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Phenomenology of addictive craving: recognition and clinical utility

Abstract

Addiction with its "craving" is a major health problem, world wide. It is useful toknow features of addictive "craving" to distinguish it from desire. These include its instrumental focus, its intensity, its imperative nature, its urgency, its salience, and its sense of necessity. Associated emotions include anticipated joy; anger, dysphoria, and fear, in deprivation; and desperation. Associated executive dysfunctions include distortions, rationalizations, preoccupations, ego syntonicity, poor judgment, loss of volition, and lack insight. Differences from other desires for drugs include those desired for pleasure, for social function, and for medical or psychiatric need. Addiction "craving" needs to be distinguished from medical need, psychological dependence, and physical dependence. The biology of addictive "craving" drives itas a motivational force unto itself. The risks of developing addiction include past addiction, developmental factors, social factors, psychological factors, impulsivity, constitutional factors. But addiction requires that the patient reach a threshold of quantity and frequency in use. Someclinical considerations include a patient's reluctance to disclose "craving," the resort to illegitimate sources, the need for sound monitoring when medically prescribed.

Keywords: pathological, self-medication, psychiatric need, addictive substance

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Introduction

Addiction to substances — drugs or alcohol— is a formidable worldwide problem. It involves "craving" an addictive substance, even though the substance is harmful. While"craving" itself is a common human experience,it is pathological in the case of such psychoactive substances, that is, certain drugs and alcohol. "Craving" is a core component of addiction, a sine qua non.[1] Many addictive drugs have value, medical or even recreational. However, the potential for actual addition varies with patients. It is a challenge for the clinician to determine the presence or potential for addiction. In assessing a patient's use of an addictive substance, it is clinically useful to understand the phenomenon of "craving." But there are no objective signs. "Craving" is a phenomenological term, expressing what the patient reports, and what the clinician infers, rom observation. It is rare for anaddicted patient to report "craving" as a symptom. So the clinician must consider directand indirect indications of addictive "craving" that the patient may show. Commonly proxy signs are used to assess craving. Numerous rating scales have been devised. While they have value, it is also useful for the clinician to develop as much of a clinical impression as possible. This calls for understanding the dimensions of "craving" in terms that can offer an informed, sense that can be grasped either intuitively or by deduction.

Addictive "craving" involves a patient's interoceptive state of desire to obtain and use a substance with the end of attaining certain experiential state. However addictive"craving" further involves certain features beyond simple "desire."[2] And, addictive "craving" tends to alter executive functions in the service of obtaining and using a substance.[3] And addictive "craving" must be distinguished from other desires, pathological and non-pathological.With respect to substance use, current, common terminology tends to be inconsistent with the related term, "dependence." It is useful to articulate some differentpatterns of drug "dependence," including addiction.

It is also useful to know what dimensions of a patient's psychology tend to be prone,or vulnerable, to addiction and addictive "craving."[4]

Features of "Craving"

"Craving" is a central feature of addiction,[5] a form of desire with its own characteristics. The features of "craving," include its focus, its intensity, its imperative quality, its urgency, its motivational salience, its associateddesperation, and its sense ofnecessity.

"Craving" is an interoceptive state.[6] Clearly "craving" implies a wish to be gratified. Addictive "craving" is a stateof desire to obtain and use a drug to acquire a mental state, usually claimed to be a state of "euphoria," or at least pleasure, or reduction in displeasure.[7] The desire then becomes focused instrumentally, on the means to gratify it, to achieve the state, that is, on obtaining the particular substance deemed to induce the state. (This is confusing because of the common unpleasurable experience of drug intoxication.) This desire — focused on both means andend — is acore feature of addictive "craving."

