THE UNBEARABLE HEAVINESS OF LONELINESS

Presented by Cardwell "C.C." Nuckols, PhD.

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Using GoToWebinar
(Live Participants Only)

- Control Panel
- Asking Questions
- Handouts
- Audio (phone preferred)
- Polling Questions

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Webinar Learning Objectives

- Discuss various patient factors from psychosocial variables, to disorders, to personality variables associated with isolation and loneliness.
- Discuss current research on the impact of social isolation on individual (patients and staff) functioning and well-being.
- Consider a range of understandings and clinical approaches as loneliness is multi-determined - helpful to the individual experiencing loneliness and isolation.

Loneliness is not the same as being a “private” person or what might be called a “loner”. Some people both desire, need and enjoy a lot of alone time.
LONELINESS

The Internet has transformed how Americans work, play, search, shop, study, communicate, and relate to one another. *People are increasingly connected digitally, but the prevalence of loneliness (perceived social isolation) also appears to be rising.*

From a prevalence estimated to be 11–17% in the 1970s (Peplau, Russell, & Heim, 1979), loneliness has increased to over 40% in middle aged and older adults (Edmondson, 2010; Perissinotto, Cenzer, & Covinsky, 2012).
DEFINING LONELINESS

One may enjoy being alone (a pleasant state defined as solitude) at times in order to reach personal growth experiences or to simply take a temporary break from dealing with the demands of modern life.

- Loneliness corresponds to a discrepancy between an individual's preferred and actual social relations (Peplau & Perlman, 1982). This discrepancy then leads to the negative experience of feeling alone and/or the distress and dysphoria of feeling socially isolated even when among family or friends (Weiss, 1973). One can feel lonely in a crowd or in a marriage.
DEFINING LONELINESS

Loneliness emphasizes the fact that social species require the presence of others but also the presence of significant others whom they can trust, who give them a goal in life, with whom they can plan, interact, and work together to survive and prosper (J. T. Cacioppo & Patrick, 2008).

One needs to feel connected to significant others to not feel lonely. One can be temporarily alone and not feel lonely as they feel highly connected with their spouse, family, and/or friends—even at a distance. Subjectivity and perception of the friendly or hostile nature of one’s social environment is, thus, a characteristic of loneliness.

DEFINING LONELINESS-NEUROBIOLOGICAL

Human beings are troop primates by nature. When we are faced with prolonged loneliness it goes against our primal impulses. The brain reacts to loneliness as an emergency situation.

The hormones of our stress response— the glucocorticoids—are kept at an elevated level. On an unconscious level we essentially prepare our bodies to travel in search of other humans.
DEFINING LONELINESS-SUBJECTIVE EXPERIENCE

- Lonely people self-describe in very negative ways that span a large range of self-deprecating characteristics.
- Examples of these are feeling worthless, empty inside, unacceptable, and separated from others. They also say they feel alone and lonely, vulnerable, relationally inadequate, and spiritually empty.
- They indicate that they feel pessimistic, disliked, and unappreciated.

A number of lonely people say they feel angry at others because they perceive that these others are unwilling to rescue them from their loneliness (www.knowswhy.com/how-does-social-media-createisolation).

DEFINING LONELINESS-SUBJECTIVE EXPERIENCE

- This is a particularly interesting perception, since it assumes that other people possess the capacity but nonetheless refuse to "remove" the loneliness that is being experienced.
- This is another illustration of the unrealistic expectations that some lonely people have; we might also refer to it as "magical thinking." It is clear from these self-descriptions that lonely people are unhappy people and that, when their loneliness becomes chronic, depression is a likely correlate.

Booth, R. Loneliness as a Component of Psychiatric Disorders. Medscape General Medicine. 2000;2(2)
THE RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION

Many clinicians believed, for decades, that loneliness was simply an aspect of depression. (cf. Young, 1982). There is now considerable evidence showing that loneliness and depression are separable and that loneliness increases the risk for depression (J.T. Cacioppo et al., 2006; Heinrich & Gullone, 2006).

