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Highlights...

Our page 1 stories this month look at the value of exposure therapy in treating anxiety disorders, and prenatal use of cannabis associated with preterm birth.

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Anxiety

Developing targeted training strategies for exposure therapy

By Joshua Kemp, Ph.D.

Anxiety disorders are among the most common early mental health problems. If left untreated, anxiety disorders in childhood tend to follow an unremitting pattern that can lead to a number of developmental consequences. There are several treatment options for children and adolescents with anxiety disorders, but the approach with the strongest empirical support is exposure-based cognitive behavioral therapy (CBT). In fact, it is recommended as the front-line treatment for anxiety disorders (and obsessive-compulsive disorder) by both the American Psychiatric Association and the National Institute of Clinical Excellence, and its dissemination has been identified as a high health care priority.

Exposure therapy is underutilized

Unfortunately, exposure therapy suffers from a public relations problem that has limited its widespread availability and use. Most individuals, including therapists, hear the word "exposure" and think of a highly aversive process of "throwing people in the deep end" by making them immediately face their most feared situations. Consequently, exposure therapy has the dubious distinction of being one of the most efficacious yet least utilized treatments for anxiety disorders. A logical solution for increasing its availability would be to offer more opportunities for training in exposure therapy, as only

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Substance use

Prenatal use of cannabis associated with preterm birth

By Alison Knopf

Despite the fact that many women think cannabis is a cure for nausea and vomiting associated with pregnancy — and that many states approve medical marijuana for such purposes — such use is associated with an increase in the rate of preterm birth, researchers report in a recently published study.

Daniel J. Corsi, Ph.D., and colleagues sought to determine whether there is any association between prenatal cannabis exposure and maternal, perinatal, and neonatal outcomes.

The retrospective study included 661,617 pregnancies, in which there were 9,427 self-reported cannabis users. The rate of preterm birth among cannabis users was 12%, compared to 6% among nonusers, after adjusting for confounders.

Study details

The study covered live births and stillbirths in Ontario, Canada, between April 2012 and December 2017. Self-reported cannabis use was ascertained through routine perinatal care.

The primary outcome measured was birth before 37 weeks' gestation. There were 10 secondary outcomes, including small for gestational age, placental abruption, transfer to neonatal intensive care, and five-minute Apgar score.

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Childhood adversity, early puberty, and mental illness linked

By Alison Knopf

Researchers have found that growing up in poverty and experiencing traumatic events can impact brain development and behavior in children and young adults by accelerating puberty and brain maturation and leading to more depression, anxiety, and psychosis. "The findings underscore the need to pay attention to the environment in which the child grows. Poverty and trauma have strong associations with behavior and brain development, and the effects are much more pervasive than previously believed," said the study's lead author, Raquel E. Gur, M.D., Ph.D., a professor of psychiatry, neurology, and radiology in the Perelman School of Medicine at the University of Pennsylvania, and director of the Lifespan Brain Institute. Some parents and educators disagree vehemently about how childhood adversity affects development, with one side believing that any stressful condition such as bullying will have harmful effects, to the opposite extreme of believing in corporal punishment. Psychologists and social scientists have documented the lasting effects of growing up in poverty on cognitive functioning, and clinicians observed effects of childhood trauma on several disorders, though mostly in the context of post-traumatic stress disorder (PTSD). In this study, researchers for the first time looked at the specific effects of poverty. Using data from the Philadelphia Neurodevelopmental Cohort, which included 9,498 participants aged 8 to 21 years, researchers found specific associations of traumatic stressful events and poverty on neurocognitive performance, and utilized MRI on a subsample. They found an association between poverty and brain abnormalities as well as psychiatric symptoms, including mood/anxiety, phobias, externalizing behavior (oppositional defiant disorder, conduct disorder, attention-deficit/hyperactivity disorder), and psychosis, as compared to individuals who did not experience poverty. Poverty was found to be associated with moderate to large cognitive deficits, especially in executive functioning and complex reasoning. However, traumatic stressful events had only very subtle effects on cognitive function. Both poverty and traumatic stressful events were associated with abnormalities across measures of brain anatomy, physiology, and connectivity. "Traumas that happen to young children can have lifelong consequences," said the study's senior author Ruben C. Gur, Ph.D., a professor of psychiatry, radiology, and neurology, and director of the Brain Behavior Laboratory. "Obviously it would be best if we could ameliorate poverty and prevent traumatic events from occurring. Short of that, the study calls for paying more attention to a child's socioeconomic background and to effects of trauma exposure. Parents and educators should become more aware of the special needs of children who are exposed to either adversity. Additionally, mental health professionals should be particularly on notice that traumatic events are associated not only with PTSD, but with elevations across domains including mood, anxiety, and psychosis." [Gur RE, Moore TM, Rosen AFG, et al. Burden of environmental adversity associated with psychopathology, maturation, and brain behavior parameters in youths. *JAMA Psychiatry* 2019 May 29. doi: 10.1001/jamapsychiatry.2019.0943. Epub ahead of print.]

