly depressive symptoms in the month prior to injury may also be associated with post-injury emotional distress. We didn’t specifically test that, because we did not include a measure of depression as an outcome. Instead, we included self-report of affective and behavioral symptoms, certainly which would have some overlap with depression; but the exact relationship between preinjury depressive symptoms and depression after injury awaits further investigation.

Dr. John Whyte: Now, your study looked at the relationship not only between moderate and severe depression before injury and outcome, but also between mild depression prior to injury and outcome. Not surprisingly, the effect of depression was more prominent on emotional and cognitive recovery than on physical recovery. What’s your thought about how the preinjury depression might contribute to these post-injury difficulties?

Dr. Angelle Sander: Well, we know that the majority of people who sustain mild TBI recover to baseline by about three months after injury. However, a minority—about
10 to 20%—continue to have symptoms after three months. It’s possible that people who are experiencing depressive symptoms immediately prior to injury may be less well-equipped to deal with the impact of even mild changes after mild TBI. So, having a mild TBI may exacerbate their preinjury depressive symptoms, and this can cause them to develop greater cognitive and emotional problems. That may be the case for people who did not have depressive symptoms prior to injury.

Also, people who have depressive symptoms sometimes interpret things in a more negative light. So, persons with preinjury depressive symptoms may tend to place more importance or emphasis on even the subtle physical cognitive and emotional changes that can happen in the weeks following mild TBI. This increased sensitivity to subtle changes can further feed their depressive symptoms. So, this can result in a vicious cycle where emotional distress results in increased perception of cognitive and emotional problems; and this in turn can further increase emotional distress.

All of this can contribute to delayed recovery after a mild TBI, and this can be exacerbated if the person with mild TBI is not provided with education about symptoms that they might experience. So, many times people are sent home after mild TBI, and they’re not informed about changes that they might experience over the next few weeks. In this case, if a person already has a tendency toward depressive symptoms, they may feel more hopeless or more helpless in the face of these mild changes, and this of course can further increase their emotional distress.

Dr. John Whyte: And so, let me just clarify. It sounds like you’re saying it’s more than just that they are reporting the residual symptoms of their preinjury depression. You’re seeing this as likely an interaction between the symptoms of depression itself and the early symptoms that result from the mild TBI?
Dr. Angelle Sander: Definitely. That wasn’t specifically investigated in this study; but definitely clinically, we see that people have this interaction. So that, if they were more depressed prior to injury, that they tend to focus more on even mild changes in functioning after the TBI, and that compared to people who maybe had better coping skills or less distress prior to injury, they may have a tendency to become more distressed over the same symptoms.

Dr. John Whyte: Now, in your study, as I mentioned, you looked at the influence of both mild depression prior to injury and more significant depression, and the relationship between moderate and severe depression and some of these negative outcomes was pretty clear. The association with mild depression prior to injury was less reliable. That is, I think that this was more clear for residual cognitive symptoms than emotional ones. Now, I think in some other studies it’s been found that even mild depression had a significant negative effect on recovery from TBI. So, I’m just wondering if you could put your findings about the severity of depression in a larger context.

Dr. Angelle Sander: Sure. I think that the primary reason for the differences in findings in these different studies, relates to the methodologies used. Our study focused specifically on the predictive ability of depressive symptoms experienced during the month prior to injury. Some other studies—for example, the one by Hart and colleagues—measured depressive symptoms during the post-injury period.

So, that’s an important distinction. But we’re looking at a retrospective estimate of depressive symptoms experienced during the month prior to injury. And many other studies focused on depression during the post-injury period. So, the fundamental question is different, for these studies.
Also, we were looking at the influence of preinjury depressive symptoms in an attempt to provide an early means of detecting those who may be at risk for poor outcomes. There have been other studies that have focused on the predictive ability of preinjury depression for outcomes after mild TBI, and these studies have generally shown mixed findings, which can probably be explained by differences in defining preinjury depression.