A potential difference between loneliness and depression is while both are filled with helplessness and pain, loneliness is characterized by the hope that all would be perfect if only the lonely person could be united with another longed for person.

LONELINESS, DEPRESSION AND SUBSTANCE USE DISORDER

Feelings of isolation, depression or anxiety can lead to alcohol and drug use. If they work well, abuse and addiction can follow.

Those struggling with loneliness often use substances as a substitute for interpersonal relationships.

Alcoholics and those addicted to drugs are often lonely people. If you use these substances in an attempt to combat loneliness, they only exacerbate the feelings in the long run.

As addiction progresses, many addicts find themselves losing the support of their family and friends. May lead to even deeper isolation.
LONLINESS, DEPRESSION AND SUBSTANCE USE DISORDER

- Severe early life stress dramatically increases the risk of addiction and the risk increases with greater trauma exposure
- Swedish study where children who lost their parents, experienced a parent's diagnosis of cancer or observed domestic violence had twice the risk of substance use disorder in life

LONLINESS, DEPRESSION AND SUBSTANCE USE DISORDER: WHY OPIATES?

- Relieves stress
  - Action on mu receptors on amygdala
  - Feeling of being warm, fed and cared for
  - Dissociation from negative feeling states
  - Cognitively intact
  - Dopamine high and enhanced sense of well-being
    - Dopamine signal from reward center to prefrontal cortex
LONLINESS, DEPRESSION AND SUBSTANCE USE DISORDER

According to a recent survey...

- Loneliness could have roughly the same impact on mortality that smoking 15 cigarettes a day has. This would mean loneliness is potentially more adverse to your health than obesity!
- The Z Generation (mid-1990s as starting birth years and the early 2010s as ending birth years) and Millennial Generation (early 1980s and 1990s) report feeling lonelier than any other generation in history.
- There was no major difference in responses between men and women or among racial demographics

THE RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION

- Not all lonely people are depressed, nor are all depressed people lonely, but the 2 conditions share significant variance in many of the studies that have measured them both. Some people experience transient loneliness, others a more permanent type of loneliness. Those suffering chronic forms of loneliness are more likely to also be depressed than those whose loneliness is more fleeting, reactive, and situational
THE RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION

DIFFERENTIAL DIAGNOSIS

It is important for clinicians to note that the conditions may be cooccurring.

It should also be noted that these 4 suggested target areas should be considered minimal areas of exploration, that is, they should be considered the beginning exploratory domains of differential diagnosis.

THE RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION

First, if the major area of patient dissatisfaction is focused on interpersonal issues rather than more global concerns about his or her life, the clinician may well be dealing with loneliness.

Lonely people, if they are not also depressed, tend to be primarily concerned with their interpersonal distress, which may be accompanied by anger, anxiety, or any number of other factors. Depressed people, on the other hand, tend to have more global concerns that span the breadth of their lives.
THE RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION

- **Second**, clinicians will want to probe duration issues, that is, how long patients have felt sad, worthless, or whatever their presenting complaints might be.

  - *The longer* those negative affects have been present, *the greater the likelihood that depression is part of the clinical picture*

- **Third**, determine the type and degree of guilt the patient is experiencing, since guilt appears to be more typical of depression than loneliness -- although some lonely patients also complain about feeling guilty.

- **Finally**, clinicians should explore the area of vegetative symptomatology, since some researchers have found many of these to be more descriptive of depression than loneliness.
THE RELATIONSHIP BETWEEN LONELINESS AND DEPRESSION

With depression often long term emotional suffering can manifest in the body as illnesses or out of character behavior. Although loneliness can also cause a person to act out of character, it should rarely if ever cause physical symptoms.