The word "desire" seems apropos, as do words such as "wanting," "wishing for," and"longing for." However, inmany ways these words are inadequate. The addict does not just desire or want or prefer, but "craves," — implyingintensity.[8–12] It is nocasual wish or want, as one might want attractive clothes, or more money, or companionship,or a good time; not like having a sexual urge or desire. The "wanting"isquite distinct from the "liking."[13–15] It is awanting with significant power, in a way that is difficult to dismiss, compartmentalize, or simply manage. It has been described as the difference between someone whispering into your ear and someone shouting through a microphone; or, it is said that craving is to desire, as panic is to anxiety. In addition, addictive "craving" connotes not just an intense desire, but also a strongdisposition to act. It is experienced as an imperative to take action to obtain the drug. Furthermore, this urge to act has an urgency, a pressure, an immediacy, in a mannerthat is subjectively difficult to delay or defer. In this regard it bears a resemblance to the experience of pain, Addictive "craving," with respect to other desires, acquires a motivational salience,[16] priority, which overrides other wishes.And following suit, there is a prioritizing ofthe means to obtain the drug. Other matters come to be of secondary importance. "Craving" includes

a recruitment of emotions in its support: projected satisfactionand joy at obtainingthe drug, and anger, dysphoria and fear at not obtaining it.

Desperation is present in "craving's" demand for gratification.

In fact, addictive "craving" becomes not a just preference or a directed wish, but arequirement, perceived necessity, a compulsion. By implication, there is the addict's subjective sense that function is not possible withoutthe drug.

Addictive "Craving" can occur spontaneously, or by cues — emotional states, associatedexternal environmental matters. The time course of a "craving" can vary, being tonic, phasic, pulsatile, continuous or discontinuous.[17]

Changes in executive function

Addictive "craving" affects numerous aspects of executive function.[18,19] Thereare overt cognitive distortions, including rationalizations, preoccupations, judgment errors, a loss of volition, and a lack of insight. Rationalization is prominent. The addict will attribute some other motivation to the "craving.". One striking example is the end that is sought, the induced state. The addict seeks a certain mental state, associated with the substance's effects, often a euphoria or reduction in displeasure (anxiety or pain, often). So the addict claims. Butoften, the "high" of the addict is not "pleasure," but a state of intoxication, with disinhibition and problematic emotions, such as irritability, fear, even dysphoria. The state involves cognitive problems, including confusion, errors in judgment, concentration, and memory deficiencies; there are often movement problems: dysarthria, dysmetria, ataxia; often there is little actual "pleasure." And when again sober, the addict again " craves" the imagined positive state, without remembering or processing that the intoxicated state wasn't positive. (It is occasionally useful to clinically explore with the patient his state of mind during his last intoxication, for the purpose of demonstrating that the intoxication was hardly euphoric.) The addict claims his "craving" to be instrumental toward the end of attaining the idealized projected state; but the addict doesn't really know why he "craves." The rationalization is then patent. Additional rationalizations are also present, often minimizing risks and negativeaspects of use. Social and work obligations are neglected. Expected tasks are not accomplished.

There is a preoccupation with thoughts of the substance, of obtaining it, and of the imagined state of intoxication. This is more than the usual "giving attention to" of typical desires, a much stronger attentional bias. The thoughts are frequent and prominent, in the forefront of conscious thinking. They tend to interfere with other efforts at concentration and attention. It might be claimed, non-technically, that thoughts of the substance become an "obsession", or a kind of "compulsion."[20–22] (Technically, obsessions and compulsions are eg0 dystonic, by definition, while these thoughts and actions are ego-syntonic.) The addict sees the problem as his need for the substance, rather than a problem in his own addiction and "craving" for the substance. Associated with addictive "craving," there is an impairment in the executive function of judgment — the ability to weigh an action based on the estimated consequences. Judgment becomes defective, for example, in considering the health risks, the legal risks, the financial risks, the occupational risks, and the social risks incontinued use. It is common for there to bea complete denial of risk. In fact, there is an overall loss of executive control with respect to volition (a product of higher cortical functions). The ability to control the choice and direction of cognition and action is reduced, even eliminated. The addictive "craving" itself cannot be modified by volition. With some substances, such as alcohol, part of this is due to thedisinhibition from lasting toxic brain effects.[23]

The lack of insight is a prominent. It involves a minimization of the addiction, such as, "A minor thing,"or "Everybody does it," or "Just a little vice," or "A common habit." There may be a frank denial of any condition or problem at all. The word "anosognosia"may apply.[24]

Other desires

To better identify addictive "craving,"I t may be useful to consider other forms of desire for a drug or alcohol, since addictive substances can be taken for purposes otherthan gratifying addictive craving. It is not always a matter of actual addictive "craving.."[25–27] Desire for pleasure can be a motivation for using a drug, and is, in fact, common. This is most frequently a casual, infrequent substance use, without addiction. It is not,itself, "craving."

