

INTOLERANCE OF UNCERTAINTY: FROM TRANSDIAGNOSTIC MODEL TO CLINICAL MANAGEMENT

Patrizia Amici

Psychologist and Psychotherapist, Bergamo, Italy

SUMMARY

The Covid-19 pandemic has brought out in some individuals an intolerance of uncertainty in their current circumstances. Intolerance of uncertainty is a transdiagnostic process that envisages future events as threatening and undesirable, with which the individual has little or no ability to cope. This makes such individuals more vulnerable to worry and negative emotions, as well as to developing various disorders. This article briefly analyzes how this has manifested during the COVID-19 pandemic and outlines some brief therapeutic techniques which have proved useful in patient's management.

Key words: COVID-19 - intolerance of uncertainty - psychotherapy

* * * * *

INTRODUCTION

In March 2020 the World Health Organization declared Covid-19 a pandemic. This extremely serious infection with its high morbidity and mortality rates forced governments around the world to impose strict containment measures (social distancing, isolation and total quarantine) which have had harmful effects on people's psychophysical health (Brooks et al. 2020). These measures have led to negative emotions: fear, anger, sadness, nervousness, boredom and a sense of isolation (Brooks et al. 2020, Taylor et al. 2008). Such a psychological reaction might be designated "Covid Stress Syndrome" characterized by the symptoms: (1) danger and contamination fear, (2) fear of economic consequences, (3) xenophobia, (4) compulsive checking and reassurance seeking and (5) traumatic stress symptoms relating to Covid-19 (Taylor et al. 2008) in which uncertainty plays a fundamental role (Del Valle et al. 2020). Uncertainty is an understandable reaction at a time when it is impossible to say whether and how a stressful situation will end, whether or not one will get ill, whether one's loved ones will get infected, whether the economy will survive, what will happen at work, etc, together etc; with the additional factor of the flood of scientifically-unconfirmed and contradictory information (Bonini 2020, Sandal 2020). Research confirms that the Covid-19 epidemic has led to increases in anxiety and depression (Li et al. 2021, Del Valle et al. 2020), PTSD symptoms (Orru et al. 2020), and the perception of threats to relationships and health (Garboczy et al. 2021, Li et al. 2021). Given the nature of the disease, its seriousness and our inability to control it, health anxiety has clearly risen (Wheaton et al. 2020) in parallel with the progress of the pandemic, and to a greater extent among those who had heightened levels of health anxiety pre-SARS-CoV-2 (Sauer et al. 2020).

FROM THEORY TO DEFINITION

Theories on uncertainty often address uncertainty only partially, often as a stimulus leading to an affective state, eg. appraisal theories (Anderson et al. 2019), or seeking a more significant link between uncertainty and emotion consistent with the Entropy Model of Uncertainty (Anderson et al. 2019) which emphasizes how having a certain perception of the world is a strongly evolutionary characteristic. Other theories have sought neurological models such as the Behavioral Inhibition System Theory or the Uncertainty and Anticipation Model of Anxiety (Anderson et al. 2019).

Uncertainty occurs where an individual is faced with vague and inconsistent information which is associated with negative emotions (Del Valle et al. 2020). Intolerance of Uncertainty (in the text named IU) is the dispositional tendency of an individual to "react negatively on a emotional, cognitive, and behavior level to uncertain situations" (Buhr & Dugas 2009). IU is "the tendency of an individual to consider it unacceptable that a negative event may occur, however small the probability of its occurrence" (Dugas et al. 2010). "Uncertainty Tolerance" is a conscious awareness of one's ignorance of certain aspects of the world (Hillen et al. 2017). Intolerance refers to the inability to withstand or resist certain conditions, stimuli which may have positive, negative or neutral outcomes but which are as yet unknown; the stimulus therefore becomes aversive inducing a negative emotional response. Whilst people generally experience uncertainty as aversive, in some circumstances they may enjoy it and seek it out: eg through gambling or reading mysteries (Anderson et al. 2019, Einstein 2014). Originally considered by Canadian researchers as a facet of worry (Einstein 2014), in recent years it has been recognized as a transdiagnostic factor in the development and/or maintenance of multiple disorders (Einstein 2014, Mc Evoy & Mahoney 2012). Although the evidence