With clinical depression the list of signs and symptoms become a bit more serious:

- Unexplained mood swings
- Excessive tearing or crying
- Various changes in eating patterns
- Loss of weight
- Irritability
- Problems with concentrating
- Random body aches such as backaches and headaches

LONELINESS AND DEPRESSION: COMPARISON

<table>
<thead>
<tr>
<th>LONELINESS</th>
<th>DEPRESSION</th>
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<tbody>
<tr>
<td>Hope that all would be perfect if could have longed for relationship</td>
<td>Physical symptoms common—backache or headache (rare in loneliness)</td>
</tr>
<tr>
<td>Increases risk for depression</td>
<td>Unexplained mood swings, excessive crying, irritability</td>
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<tr>
<td>Presence of others and connected significant others can reduce loneliness</td>
<td>More severe disturbances in sleep patterns</td>
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<tr>
<td>Subjective perception of one’s environment as either friendly or hostile</td>
<td>Inability to recognize self-worth, feel accomplished and find purpose in life</td>
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<tr>
<td>Usually a consequence of a situation that can be pinpointed to cause or contributing factor</td>
<td>Significant weight loss and loss of appetite</td>
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THE RELATIONSHIP BETWEEN LONELINESS AND INTROVERSION

- Over one-third of Americans are introverts
- Generally quiet and cerebral
- Can tune into their inner world (often have difficulty taking stock of self but when they do they become very powerful)
- US believes to be happy is to be sociable- i.e. extroverted

THE RELATIONSHIP BETWEEN LONELINESS AND INTROVERSION

- Carl Jung, Psychological Types (1921)
  - Introversions and Extroversion central building blocks of personality
    - Introverts drawn to inner world of thoughts and feelings
    - Extroverts drawn to external life of people and activities
    - Introverts focus on the meaning they make of events
    - Extroverts plunge into the events
    - Introverts charge batteries-alone
    - Extroverts charge batteries-socialization
THE RELATIONSHIP BETWEEN LONELINESS AND INTROVERSION

- Historically, psychology agrees on several points although no standard definitions
  - They differ in levels of outside stimulation needed to function
  - They work differently—extroverts tackle assignments quickly making fast, sometimes rash, decisions and are risk-takers (“thrill of the chase”) while introverts work more slowly, focus on one task at a time, can have mighty powers of concentration and are relatively immune to fame and fortune.

THE RELATIONSHIP BETWEEN LONELINESS AND SOCIAL ANXIETY DISORDER

- In social anxiety disorder, everyday interactions cause significant anxiety, fear, self-consciousness and embarrassment because you fear being scrutinized or judged by others.
- Fear and anxiety lead to avoidance
- Study published in the Journal of Abnormal Psychology finds that people who have social anxiety are at greater risk for loneliness. Profound feelings of loneliness may be caused by a lack of interpersonal relationships, physical isolation, new living environments, divorce, and even death, and social anxiety may also create loneliness for sufferers. (http://www.ncbi.nlm.nih.gov/pubmed/27124713)
THE RELATIONSHIP BETWEEN LONELINESS AND SOCIAL ANXIETY DISORDER

- Social media creates the illusion of having friends. People spend more and more time chatting with strangers online and sharing their thoughts and feelings with unidentified “users”. Since most online submissions speak of the positives of the writer, this can aggravate loneliness. ([www.knowswhy.com/how-does-socialmedia-create-isolation](http://www.knowswhy.com/how-does-socialmedia-create-isolation))

- SAD test can be found at ([https://psychcentral.com/quizzes/anxiety-quiz/](https://psychcentral.com/quizzes/anxiety-quiz/))

SOCIAL SUPPORT-ENRICHED ENVIRONMENT

If you belong to no groups but decide to join one, you cut your risk of dying over the next year in half.

SOCIAL SUPPORT-ENRICHED ENVIRONMENT

- Creates a surge of neurogenesis
- The cortex becomes thicker
- Novelty and physical exercise augment neurogenesis-brain-derived neurotrophic factor (BDNF)
- Synaptic connections become denser and dendrite branching more complex (complexity)
- Especially in the dendrite gyrus area of the hippocampus involved in learning and memory (Briones, et.al. 2004)
SOCIAL SUPPORT

- THE STABILITY OF THE SOCIAL STRUCTURE
  - A close knit family and community
  - A cohesive group bond acts as a buffer against other risk factors
  - Genesis of most diseases is stress and inflammation
  - NOT LIFE EVENTS
  - BUT HOW WE PERCEIVE OUR PLACE IN THE WORLD (WORLDVIEW) ESPECIALLY WITHIN OUR IMMEDIATE ENVIRONMENT
  - The root of stress and ultimately illness is a sense of isolation and most toxic of all appears to be our current tendency to pit ourselves against others