Anxiety

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12–28% of providers have received training to deliver this treatment (Becker, Zayfert, & Anderson, 2004). However, therapist survey data confirm that its underutilization is also common among individuals with specialized training in exposure therapy. For example, fewer than half of providers who were trained in imaginary exposure for post-traumatic stress disorder (PTSD) reported that they ever used the strategy with patients (Becker et al., 2004). It seems current training techniques do not sufficiently address therapists' reservations about its safety and tolerability for their patients, and these reservations remain a significant barrier to the use of this highly efficacious treatment.

Reservations also undermine the quality delivery of exposure therapy

Therapist reservations are also associated with exposure being delivered in a manner that deviates from the prolonged and intense manner advocated by exposure theorists and treatment manuals. In a national survey of exposure therapists who reported using interoceptive exposure to treat panic disorder, approximately 40% of therapists prescribed controlled breathing strategies during exposure — 70% of whom did so in order to make exposure exercises less aversive and more acceptable (Deacon et al., 2013). In another study that provided training and tracked subsequent delivery behavior, therapist reservations about exposure following training were predictive of a cautious delivery style, including reinforcement of client avoidance, providing reassurance, and the premature termination of exposure tasks (Harned et al., 2013).

Indeed, the standard didactic approach to training can reduce some reservations by addressing knowledge gaps about what exposure procedures entail, and emphasizing that it is meant to be a collaborative and gradual process. However, training research to date has shown that didactics alone are not capable of reducing reservations to the extent necessary to produce behavioral change (Beidas & Kendall, 2010; Harned et al., 2013). Additional research is needed to identify and properly dose training techniques that are capable of fully addressing therapists' reservations. The same behavioral theory that guides the delivery of exposure therapy may also be useful in guiding the development of training techniques capable of reducing therapists' reservations about exposure.

The CBT model of anxiety

The CBT model of anxiety disorders is a well-researched empirical framework for conceptualizing the process by which *anxious beliefs* and behaviors are maintained, and it guides most of our evidence-based treatments for anxiety disorders. This well-established model may also apply to therapists' anxiety-based reservations about exposure.

The CBT model of anxiety can be applied to explain the maintenance of any anxiety disorder, but it may be easiest to illustrate the process with the example of

Anxious Beliefs → Triggering Event → Anxiety Spike → Safety Behavior (Avoidance)

a specific phobia, such as a fear of dogs. The model begins with patients' *anxious beliefs* about feared stimuli or situations, which can be broadly broken down into perceptions of dangerousness (e.g., "Dogs are unpredictable and may bite me") and intolerability (e.g., "If I'm around a dog, I will feel so distressed I will not be able to handle it"). When these beliefs are "triggered" by the presence of a feared stimulus (e.g., a dog walking down the street with its owner), the individual becomes anxious and engages in *safety behaviors*; actions intended to prevent or reduce potential catastrophic outcomes in anxiety-provoking situations (e.g., cross to the other side of the street). Although these behaviors are helpful in the moment, research suggests they are a primary maintaining factor in anxiety disorders (Salkovskis, 1991) because they allow a person to avoid or escape the situation (i.e., short-term relief), but prevent that person from learning whether anything bad would have actually happened if they had not used a safety behavior (i.e., long-term maintenance). This creates a "near-miss" feeling for anxious individuals (e.g., "Good thing I crossed the street — who knows what would have happened if that dog got close to me"), and prevents them from gathering new evidence that might change their anxious beliefs (e.g., walk past the dog and nothing happens). The rationale for exposure therapy is that the patient is gradually exposed to feared situations without using safety behaviors to learn that the situation is safer and more tolerable than they predicted.