closely links IU to Generalized Anxiety Disorder (Dugas et al. 2001, Ladouceur et al. 1988) some research has found close links between IU and: social anxiety and depressive disorders (Mc Evoy & Mahoney 2012), health anxiety and obsessive compulsive disorder (Wheaton et al. 2020), panic disorder (Boswell et al. 2013, Wheaton et al. 2020), eating disorders and, even more recently, borderline personality disorder and substance dependence (Bottesi 2021). High rates of comorbidity between GAD and depressive disorder might be explained by the role of IU and some underlying cognitive processes such as worry, perceived control, rumination and perfectionism (Sassaroli & Ruggiero 2006, Buhr & Dugas 2006). IU, a common human experience in both clinical and non-clinical populations, is closely linked to rumination (Dugas et al. 2001) defined as “a cognitive phenomenon ... concerned with future events where there is uncertainty about the outcome, where the future being thought about is a negative one, and ... is accompanied by feelings of anxiety” (Borkovec et al. 1983). Results show that IU is a key factor in understanding rumination and addressing it can significantly affect both anxiety levels (Sassaroli & Ruggiero 2006, Mosca et al. 2016, Bomyea et al. 2015) and awareness of the impact of worrying, overestimating problems, a tendency to cognitive avoidance and anxiety (Sassaroli & Ruggiero 2006, Dugas et al. 2001). In Einstein’s proposed model (2014) the Threat Estimate activates a Comparator System which on comparison of perceived and expected [TN: events] or different goals and values activates a system of Premotion, a mechanism for simulating possible outcomes (Mc Naughton & Gray 2000). Premotion activates an emotional arousal in the individual. Metacognitive beliefs relating to uncertainty determine the Need for Predictability. If this need is high, the Prevention System activates behavioural and cognitive responses to reduce discomfort (rumination, compulsion, avoidance, reassurance seeking and safety behaviours) with negative effects on the individual’s ability to adapt to the situation. A high IU is associated with greater aversive stimulus generalization, and a persistent psychophysiological response during the extinction phases in Morris’s experiment (Morris et al. 2016). If uncertainty is considered to be unacceptable, to be avoided and stressful, it activates negative emotions, rumination, avoidance behaviours, compulsion, reassurance seeking and safety seeking (Einstein 2014). These processes seem to support the theory that IU might be a predictive factor in the development of anxiety disorder.

UNCERTAINTY AND COVID-19

In the face of Covid-19 the sources of uncertainty might be: probability (assessment of the likelihood of the event), ambiguity (assessment as to the reliability of risk information), stimulus complexity (the nature of the situation and various possible interpretations), gravity of the outcome, and one’s ability to exercise control, per-

ceived as an evaluation of one’s skills and resources in relation to the situation (Anderson et al. 2019, Bottesi et al. 2019, 2020). All these factors were particularly tested during the pandemic. Covid-19 is strongly linked to risk perception, negative emotions, social isolation and self-efficacy perception. Furthermore, social isolation can increase the perception of stress, threatening some basic needs and increasing anxiety, fear, sadness and self-esteem (Li et al. 2021, Attili 2021). An anxious reaction may also be interpreted as being reliable information about the world, and modify the behavioural response of the individual – Damasio’s somatic marker hypothesis (Damasio 1996).

STRATEGIES FOR MANAGING UNCERTAINTY DURING THE PANDEMIC

Scientific literature describes two coping styles, or established approaches to stress; task-oriented or taking steps to resolve the source of stress (eg. problem-solving, seeking out social support); and emotion-oriented (distracting, positive re-evaluation) or taking steps to manage emotional aspects (Lazarus & Folckman 1987); according to the literature, task-oriented strategies are generally applied where it is considered possible to change events, whereas emotion-oriented coping requires greater acceptance. Adequate coping strategies (critical thinking, realism, self-esteem, self-sufficiency, etc) mitigate the impact of a stressful event (Anderson et al. 2019, Boswell et al. 2013, Sim et al. 2010).