HOPE AND EXPECTATION

- Chronic pain conditions, whether it be back pain, fibromyalgia, or migraines, experiencing constant pain can easily squeeze hope out
- The rostral anterior cingulate cortex, plays an important role in boosting hope. In theory, the right thoughts or mindset generated from there help trigger a surge in more positive feelings or emotions in the amygdala.
HOPE AND EXPECTATION

This activates behavior changes that eventually lead to accomplishing desired goals. The key step is mustering the right outlook (worldview) to set this reaction in motion, and this is where folks can get stuck. If you start with a negative worldview... “This condition is chronic and won’t go away and therefore, there is no hope,”

Abaci, P. Why You Need Hope. WEBMD Blogs, Pain Management, March 7, 2019
PSYCHOTHERAPEUTIC CONSIDERATIONS

Quantitative literature review revealed little evidence for better efficacy of one-to-one individual therapies compared to group therapies. Type of intervention program was a significant moderator, however. Twenty studies met the criteria for randomized group comparison design, and all four primary types of interventions known to reduce loneliness were present in this group. (Masi et al., 2011)

To increase opportunities for social interaction.

- But a large number of contacts is not equivalent to high quality relationships (Masi et al., 2011).
- Effects of our own mentation (what we think, what we perceive) involves both conscious and unconscious mechanisms.
- Even if lonely individuals want to connect, their unconscious hypervigilance for social threat can lead them to be negative with or withdraw from others.
PSYCHOTHERAPEUTIC CONSIDERATIONS

2) Those that enhanced social support (e.g., through mentoring programs, Buddy-care program, conference calls),

That said, loneliness is not only about getting support, it is also about giving support back and mutual aid.

PSYCHOTHERAPEUTIC CONSIDERATIONS

3) Those that focused on social skills (e.g., speaking on the phone, giving and receiving compliments, enhancing nonverbal communication skills).

People are lonely for many reasons other than poor social skills. Experimental research in which loneliness was manipulated shows that most adults have at least minimal social skills, but these adults are more likely to call upon these social skills when they feel low rather than high in loneliness (Cacioppo et al., 2006).
PSYCHOTHERAPEUTIC CONSIDERATIONS

(4) Those that addressed maladaptive social cognition (e.g., cognitive behavioral therapy).

- Among these four types, interventions designed to address *maladaptive social cognition* were associated with the largest effect size.

- Such interventions can be expensive and time-consuming, and the client’s lack of openness to changing their thoughts about and interactions with others can be an obstacle to effective treatment. It is possible that these interventions may be more effective (or effective for a greater proportion of individuals) if augmented initially by an appropriate pharmacologic treatment.

PSYCHOTHERAPEUTIC CONSIDERATIONS

OTHER OPTIONS INCLUDE…

- SELF-REGULATION TECHNIQUES such as mindfulness and yoga to reduce physiological and emotional arousal.

- COGNITIVE THERAPY
  - Reduce loneliness inducing information processing
  - Increase problem-solving ability

- BEHAVIOR THERAPY
  - Teach adaptive behaviors
PSYCHOTHERAPEUTIC CONSIDERATIONS

OTHER OPTIONS INCLUDE...

- **REALITY THERAPY (Wm. Glasser)**
  - Techniques to reduce anxiety and depressive symptoms
  - The aims are to help define and assess basic values within the framework of a current situation and to evaluate the person's present behavior and future plans in relation to those values. The emphasis in treatment is on the present rather than the past and on behavior rather than feelings; it focuses on responsible behavior as a means of personal fulfillment.
  - Assist patients in recognizing and accepting the present, instead of dwelling on the past. Patients undergoing reality therapy are helped to cope with present demands, limit distortions, and anticipate future needs.

PSYCHOTHERAPEUTIC CONSIDERATIONS

Reality Therapy works by helping clients get crystal clear about what they want in their life. Then the focus is placed on those things over which they have control - not other people, the past or circumstances beyond their influence.