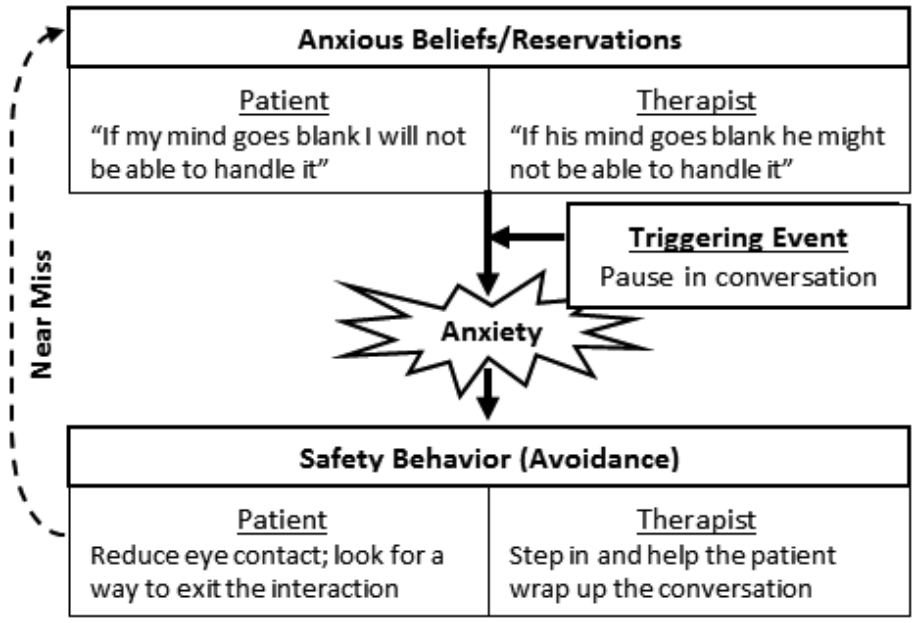
The CBT model of anxiety may apply to both patient *and* therapist concerns during exposure.

As depicted in the figure below, therapists often worry about the occurrence of the same negative consequences as their patients when considering or actually using exposure therapy.

Given the conspicuous similarities in anxious beliefs and safety behaviors displayed by both therapists and their clients, it stands to reason that the same behavioral processes of exposure used to address patients' concerns about feared situations could be applied in trainings to address therapists' reservations about exposure (i.e., conduct training as "exposure to exposure").

Clinical Example

Task: Therapist accompanies socially anxious patient while he attempts to talk to others in the waiting room about an unfamiliar topic.



Just as patients use safety behaviors to reduce perceived danger and distress, therapists also use safety behaviors to prevent feared outcomes. For example, a therapist may augment an exposure task to reduce client distress (e.g., reassuring clients that exposure tasks are safe, using arousal-reduction strategies), to avoid negative client outcomes (e.g., terminating exposure tasks prematurely), to reduce the therapist's own anxiety during treatment (e.g., only assigning exposure tasks as homework), and to manage client perceptions of the therapist (e.g., apologizing for the distress evoked by exposure). However, delivering exposure therapy in such a cautious manner, with added safety behaviors, deviates markedly from the widely advocated prolonged and intense delivery thought to optimize outcomes (e.g., Abramowitz, Deacon, & Whiteside, 2019). Given the conspicuous similarities in anxious beliefs and safety behaviors displayed by both therapists and their clients, it stands to reason that the same behavioral processes of exposure used to address patients' concerns about feared situations could be applied in trainings to address therapists' reservations about exposure (i.e., conduct training as "exposure to exposure").