Those with elevated IU tend to diminish or remove associated emotions precisely because of bias and specific core beliefs: “Uncertainty is unacceptable and should be avoided!!” by implementing strategies for managing stress which are often counterproductive. Clinically, and in accordance with scientific literature (Bottesi 2020, Garbóczy et al. 2021), several reactions were observed. Avoidance or the attempt to eliminate threatening information and stimuli; hyperinvolvement characterized by actions taken to increase certainty, eg obsessively researching information or ruminating on the situation and outcomes. Many individuals demonstrated impulsivity: acting without thinking of the consequences or seeking peace through alcohol, substances or behavioural compulsions. Many were left paralyzed – through hesitation and disengagement – by remaining passive or through compensatory behaviour aimed at obtaining transitory relief, eg. eating or filling time. Clinically, I observed less recourse to the “flip-flop” strategy, or a shifting between various strategies. Avoidance and hyperinvolvement are temporarily useful in reducing stress, but in the long-term cause greater impotency and negative emotions (Garbóczy et al. 2021, Bottesi 2020, Sim et al. 2010), and appear linked to various disorders (Bottesi et al. 2019). On the other hand, problem-oriented strategies and strategies which permit a reassessment of the problem – cognitive restructuring – act as a protective factor, according to an experimental study (Garbóczy et

al. 2021) into coping, health anxiety and Covid 19. Distraction and wishful thinking provided only temporary relief (Anderson et al. 2019). The perception of efficacy is a fundamental factor in managing the relationship between negative emotions and the perception of risk associated with the pandemic (Li et al. 2021), allowing the construction of more adequate coping strategies.

EXPERIENCE OF MANAGING UNCERTAINTY CAUSED BY THE PANDEMIC

Cognitive therapy has been shown to be useful in reducing IU in GAD (Garbóczy et al. 2021, Bomyea et al. 2015, Boswell et al. 2013, Dugas et al. 2010). When working with IU in the context of Coronavirus, one of the first steps should be to reach an understanding of an individual's specific difficulties caused by the pandemic. Assessment focuses entirely on two areas: the extent to which the individual feels threatened by something significant, and which events they believe they can control. It is also important to assess beliefs relating to how an individual believes they should react (eg. "I shouldn't be afraid of being infected" or "I should react immediately and 100%"); where these beliefs are too rigid and inflexible, they increase negative emotions (Anderson 2019, Carati & Dell'Erba 2014). The purpose of life is threatened by Covid in vital areas: survival, close relationships, relationship and economic stability etc; it has left people with no alternatives and frequently with the sensation that they do not possess sufficient resources to cope with the situation. It is essential to work on what can be identified as a Desire for Predictability (Einstein 2014) through Socratic questioning on the impossibility of avoiding uncertainty and a toleration of the physical sensations and emotions it provokes. It is important to encourage the individual to seek out opportunities to "test" their tolerance for uncertainty in their daily life. Helping the patient not to resort to avoidance, procrastination or researching minutiae so as to avoid associated discomfort leads them to acquire more skills. It can help to ask the individual to carry out a very simple behavioural experiment: to ask their trusted friends if and when they feel uncertain, so as to familiarize themselves with the idea that uncertainty is a common state and not one to be avoided (Whittal & McLean 2002), or to focus on situations in which they took pleasure in uncertainty, or to expose the individual to situations in which they may experience this state. Obviously, such situations should not be linked to the current difficult circumstances but should be situations which are neutral and not anxiety-provoking.

In addition, learning to recognize the difference between Premotion e Emotional Arousal (Einstein 2014) can be useful in emphasizing the role of assessment in the emotional process, in particular emphasizing cognitive errors (Beck et al. 1979) which underlie the individual's assessment of a threat as an absolute.

As set forth by Carati and Dell'Erba (2014) in their article on adaptation, working on beliefs which hinder the ability to cope is important, obstacles such as: the idea of not having sufficient resources to cope with a situation, a focus on resources which are lacking, an emphasis on obstacles linked to the situation and its management, a lack of tools to manage the emergency: ample space must be dedicated to creating strategies, problem-solving, emphasizing the individual's qualities, to the environmental, social, work and economic (etc) resources available. I agree with the view of Sassaroli & Ruggiero (2006) that uncertainty and an individual's tolerance of it are linked to fear that an uncertain situation will be difficult to manage and will probably lead to personal failure, and thus absolutely should be avoided. On this basis it seems sensible to address IU, alongside clinical work, by focusing on a lack of perceived control (Boswell et al. 2013), perfectionism (Sassaroli & Ruggiero 2006, Buhr & Dugas 2006) and I have found it useful to work on negative self-assessments arising from a failure to act appropriately, which may explain the paralysis experienced by some individuals. In the case of Covid, personal failure would lead to extremely serious consequences and repercussions.