There are social motivations for desiring and using drugs, without "craving". A commonexample is to enhance social pleasure. Indeed one hears about alcohol or drug use as a "social lubricant." Sometimes the use is motivatedby peer pressure. This desire to use in these social situations needs to be distinguished from addictive "craving." Desire to use a drug can be related to a medical need. Drug use — singular or repeated —can be medically indicated and prescribed by a physician, to treat medical or psychological symptoms, possibly even a medical necessity. One prominent example involves the symptom ofpain. When a patient is in pain, he or she may demonstrate an urgent wish for a drug to provide pain relief; and that urgency may clinically resemble addictive "craving." The term "pseudo- addiction" can be used to distinguish this situation.[28] To be sure, this may result in some confusing clinical determinations. But it is useful to distinguish desperately seeking suppressionof pain from addictive "craving".

And there are other symptoms that addictive drugs can relieve in patients, without the "craving" of addiction. Some examples would be medications for anxiety. A patient may requestsuch a drug. This requires conceptual clarity in clinically distinguishing seeking anxiety relief from addictive "craving". In the case of self-medicationamong certain patients, understanding the nature of desire for a drug, may be challenging. Patients may self- medicate a symptom with an addictive drug —certainly something not to be recommended or supported — and may experience an urgent need to have the drug. This may be a matter of anxiety or stress intolerance. But it is not the same as addictive "craving."

Aspects of pathological narcissism may be involved in substance use: The drug may beused to counteract chronicpersonal narcissistic shame. The intoxicating effect can involve the disinhibition of a less negative and perhaps grandiose sense of self, thereby offering relief fromthe chronic negative self-esteem. Of course, when no longer intoxicated, the user returns to theshameful experience of self. But while this is true, and constitutes a motivationfor use, it is notthe same as addictive "craving".

Dependence

It is helpful for the practicing clinician to consider the factors that may be involved in considerations of a patient'sdependence on a drug. Current usage of the term, "dependence" with respect to drug use can be confusing. Much of current practicedoes not terminologically distinguish among medical necessity, psychological dependence, physical dependence, and addiction. There is medical need. A drug may be medically prescribed with a beneficialeffect — symptom suppression — and continued symptom suppression may require continued use of the drug. The patient, then, is "dependent" on the drug, for symptom suppression, and, knowing this, the patient may desireit. A commonly cited analogy is that of insulin for the diabetic. Other examples might be anti-hypertensives, or cholesterol-modifying medicines. In fact,

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this includes any drug that is medically necessary — it is a medical need, and the patient is "dependent" on it. But this can also include analgesics and opioids for chronic pain, or benzodiazepines for chronic anxiety. A patient may desire such, may benefit from such, and if properly prescribed, may use such appropriately without developing addiction. Desire for medical relief can manifestas "pseudo addiction,"[28] — but it differs from addictive "craving." Of course, the prescribing physician must monitor such usage for the possibility that usage might reach a threshold of frequency and quantity that physical dependence or addiction develops. Or, a patient may illegally obtain such a drug and take it in order to self-medicateand suppress symptoms. While this is not desirable and even risky, it is not necessarily the same thing as addiction. The patient desires the substance to continue his or her self-treatment of the symptom. This is mentioned not to support the practice, but ratherto clarify addictive "craving."

The term "psychological dependence" is commonly used to describe medical dependence, with respect to a psychological symptom. For the purpose of this discussion, "psychological dependence" will refer to the situationwherein a patient believes that he or she requires a substance, but, in fact, does not. For the patient, the drug has taken a magical meaning. An example would be a patient who believes he mustuse a sleeping pill, when he actually sleeps well without it; or, a patient who believes thathe needs a substance to relax, in a social situation, when actually he or she does not require it. These situations point to a patient's doubts about his or her ability to cope. They may reflect poor self-esteem or poor self-confidence, the patient believing he orshe requires the substance to function socially.