Developing a targeted training for exposure therapy

Traditional didactic training approaches are built on the assumption that knowledge translates to behavior, but research has consistently demonstrated this is not the case. Knowledge is an important foundational aspect of training, but experiential activities (i.e., modeling, live practice, supervision) are essential for promoting specific delivery behaviors. Farrell and colleagues (2016) demonstrated that the addition of self-exposure activities during a full-day exposure training workshop yielded significantly larger reductions in therapist reservations at post-training than a standard didactic approach. Building on these findings, researchers in the Pediatric Anxiety Research Center at Bradley Hospital have recently initiated an exposure training study in partnership with Riverside Community Care to test a behaviorally enhanced training against a standard didactic approach. The behaviorally enhanced condition is a test of the "exposure to exposure" concept, and entails a

combination of self-exposure and partner-exposure techniques to provide therapists an opportunity to fully test their reservations before attempting exposure with their patients. Following training, therapists will be videotaped as they deliver exposure for youth (ages 5–17) with anxiety disorders. Differences in the frequency and quality with which exposure is delivered will be coded to detect differences between training conditions. The goal is to demonstrate the increased effectiveness of training strategies designed to target known barriers to uptake, and to provide a template for developing targeted trainings to enhance the dissemination of other evidence-based practices (EBPs).

Implications

The training woes outlined above for exposure therapy are a part of a larger problem with disseminating EBPs in the mental health field. Considerable time and effort has gone into attempts to spread the use and quality delivery of EBPs, but these efforts have not been particularly successful. Clearly, there is a need for improvement in the way we train and promote the use of EBPs like exposure therapy. Conducting training as an intervention to address and overcome known barriers to the uptake and quality delivery of a particular treatment is one promising avenue for training research. From this perspective, the same well-established behavioral change strategies embedded in current clinical interventions could be repackaged and deployed as change strategies within a targeted training intervention.

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Substance use

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The mean gestational age in the entire cohort was 39.3 weeks. The mean age of the mother was 30.4 years. Of the mothers, 9,427 (1.4%) reported cannabis use during pregnancy.

NIDA comments

In a research letter accompanying the publication of the article, Nora D. Volkow, M.D., director of the National Institute on Drug Abuse, and colleagues report on what is known about pregnancy and cannabis use from the National Survey on Drug Use and Health (NSDUH). Data from the 2002–17 survey were included. While it is known that cannabis use increased among pregnant women in the United States from 2002 to 2014, little is known about use and frequency of use by trimester.

For the NSDUH, sociodemographic characteristics, current pregnancy status, past-month cannabis use, past-month number of days of use, and daily/near-daily use information were collected. Starting in 2013, respondents who reported past-year and past-month cannabis use were also asked if any cannabis use was recommended by health care professionals, and then such use was categorized as either "nonmedical-only" or "medical-only."

Based on 467,100 respondents overall between 2002 and 2017, the prevalence of cannabis use was higher for the first trimester than for the second and third trimesters. Between 2002–2003 and – 2017, past-month cannabis use among pregnant women overall increased from 3.4% to 7.0% and from 5.7% to 12.1% during the first trimester.

In many states, cannabis is approved for treating nausea and vomiting, including in pregnancy. However, the American College of Obstetricians and Gynecologists recommends that pregnant women discontinue cannabis use.

The research letter then discussed the clinical ramifications of this information. For example, cannabis effects on fetal growth can include low birth weight and may be more pronounced in women who consume cannabis frequently. These effects are more pronounced in the first and second trimesters.

In many states, cannabis is approved for treating nausea and vomiting, including in pregnancy. However, the American College of Obstetricians and Gynecologists recommends that pregnant women discontinue cannabis use.

It's likely that for the NSDUH, there is recall bias, and also women may not want to disclose that they are using cannabis. On the other hand, it's also likely that some women use cannabis before they know they are pregnant.

"This study highlights the importance of screening and interventions for cannabis use among all pregnant women," Volkow concluded.

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