Some imaginative techniques can be useful, as the ability to imagine oneself in different situations or simulate different perspectives can help people solve problems and make decisions (Anderson et al. 2019), generating corrective emotional experiences through more tolerable bodily states in accordance with Damasio's theory (1996).

Working on IU has been shown to be useful, above all in the critical stages of the pandemic, in order to "uncover self-care and self-management strategies and reduce negative emotions associated with the circumstances" (Li et al. 2021).

Acknowledgements: None.

Conflict of interest: None to declare.

References

1. Anderson EC, Carleton RN, Diefenbach M & Han PKJ: *The Relationship Between Uncertainty and Affect*. Front Psychol 2019; 10:2504
2. Attili G: *Emergenza covid-19 e isolamento sociale: il perché biologico e filogenetico dell'impatto sulla salute mentale*. 2021, www.apertamenteweb.it
3. Beck AT, Rush AJ, Shaw BF & Emery G: *Cognitive Therapy of Depression*. New York, NY: Guilford Press, 1979
4. Bomyea J, Ramsawh H, Ball TM, Paulus MP, Taylor C T, Lang AJ & Stein MB: *Intolerance of Uncertainty as a mediator of reductions in worry in a cognitive behavioral treatment program for generalized anxiety disorder*. J Anxiety Disord 2015; 33:90-94
5. Bonini T: *L'immaginazione sociologica e le conseguenze sociali del Covid-19*. In *Schockdown: la ricerca dopo. Temi emergenti e sfide metodologiche per l'analisi dei media, cultura e comunicazione nel post Covid 19*. Mediascapes Journal, 15/2020. ISSN: 2282-2542