- To help people take control of improving their own lives by learning to make better choices.
- Genetically-wired to satisfy 5 basic human needs:
  - Survival
  - Love
  - Sense of belonging
  - Power
  - Freedom & Fun
PSYCHOTHERAPEUTIC CONSIDERATIONS

Love and sense of belonging are the most influential. Dr. Glasser postulated that there are seven caring habits that we all share: supporting, trusting, encouraging, listening to, accepting, respecting and being able to negotiate differences with, others. Juxtaposed with those are a like number of negative, or “deadly”, habits. Those include criticizing, blaming, complaining to/about, nagging, threatening, punishing and bribing/rewarding to control, others.

PSYCHOTHERAPEUTIC CONSIDERATIONS

One key to cognitive behavioral therapy (CBT) in the framework of reducing loneliness is to educate individuals to identify the automatic negative thoughts that they have about others and about social interactions more generally, and to regard these negative thoughts as possibly faulty hypotheses that need to be verified rather than as facts on which to act (Anderson, Horowitz, & French, 1983; McWhirter, 1990a; Young, 1982).

By aiming to change maladaptive social perception and cognition (e.g., dysfunctional and irrational beliefs, false attributions, and self-defeating thoughts and interpersonal interactions; for reviews: Cacioppo & Patrick, 2008; Masi et al., 2011; McWhirter, 1990a), CBT approach implies that loneliness can be decreased (Masi et al., 2011, McWhirter, 1990a).
PSYCHOTHERAPEUTIC CONSIDERATIONS

Given the effects of attention and expectation on anticipated social interactions, behavioral confirmation processes then can incline an individual who feels isolated to have or to place more import on negative social interactions, which if unchecked can reinforce withdrawal, negativity, and feelings of loneliness (e.g., see The effects of loneliness on social cognition. Modified from J. T. Cacioppo and Hawkley (2009), Cacioppo & Cacioppo, 2014).

PSYCHOTHERAPEUTIC CONSIDERATIONS: WELLNESS-PET THERAPY

According to the Centers for Disease Control, there are a number of health benefits associated with pet ownership: In addition to easing feelings of loneliness (because of the increased opportunities for socializing with other pet owners, in addition to the companionship the animal provides), having a pet is associated with lowered blood pressure and decreased levels of cholesterol and triglycerides.
PSYCHOTHERAPEUTIC CONSIDERATIONS:
WELLNESS-EXERCISE

For the U.S. population, in which the majority of people are sedentary or only minimally active, achievable increases in physical activity of a moderate amount, including some resistance exercise to strengthen muscle, are likely to substantially improve the health and quality of life of many people.

Overall Mortality

1. Higher levels of regular physical activity are associated with lower mortality rates for both older and younger adults.

2. Even those who are moderately active on a regular basis have lower mortality rates than those who are least active.
PSYCHOTHERAPEUTIC CONSIDERATIONS:
WELLNESS-EXERCISE

- **Modest increases in physical activity** are likely to be more achievable and sustainable for sedentary people than are more drastic changes, and it is sedentary people who are at greatest risk for poor health related to inactivity. Thus the public health emphasis should be on encouraging those who are inactive to become moderately active.

- **Walking is one of the greatest low-impact cardio exercises, enhancing the level of HDL (good) cholesterol, and curbing the production of LDL (bad) cholesterol.**

- Harvard University Women’s Health Study published their findings in 2012 that walking for almost 2-3 hours a week alleviates the risk of demise from uterine and breast cancer by almost 19%,
PSYCHOTHERAPEUTIC CONSIDERATIONS:
WELLNESS-NATURAL ENVIRONMENT

- Naturalistic environments have been demonstrated to promote relaxation and wellbeing.
- Investigation of autonomic arousal and alterations of activation and functional connectivity within the default mode network (DMN) of the brain while participants listened to sounds from artificial and natural environments.