Psychological dependence, then, in this sense, refers to a patient's perceived subjective need for a particular substance to maintain psychological security or peace ofmind, when it is, in fact, not otherwise necessary. The patient wants the substance to reduce his or her fear of not being able to function. (Certainly if quantity and frequency exceed a certain threshold in a vulnerable person, then physical dependence or addiction can develop.) Alcoholics Anonymous will say that the alcoholic drinks to gain "control," meaning the mastery of negative emotions and thoughts, including self- esteem, by means of intoxication. (But AA will also declare that such a goal is an illusion, and that the alcoholic must surrender this need for control to a higher power.)

"Physical dependence" needs to be distinguished from addiction. The difference can be conceptually confusing and practically challenging. Although addiction rarely occurs without physical dependence , physical dependence is a distinct phenomenon. Itis an acquired neuroadaptation that develops after a patient has been taking a substance with sufficient regularity and daily dosage, for a length of time sufficient that a threshold is reached. The substance becomes an established element in physiologic processes, and is now effectively required. Then, when the substance is either absent, oris taken at unexpectedly low dosage, a "withdrawal" reaction occurs, as a matter of allostasis.[29] The reaction is typically subjectively unpleasant, and, depending on the substance and quantity , canbe very uncomfortable and can even pose a physical danger.

A number of non-psychoactive substances can cause physical dependence. This isone reason that physical dependence should be viewed as distinct from addiction — for example,beta-blockers, steroids. Although they may cause physical dependence, they do not cause addiction with addictive "craving." The patient may desire the substance for medical need, or to prevent or eliminate the physical withdrawal symptoms present or impending. However, these are not "addiction."

But, making matters confusing, virtually all addictive substances produce physical dependence when a thresholdis reached, concomitant with addiction. The threshold to develop addiction with addictive "craving" is often, but not always, higher than the threshold for physical dependence. (However, this is not true for a patient whohas a prior history of addiction, in which case the threshold to develop addictive "craving" is variable, and may be very low.) Addiction involves a kind of dependence, but it is distinct from medical need, psychological dependence, and physical dependence. Similar to physical dependence, it develops from taking a substance with sufficient regularity and daily dose for a sufficientlength of time such that a threshold is reached and it is now "craved."[30,31] Whereas, the addict had used for certain motivations in the past,in the past, at this point, desire for the substance becomes addictive "craving." There is a withdrawal syndrome associated with addiction to addictive drugs, if suddenly discontinued, but the particular features vary with the drug. It is clinically difficult to isolate this syndrome and treat it since it virtually always occurs simultaneous with the withdrawal syndrome of physical dependence. The withdrawal inphysical dependence typically requires medical treatment to minimize or prevent the overt symptoms. The particular symptoms of withdrawal from addiction itself, a separate matter, are usually managed by psychotherapeutic support; this is feasible provided the symptoms of physical withdrawal are managed. However, there are anti- craving medicines that can facilitate the abstinence from using an addictive drug, when addiction has been present.

A motivation unto itself

Addictive "craving" is a motivation sui genesis, a motivation unto itself.[32] It Isnot derived or elaborated from other motivations, with no end other than it's own gratification. Although the addict may claim otherwise, the "craving" to use, when gratified, may or may not result in the expected state of euphoria or pleasure. But it is nevertheless "craved." It is an acquired biological drive that is not under voluntary control. Given human nature,the addict attributes a secondary psychological meaning to his craving and actions.

