

# Expanding motivation through neuroscience during COVID-19

By Calvin Lee



The persistence of COVID-19 and a global pandemic have left many people with a sense of uncertainty. With lifestyles, hobbies and self-care activities restricted by stay-at-home orders and cities going into lockdown, clients may struggle to find the motivation to go about their daily routines. Completing tasks they previously found easy or enjoyable may now become tedious or overwhelming.

Decreases in motivation can be linked not only to various forms of psychological distress but also to neurological changes. It has been well established that dopamine is the primary neurotransmitter involved in reward-seeking and motivation. Through studies such as one written by Emrah Düzel and colleagues in *Neuroscience & Biobehavioral Reviews* in 2010, we can see increases in dopamine release through novel (new) experiences. Integrating psychoeducation on dopamine into sessions with clients who struggle with internal motivation may help practitioners reshape current

domains of clients' lives in which they do experience autonomy. This can lead to increases in dopamine, which promotes increased motivation and overall brain regulation.

Understanding the neuroscience of dopamine, how to provide neuroeducation to clients, and considerations before application can provide counselors with a different approach to helping clients navigate their sense of motivation throughout the current pandemic.

### The neuroscience of motivation

From an evolutionary perspective, it is advantageous for animals to seek new and rewarding stimuli. New options for food, shelter, etc., increase one's chances of survival. If you have ever felt excited right before experiencing something new (e.g., trying a new food), that is your brain's way of preparing itself to see whether the experience will be positive or negative. Simplistically, this is accomplished by your brain releasing dopamine. If the food you try

is delicious, your brain will code that food as a new source of reward, which strengthens your future excitement and anticipation for it. If the food ends up being horrible, your brain will code that food as an unpleasant experience and learn to avoid it.

Dopamine is one of the primary driving forces behind reward-seeking. Thus, it plays a key role in motivation. Given this interaction, the topic of dopamine is vastly popular in the mainstream literature, but this has led to some common misconceptions about the function of the neurotransmitter. Dopamine is seen as the "feel good" chemical that gets released when a person experiences pleasure or something desirable. In reality, dopamine is more accurately linked to the *motivation* to seek stimuli; it is separate from the pleasure or euphoria experienced through the stimulus itself. In the example we have been using, dopamine affects only your excitement and anticipation for the food you are about to eat; it is not

a factor in the taste or experience of actually eating the food.

Additionally, dopamine functions to regulate motor movement, motivation, reward-seeking, executive functioning and positive reinforcement. This occurs due to dopamine being sent to different areas of the brain through two major dopaminergic pathways: the mesolimbic pathway and the mesocortical pathway.

In the mesolimbic pathway, dopamine travels from the ventral tegmental area (VTA) — one of the main areas that stores and releases dopamine — to the ventral striatum in the midbrain. An important destination in the mesolimbic pathway is the nucleus accumbens, which plays an essential role in processing rewards and reinforcing stimuli. This pathway is also commonly associated with the anticipation of substances and the mechanism of addiction.

In the mesocortical pathway, dopamine also starts in the VTA, but travels instead through the frontal lobe and the prefrontal cortex. Dopamine activity in this pathway is connected to motivation, decision-making and planned behavior around stimuli.

Research has shown that exposure specifically to novel stimuli, or new experiences, increases different functions in the brain, including the dopaminergic pathways. In Düzel and colleagues' study on "NOvelty-related motivation of anticipation and exploration by dopamine (NOMAD)," mice responded to four different events: a neutral event, a motor (movement) event, a fear event and a novel event. Data were recorded on the brain activity before and after each event was presented to the mice. Results showed that the novel stimuli elicited the strongest neural response in the VTA in comparison with the other three events. This study also linked strong dopaminergic responses from novel stimuli to increased activity in the hippocampus, the area of the brain involved in the formation of new memories.

Based on these results, not only do new experiences evoke higher releases

of dopamine in comparison with familiar or negative experiences, but they also encourage higher memory formation and retention. With clients who struggle with motivation, it may be beneficial for counselors to provide digestible neuroeducation and to collaborate with these clients on solutions, especially during the global pandemic.