Many studies have looked at lifetime incidence of depression, and some have used measures that map directly onto DSM criteria. So, for example, the PHQ-9 is a measure of depression that maps onto DSM criteria.

In this study we were not looking at lifetime incidence, but at the experience of depressive symptoms more proximal to the time of injury, thinking that, you know, even if someone had experienced depression many years earlier, that may not be as predictive of outcomes as their experience of symptoms closer to the time of injury.

Another possible reason for differences across studies may be the populations. Many studies are conducted with rehabilitation samples and largely with white persons, and our study was based in a Level-1 trauma center rather than in rehabilitation. And it included a large percentage of Hispanic—63% of our sample were Hispanic.

Dr. John Whyte: Now, I noticed another finding in your study was that being involved in litigation related to the injury was associated with worse outcomes in several areas. Does that imply that patients involved in legal action are exaggerating their problems?

Dr. Angelle Sander: Most definitely not. We do not believe that all patients with mild TBI who are involved in legal action are exaggerating symptoms. It’s equally
plausible that persons with lasting symptoms after a mild TBI are more likely to take legal action because of the symptoms they’re having. What our results do emphasize is that involvement in litigation is an important thing to consider when predicting outcomes after mild TBI, and that should be accounted for in future studies. But we don’t want to contribute to the belief that all people with mild TBI who have persisting symptoms are exaggerating.

Dr. John Whyte: Increasing attention in recent years has been paid to the prevalence of anxiety disorders after TBI as well, and I think many of us are coming to realize that we’ve overlooked anxiety as a significant problem, and focused pretty exclusively on depression. Do you have any thoughts about whether a similar kind of study might be helpful in understanding the relationship of anxiety to recovery as well?

Dr. Angelle Sander: I think it would definitely be worthwhile to pursue that. There are of course overlapping symptoms between depression and anxiety; but anxiety also is a diagnosis of its own right, and we know that there are a substantial number of people who experience anxiety following injury. I don’t think we know anything at this point, research-wise, about the number of people who have a history of anxiety disorders, or who have preinjury anxiety symptoms that might be predictive of their performance. So, that would definitely be worthwhile to pursue.

Dr. John Whyte: And finally, I wonder if you could summarize the clinical implications that you think your study has. How should we be addressing mood disorders, and in particular preinjury mood disorders, during the rehabilitation – or, during the healthcare process more generally?

Dr. Angelle Sander: So, I’d like to start out by noting that the participants in our study – most of them did not receive rehabilitation. They were seen in an acute trauma
setting and then discharged home. And this is actually the case for most people who experience mild TBI.

So, based on that trauma sample, our suggestion is that all persons with mild TBI complete a brief screening questionnaire about emotional functioning prior to their hospital discharge. It can be about emotional functioning during the month prior to injury, or even looking at emotional functioning at the time that they’re given the questionnaire in the hospital may be helpful as well. This screening could be done quickly by a social worker or a nurse prior to hospital discharge.

There are a variety of different measures that could be used. Some are the PHQ-2, which is two items, the PHQ-9, the CES-D, or the Brief Symptom Inventory-18. Anybody who has scores that fall in the depressed range at that point, to be targeted for a followup call a few weeks later to assess emotional functioning; and then anyone who scores in the depressed range at that followup time point should be referred for more comprehensive assessment and potential treatment.

Now, in the rehabilitation setting we’re typically seeing people who are more severely injured. They’re usually in the rehabilitation setting several weeks post-injury, and assessment of preinjury depressive symptoms at that time, which is further removed, may provide less valuable information than actually assessing their emotional functioning at that point in time. So, we recommend screening for emotional distress in all people with TBI who are admitted to rehabilitation, and then referral for treatment as necessary.

Dr. John Whyte: Thank you very much, Dr. Sander. On behalf of the Association of Academic Physiatrists, we would like to thank you for listening to this podcast. More information on podcasts and the American Journal of Physical Medicine &
Rehabilitation, including the journal iPad app, can be found on the AAP website at www.physiatry.org.

This concludes today’s program. Thank you.

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