Biology

The biological basis for addictive "craving" involves the brain's reward circuit, including the mesolimbic dopamine system, the nucleus accumbens, the prefrontal cortex, the basolateral amygdala, the lateral hippocampus, and the medial forebrain bundle.[33] When pharmacologically activated, mediated by dopamine, the circuit conveys notjust pleasure, but an additional significance of reward, effectively designating the drugas necessary for survival — similar to food or fluid. Using the drug is incentivized. Further reward sensitization develops, with the drug now promoting it's own "craving."[34] Serotonergic neurons and glutaminergic neurons potentiate additional reinforcement via stress reactivity and low constraint disinhibition, in contextual memory.[35,36] In addition, dynorphin and the kappa opioid system control negativeaffect as an aspect of "craving"that is not yet gratified.[37] While this is a biological matter, it is distinct from the biological matter of physical dependence, becoming addiction with the onset of "craving."

Risks, vulnerabilities, dependences

For further clarification of craving" with the different kinds of use and "dependence" let us consider the risks or vulnerabilities for addiction and its "craving." There are numerous known factors that can contribute to a risk of a patient developing addiction. These includes earl life factors, developmental factors, social factors, and psychological factors.[38–40] A psychological trait of impulsivity

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may involve a vulnerability to addiction.[41,42] Constitutional factors, including genetic ones,[43,44] are clear, suggesting differences in the overall sensitivity of the reward system. One interesting theory relates such differences to the oxytocin system. This may account for variations in length or frequency of use required to develop addiction. The risk of addiction, with addictive "craving," is particularly greater in the caseof the patient with a history of true addiction. In such an instance, the prior development of addiction has neuroplastically resulted in a vulnerability to relapse. Even though not actively maintaining addiction by using, the former addict tends to remain sensitive to relapse into addiction by using justonce: this is designated "priming."

What manners of drug use might become addiction with "craving"?

Using more than a threshold level can eventuate in physical dependence. This would include use for pleasure as well as prescribed use for medical need, with the associated patient's desire to alleviate or prevent a symptom. This would not necessarily result in addiction. But once a certain level of use is reached, if there is an identified risk for addiction, the prescriber must attend to further prescribing with an effort to avoid developing addiction,.

Self-medication itself would be a particular risk.

Psychological dependence can involve longing for the drug and fear of not obtaining it, but these are not the same as addictive "craving." Using because of psychologicaldependence or using to manage psychological symptoms are distinct from addiction. But with increased usage in quantity and frequency can eventuate in physical dependence or addiction.

Addiction virtually always indicates that physical dependence is present, andoften points to how there has been prior medical need. This may have been met with self- medication. But when addicted, the user will use primarilyto gratify an addictive "craving," although it will also serve at times to manage physical or psychological dependence. But addiction itself develops at a threshold of frequency and quantity use and then involves "craving."

Some clinical considerations

The addict is unlikely to reveal his "craving," and likely to minimize its significance.

The addict may be using illegitimate sources for his or her drug. If unwilling to change this (and engage in addiction management such as detox), it is difficult to responsibly prescribe anything at all. Thus the importanceof finding ways to engage the addict in treatment.

If a a drug that can be addictive for medical or psychiatric reasons, is prescribed for medical need, addiction canbe prevented by monitoring frequency and quantity of daily use

— staying below the daily addictive threshold of use. This may or may not mean developing physical dependence; however, physical dependence, when it is a side effect of medical need,can be medically managed. And even withphysical dependence, the tendency to develop addiction with addictive "craving" can also be medically managed.

The clarification of the elements of "craving" can be put to use in clinical assessement ofa patient reporting drug usage or seeking drug prescription. Insofar as possible, this would involve developing a clinical sense of each of the following in a patient's wish for a drug:

a. The cognitive focus on the particular drug,

b. The intensity of desire for it,

c. The imperativeness to obtain it,

d. The urgency experienced,

e. The salience of the desire with respect to other wishes ,

f. The desperation experienced for it,

g. The sense of necessity to use it.

h. And the clinician may be able to develop some sense of possible associated cognitiveproblems:

i. Cognitive distortions or rationalization about using the drug

j. Preoccupation with obtaining the drug

k. Problems in judgment related to using the drug

l. Presence or absence of volitional control related to drug use

m. Lack of insight about any possible problem

It may not always be possible to determine the presence or absence of such matters. Butto the extent possible, itmay be useful in deciding whether addiction or medical is present.

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Conflicts of interest

Neither author has any conflict of interest.

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