- Found no evidence for increased DMN activity in the naturalistic compared to artificial or control condition, however, functional connectivity showed a shift from anterior to posterior midline coupling (An interaction between different parts of a system) in the naturalistic condition.
- These changes were accompanied by an increase in peak high frequency heart rate variability, indicating an increase in parasympathetic activity in the naturalistic condition.
Field study using electroencephalography identified an increase in delta (δ) band power when participants transitioned from urban to natural environments.

This was interpreted as demonstrating a reduction in neural correlates of arousal and frustration, and an increase in active engagement in the naturalistic environment.


Thoughts stimulate the release of neurotransmitters. If you have happy thoughts, then you’re producing chemicals that make you feel happy like dopamine.

Negative, angry and fearful thoughts also produce neurotransmitters to make you feel how you’re thinking

Affirmations interrupt the maladaptive neuro-networks. And the more you use affirmations, the more those nerve cells that are connected to each other (i.e., firing together), start breaking the long-term relationship with your negative thoughts, literally re-wiring to your new, affirming beliefs.
“NEURONS THAT FIRE TOGETHER, WIRE TOGETHER” DONALD HEBB

PSYCHOTHERAPEUTIC CONSIDERATIONS:
WELLNESS-POSITIVE AFFIRMATIONS

- The thalamus is responsible for sending sensory and motor signals to the rest of the body but it **does not understand** that negative thoughts aren’t the same as **real danger**. When you think negative thoughts, the thalamus assumes that it needs to prepare the body to flee.

- Our bodies experience real stress symptoms of rapid heartbeat, elevated blood pressure, and a state of heightened arousal.

- The difference is that grey matter is where the information is processed by neurons whereas white matter is a fibrous network that connects the neurons. Chronic stress produces more white matter connections but fewer neurons.
PSYCHOTHERAPEUTIC CONSIDERATIONS: WELLNESS-POSITIVE AFFIRMATIONS

- The balance of grey and white matter in the brain is important for the timing of communication in the brain. It is believed that the disruption in connections affects both your mood and your memories of the associations with that mood.

- The problem is that our brains are good at learning from bad experiences but bad at learning from good experiences (negative bias).

https://www.powerofpositivity.com/negative-thinking-affects-your-brain/

PSYCHOTHERAPEUTIC CONSIDERATIONS: WELLNESS-POSITIVE AFFIRMATIONS

- Thoughts stimulate the release of chemicals. If you have happy thoughts, then you’re producing chemicals that make you feel happy.

- Negative, angry and fearful thoughts also produce chemicals to make you feel how you’re thinking.

- Affirmations interrupt the maladaptive neuro-nets. And the more you use affirmations, the more those nerve cells that are connected to each other (i.e., firing together), start breaking the long-term relationship with your negative thoughts, literally re-wiring to your new, affirming beliefs.
PSYCHOTHERAPEUTIC CONSIDERATIONS:
WELLNESS-POSITIVE AFFIRMATIONS

- A 2006 Purdue University study found that twenty-five percent of Americans cannot name a single person they feel close to. Yet every single one of us is hardwired for close relationships.

- Popular Western theories of human development focus on the belief that we are born dependent, and the task of socialization is to raise increasingly independent, individualistic people. This process of development describes separation from others as a sign of maturity. Individuals in this model are able to "stand on their own two feet." This developmental process has disintegrated or weakened the position of relationship in our culture.

PHARMACOLOGICAL CONSIDERATIONS

- Animal research showed that the behavioral effects of social isolation could be improved with pharmacological help. For instance, pharmacological help includes administration of: 1) antidepressants of the selective serotonin reuptake inhibitors (SSRIs) class that have a broad range of effects including (but not restricted to) improving anxiety-like behavior and fear responses (fluoxetine; Pinna, 2010); 2) neurosteroids (such as allopregnanolone, ALLO) that activate the hypothalamic pituitary adrenocortical (HPA) axis, thereby facilitate the recovery of physiological homeostasis following stressful stimuli (e.g., Evans, Sun, McGregor, & Connor, 2012; cf. S. Cacioppo, Capitanio, & Cacioppo, 2014); or 3) oxytocin, a neuropeptide.
**PHARMACOLOGICAL CONSIDERATIONS**

- *Fluoxetine* has a broad range of effects including (but not restricted to) improving the behavioral effects of social isolation, anxiety-like behavior and fear responses (Pinna, 2010; Mayo-Wilson et al., 2014).

