Published in final edited form as:

Gen Hosp Psychiatry. 2012 ; 34(3): 317–319. doi:10.1016/j.genhosppsy.2012.01.005.

Use of the New York PTSD risk score to predict PTSD: current and future research efforts★

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To the Editor,

We appreciate Dr. Sonis' comments related to our paper recently published in *General Hospital Psychiatry* [1,2]. As he suggests, the New York PTSD Risk Score we developed in that paper predicts current (i.e., incident and prevalent) PTSD status, and the Primary Care PTSD Screener (PCPS) is the strongest predictor of this status. He noted that although the increase in discrimination by adding psychosocial risk factors to the prediction results that included PCPS was statistically significant, the size of this increase was small. Dr. Sonis also pointed out that these findings suggest that a clinician who wants to screen for current PTSD would do well by simply using the PCPS, without the additional psychosocial variables we suggested. He further noted, correctly, that a clinical prediction model based on factors measured shortly after traumatic event exposure (but prior to the development of PTSD) that was capable of predicting PTSD at 12 months after exposure would be of more clinical utility since interventions designed to prevent PTSD could then be targeted among those at highest risk. Additionally, Dr. Sonis indicated that since peritraumatic factors that have been shown to predict PTSD development were not measured in our study, the NY PTSD Risk Score will not be useful to determine who is at higher risk of developing PTSD in the aftermath of trauma.

First, we note that our research was undertaken in response to the National Institute of Mental Health's Request for Applications related to "exploratory" research to conduct analyses of existing data sets to develop new PTSD assessment tools (RFA-MH-09-060). Consequently, the scope of our original analysis was limited. Nevertheless, this exploratory study suggested that the PCPS worked well compared to a longer PTSD screening instrument, the Short Screening Scale for PTSD, and that the optimal cutoff score for the PCPS was 3 positive symptoms for our study population. Second, we show that our psychosocial predictors alone, although not as good as the PCPS, yielded similar results, with areas under receiver operating characteristic curve equal to 0.87 or higher. None of these findings were known previously. Third, Dr. Sonis suggested that since our study did not include peritraumatic factors, our study was inherently limited. However, this assertion is not correct. We did include several peritraumatic factors in our prediction model, including perievent panic attacks and sleep disturbance (see Table 1 in original paper [2]), but only sleep disturbance was significant and retained in the final prediction model. Third, and most importantly, was the clinical need for predicting future PTSD, a study limitation we noted in our original paper [2]. In our forthcoming paper, "Predicting future PTSD using

★Funding: This work was supported in part by grants from the National Institute of Mental Health (R01-MH-066404 and R21-MH-086317), Boscarino PI.

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a modified New York Risk Score: implications for patient screening and management,” we do predict future PTSD [3], which we noted we would do in a follow-up paper [2]. As we have noted elsewhere, predicting future PTSD at initial assessment is difficult because later PTSD onset is affected not only by predispositional factors before the traumatic event exposure and the contextual aspects of the traumatic event itself, but also by events that occur in the postexposure period [4-8]. As we discuss in our forthcoming prediction paper [3], when the PCPS is combined with psychosocial predictors from the original NY Risk Score (i.e., depression, trauma exposure, sleep disturbance and healthcare access), this increased the area under the curve (AUC) from 0.707 to 0.774, a significant improvement ($P<.0001$). When additional risk-factor variables were added to this model, including baseline negative life events, handedness, self-esteem and baseline pain status, the AUC increased to 0.819, also a significant improvement ($P=.001$). While the positive predictive values in the latter models still remained modest ($<26\%$), as we noted in our original paper, this was a function of the low prevalence of PTSD in our study population. Additionally, we also discovered significant prediction differences by gender for the NY Score that were noteworthy [9]. This gender finding, to our knowledge, was neither fully known nor accepted previously for PTSD screener scales. As suggested, there were other noteworthy contributions in our original paper, such as finding the optimal cut point for the PCPS and the significance of psychosocial predictors alone in predicting current PTSD status. Clinically, the latter discovery is important because these predictors could be potentially collected from the medical record, requiring no PCPS questions at all from the patient. At this time, we are also adding genetic variants to the NY PTSD Risk Score and assessing these results [7].

In summary, we appreciate Professor Sonis’ thoughtful comments related to our original paper and realize that our first study had several limitations. We are aware that PTSD risk models that will be capable of prospectively predicting PTSD are of the utmost importance for clinicians. However, these models will likely include not only exposure, character trait and psychosocial measures, but also biomarker and genetic information [6,7,10-12]. Our research team is currently working on these next-generation PTSD prediction models. Our original NY PTSD Risk Score study was only intended to be the beginning of this effort.

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