### **Providing neuroeducation on aspects of motivation**

To synthesize neuroscience into clinical practice, counselors need to provide psychoeducation for their clients to explain "what" is happening to them and "why," particularly when clients are interested in learning about themselves through more of a biopsychosocial model. Providing neuroeducation on the mechanisms within the brain may give counselors and clients alike a different perspective on clients' clinical concerns.

It is important to always listen first and validate a client's experiences. Although the focal point may be rooted in a generalized struggle with motivation, precipitating and perpetuating factors can be unique to each individual. Before counselors formulate what information to provide regarding neuroeducation, they must first inquire about each client's primary concerns and which domains need to be addressed. A client may be more concerned with their lack of energy or about not having the internal motivation to complete their work. Motivation could centralize around social anxiety and maintaining important relationships, or the will to clean up the clutter around their room. Understanding a client's specific concern regarding their motivation is as important as educating them on the neuroscience content.

Teaching a client about neuroscience can be a daunting task, both for the counselor and the client. It is vital to assess clients' understanding of neuroscience and their perceptions of how the brain works before starting any neuroeducation. Information should be gathered informally by

simply asking how much they know about neuroscience, different parts of the brain and neurotransmitters such as dopamine.

As previously mentioned, there may be misconceptions about the mechanisms of the brain, such as the function of dopamine. As such, counselors may need to guide clients away from common myths or misunderstandings about dopamine and the reward systems of the brain. One major misconception that clients may have is the idea that dopamine is prescriptive and can be "hacked" by taking superficial actions to change their brain chemistry. This could be true for a client who feels more energy and motivation following exposure to an exciting new experience, but the effects will most likely be temporary. As is the case with most bodily systems, the establishment of cycles (such as motivational regulation) comes from consistency and making stable routines out of behaviors.

When delivering neuroeducation to clients, be direct and intentional about the information you provide. Unless asked to elaborate, providing additional information to clients who are already working on their level of motivation may feel overwhelming or discouraging to them. Information regarding the neurotransmitter dopamine and its function in reward-seeking behavior, reinforcement, motivation and executive functioning is most essential to provide. Counselors should also link the exploration of new experiences to a potential increase in dopamine, motivation and healthy brain functioning. Certain clients may benefit from learning about the mesolimbic and mesocortical pathways or the VTA, but the more digestible the information is, the better.

The main message to relay is that clients may see changes in their motivation, mood, memory, emotion regulation, decision-making and other domains if they consider adding factors of novelty into their current routines or lifestyle during the pandemic.

## Encouraging novelty for clients

Collaboration between counselors and clients is fundamental in treatment planning and goal setting. This framework can also be applied in neurocounseling when helping clients restructure their routines, self-care and everyday activities. As with all forms of counseling, practitioners should build a therapeutic alliance in which the client is the primary force toward change.

It can be highly effective for counselors to incorporate neuroeducation with a counseling approach such as motivational interviewing. Influenced by Carl Rogers' person-centered counseling, motivational interviewing is an evidence-based technique that addresses ambivalence about change and explores a client's reasons for change. Motivational interviewing centralizes on four main principles under the mnemonic R.U.L.E.: *Resist* telling clients what to do, *understand* their motivation, *listen* with empathy, and *empower* them. The spirit of motivational interviewing resides in partnering with the client, accepting their autonomy, exercising compassion and evoking change within the client. Using an appropriate counseling technique in tandem with neuroeducation can amplify a client's motivation both inside and outside of the session.

Without directly instructing clients, counselors can help clients consider novel experiences that will be realistic, achievable and unique to them. For example, if a client is working from home and sits at the same desk every day, they might consider working in a different room or rearranging their work environment. A client who engages in cardiovascular exercise could think about taking a different route or completing their route during a different time of the day. With stationary hobbies such as cooking or watching Netflix, clients can create novelty by trying new recipes or watching new genres of shows. The focal point is not around the idea of "trying something new" but rather creating a regular habit of "trying something in a new or different way."