- For patients who decline psychological interventions (such as CBT), SSRIs show consistent evidence of improvement.

- This improvement does not occur through the inhibition of selective serotonin reuptake (as in depression), but rather through elevated cortico-limbic levels of allopregnanolone (ALLO) and BDNF mRNA expression (Pinna, 2010).

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**PHARMACOLOGICAL CONSIDERATIONS : NEUROSTEROIDS**

- Research supporting the hypothesis of a crucial role of ALLO in social isolation demonstrates that:

  - 1) The exaggerated contextual fear response expressed by socially-isolated mice can be normalized with a single injection of ALLO (Pibiri, Nelson, Guidotti, Costa, & Pinna, 2008);

  - 2) HPA dysfunction and impairment of hippocampal neurogenesis respectively can be normalized or prevented with the administration of exogenous ALLO either during or following a period of chronic stress;
PHARMACOLOGICAL CONSIDERATIONS: NEUROSTEROIDS

3) The establishment of depressive/anxiety-like behaviors in rats can be precluded also with administration of exogenous ALLO (Evans et al., 2012; S. Cacioppo, Capitanio, & Cacioppo, 2014; Nelson & Pinna, 2011; Pinna, 2010); and

4) Contextual fear conditioning and aggression can be regulated with ALLO (Nelson & Pinna, 2011). Although further investigations of the effects of ALLO on social isolation are needed in humans, ALLO may provide an adjunctive therapeutic target early in cognitive behavioral interventions to alleviate chronic loneliness.

PHARMACOLOGICAL CONSIDERATIONS: NEUROSTEROIDS

Several of these compounds work by binding to receptors on brain cells that are activated by GABA, the most plentiful inhibitory neurotransmitter in the brain. The GABA-A receptor is the site of action of several sedating central nervous system drugs, including benzodiazepines (Valium, Librium), barbiturates, and many anesthetics (Majewska, 1986).

Neurosteroids can also bind to receptors for glutamate, the brain’s principal excitatory neurotransmitter. With its effect on both GABAergic and glutaminergic systems (Paul and Purdy, March 1992), neuroactive steroids help regulate excitation throughout the brain. Excitation is a major factor in conditions such as epilepsy.
A third potential adjunctive pharmacological treatment for loneliness is oxytocin, a hypothalamic neuropeptide known to have a high sensitivity to social affiliation (Carter et al., 2008; Goossens et al., in this issue; Grippo, 2009; Young et al., 2014).

Recent work with prairie voles raises the possibility that oxytocin may help buffer the deleterious neural, behavioral, immune and autonomic effects of social isolation from a pair-bonded partner (Grippo et al., 2009).

Oxytocin administration in humans has been shown to promote pro-social behaviors, affiliation, and trust (Kosfeld et al., 2005), cooperation with others (Deelerek, Boone, & Kiyonari, 2014), social synchrony (Arueti et al., 2013), autonomic cardiac control (Norman, Cacioppo et al., 2011a), and to decrease the emotional arousal in response to threatening human stimuli (Norman, Cacioppo et al., 2011b).
REFERENCES


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SOBER PEER

BEHAVIORAL SCIENCE. MADE MOBILE.

SOBER PEER | HOW IT WORKS

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Gathering 500+ behavioral signals per day.

Providing deeper insights into behavior & recovery.
Join the Sober Peer revolution! Become a better practitioner using your skills with a new set of tools.

• **Deeper insights** into your clients.
• Manage **clients more easily** and **add new revenue**.
• **Connect to patients** in your area seeking help.
• Provide **continuous, responsive care**.
• Ensure **post-treatment accountability**.

ANY QUESTIONS?

Thank You!

Cardwell “C.C.” Nuckols, PhD

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Author, Expert, Speaker
QUESTIONS AND ANSWERS WITH YOUR PRESENTER

1. …

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