If clients require additional guidance in identifying achievable variations, clinicians might consider establishing a S.M.A.R.T. goal with them. This acronym stands for *specific, measurable, achievable, relevant* and *timely*.

During this process, counselors may need to again emphasize with clients that dopamine does not function "prescriptively" and that long-term changes will come through making adjustments to whole routines or finding ways to *consistently* create novelty. This will foster a lasting mindset for clients to find creative ways to "shake up" their routines while avoiding unnecessary repetition or monotony.

During the collaboration phase, counselors can remind clients about the functions of dopamine and how increasing dopamine release in the brain can increase motivation, memory creation and retention, emotional regulation and decision-making. As long as a client demonstrates a willingness to change, introducing even small elements of novelty can potentially improve the client's internal motivation.

## Client considerations

Before proposing to collaborate with clients on forming novel experiences in their routines, counselors must consider the various challenges and barriers that may prevent clients from making even slight adjustments to their routines. Certain physical and mental health disorders may render routines not only important but imperative to activities of daily living (ADLs).

A client who takes daily medications may be required to take them at the same time every day because any deviation could alter the effects of the drugs. For clients experiencing mental health disorders such as generalized anxiety, panic attacks or posttraumatic stress disorder, routines are not only familiar and reassuring but also serve as grounding techniques that keep them safe and in control of their situation.

As with any form of counseling, cultural considerations should always be at the forefront of a counselor's

mind. Certain cultural activities or events may require a specific order that is unalterable. One example is the Islamic prayer *Salah*, a practice that is more than 1,400 years old. It is performed every single day, five times a day, at the same exact times each day, facing the same direction toward al Ka'bah, and using the same prayer gestures and mantras. These practices are an obligation for Muslim prayer and cannot be altered for the sake of newness. Unwarranted discussions around changing routines in traditions could fracture the client-counselor relationship and push a client away from change.

Amidst the prevalence of COVID-19, counselors must also consider barriers clients are facing that prevent them from incorporating novelty into their lives. Something that was always a major consideration, but is illuminated even more fully in today's political climate, is socioeconomic status. Perhaps now more than ever, money and income can be major factors of uncertainty in clients' lives. If clients are essential workers or employees newly rehired due to lockdowns and reopenings, they may not be able to afford to change their work schedules or request time off. Depending on current restrictions or means of safe transportation, clients may not have accessibility to different locations.

When collaborating on solutions, ask clients about their levels of comfort, safety and accessibility related to creating novel experiences. It is the job of the counselor, not the client, to lead with curiosity and to ask which areas of life are important to the client and are affecting their well-being. Counselors who do not consider differences between themselves and their clients may create treatment goals that are not efficacious and which are potentially harmful to clients' well-being. Without close consideration of the factors that influence individual clients' lives, a counselor can come across as patronizing. The best way to avoid such a situation is to approach clients with a sense of curiosity and to ask instead of assuming.

## Implications for counselors

Above all else, counselors should do what counselors do best: listen and empathize. During this time of global pandemic, state lockdowns, quarantining, social separations and contradicting news, COVID-19 has affected every person in a different way. A client's struggle with motivation may have a unique presentation and require an individualized approach. Nonetheless, a counselor's ability to empathize and meet a client where they are will strengthen the therapeutic relationship.

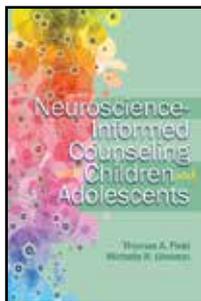
When discussing motivation, neurocounseling provides clients with a detailed, evidence-based perspective of their current symptoms. Neuroeducation can seem intimidating to both clients and counselors at first, but spending time with relevant material and practicing delivery will solidify a counselor's knowledge base and confidence in the subject. Clients can also feel empowered by using neuroscience to create new experiences for themselves and to increase their resilience during such trying times. ❖

Calvin Lee is a master's student in the Boston University School of Medicine's mental health counseling and behavioral medicine program. He is also the student representative for the Asian American Psychological Association's Division on Practice. Contact him at [calee@bu.edu](mailto:calee@bu.edu).

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