6. Borkovec TD, Robinson E, Pruzinsky T & DePree JA: Preliminary exploration of worry: Some characteristics and processes. *Behav Res and Ther* 1983; 21:9-16
7. Boswell JF, Thompson-Hollands J, Farchione TJ & Barlow DH: Intolerance of Uncertainty: A Common Factor in the Treatment of Emotional Disorders. *J Clin Psychol* 2013; 69:1-16
8. Bottesi G: Incertezza, intolleranza dell'incertezza e distress psicologico nel contesto di emergenza sanitaria Covid-19. <https://www.apertamenteweb.com>, 2020. Roma
9. Bottesi G, Novanta S, Freeston MH & Ghisi M: Seeking certainty about Intolerance of Uncertainty: Addressing old and new issues through the Intolerance of Uncertainty Scale Revised. *PloS One* 2019; 14:e0211929
10. Brooks SK, Webster RK, Smith E, Woodland L, Wessely S & Rubin GJ: The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet* 2020; 395:912-920
11. Buhr K & Dugas MJ: The role of fear of anxiety and intolerance of uncertainty in worry: an experimental manipulation. *Behav Res and The* 2009; 47:215-223
12. Buhr K & Dugas MJ: Investigating the construct validity of intolerance of uncertainty and its unique relationship with worry. *J of Anx Disord* 2006; 20:222-236
13. Carati MA & Dell'Erba G: I disturbi dell'adattamento: un modello di concettualizzazione. *Cognitivismo Clinico* 2014; 11:207-226
14. Damasio AR: The somatic marker hypothesis and the possible functions of the prefrontal cortex. *Philos Trans R Soc Lond Ser B Biol Sci* 1996; 351:1413-1420
15. Del Valle MC, Andrés ML, Urquijo S, Yerro-Avincetto M, Lopez-Morales H & Canet-Juric L: Intolerance of Uncertainty over Covid-19 pandemic and its effect on anxiety and depressive symptoms. *Int J of Psychol* 2020; 54:e.1335
16. Dugas MJ, Brillon P, Savard P, Turcotte J, Gaudera A, Ladouceur R & Gervais NJ: A randomized clinical trial of cognitive – behavioral therapy and applied relaxation for adults with generalized anxiety disorder. *Behavior Therapy* 2010; 41:46-58
17. Dugas MJ, Gosselin P, Ladoucer R: Intolerance of Uncertainty and Worry: Investigating Specificity in a Nonclinical Sample. *Cognitive Therapy and Research* 2001; 25:551-558
18. Einstein DA: Extension of the Transdiagnostic Model to Focus on Intolerance of Uncertainty: A Review of the Literature and Implication for Treatment. *Clin Psychol Sci Prac* 2014; 21:280-300
19. Garbóczy S, Szemán-Nagy A, Ahmad M, Harsányi S, Ocsenás D, Rekenyi V et al: Health Anxiety, Perceived Stress and Coping Styles in the Shadow of Covid-19. *BMC Psychol* 2021; 9:53
20. Hillen MA, Guthell C, Strout TD, Smets EM & Han PK: Tolerance of Uncertainty: conceptual analysis, integrative model, and implication for healthcare. *Soc Sci Med* 2017; 180:62-75
21. Ladouceur R, Blais F, Freeston MH & Dugas MJ: Problem solving and problem orientation in generalized anxiety disorder. *J Anxiety Disord* 1988; 12:139-152
22. Lazarus RS & Folman S: Transactional theory and research on emotion and coping. *Eur J Pers*, 1987
23. McEvoy PM & Mahoney AEJ: A transdiagnostic examination of intolerance of uncertainty across anxiety and depressive disorders. *Cogn Behav Ther* 2012; 41:212-222
24. Mc Naugthon N & Gray JA: Anxiolytic action on the behavioural inhibition system implies multiple types of arousal contributes of anxiety. *J of Aff Disorders* 2000; 61:161-176
25. Morris J, Macdonald B, Van Reekum CM: What is Going On Around Here? Intolerance of Uncertainty Predicts Threat Generalization. *PLoS ONE* 2016; 11:e0154494. doi:n10.1371/journal.pone.0154494
26. Orru G, Ciacchini R, Gemignani A & Conversano C: Psychological intervention measures during the Covid-19 Pandemic. *Clinic Neuropsychiatry* 2020; 17:76-79
27. Qi Li, Ronglei L, Xiaoya Z, Guangteng M, Bibing D & Xun L: Intolerance of Covid-19 Related Uncertainty and Negative Emotions among Chinese Adolescents: A Moderated Mediation Model of Risk Perception, Social Exclusion and Perceived Efficacy. *Int J Environ Res Public Health* 2021; 18:2864
28. Sandal M: Come la pandemia sta cambiando il mondo della ricerca scientifica, Il Tascabile, 27 marzo. 2020. <https://www.iltascabile.com/scienze/pandemia-ricercascientifica/>
29. Sassaroli S & Ruggero GM: Le credenze psicopatologiche centrali dell'ansia In Psicoterapia Cognitiva dell'ansia. (a cura di Sassaroli S, Lorenzini R e Ruggiero GM) Raffaello Cortina Editore, Milano, 2006
30. Sauer KS, Jungmann SM & WitthÖft: Emotional and Behavioral Consequences of the Covid -19 Pandemic: The Role of Health Anxiety, Intolerance of Uncertainty, and Distress (In)Tolerance. *Int J. Environ Res Public Health* 2020; 17:7241
31. Sim K, Chan YH, Chong P, Chua HC & Soon SW: Psychosocial and coping responses within the community health care setting toward a national outbreak of an infectious disease. *J Psychosom Res* 2010; 68:195-202
32. Taylor MR, Agho KE, Steven JG & Raphael B: Factors influencing psychological distress during a disease epidemic: Data from Australia's first outbreak of equine influenza. *BMC Public Health* 2008; 8:347
33. Wheaton MG, Messner GR & Marks JB: Intolerance of Uncertainty as a factor linking obsessive-compulsive symptoms, health anxiety and concerns about the spread of the novel coronavirus in the United States. *Jou of Obsessive Compulsive and Related Disorders* 2020; 28:100605
34. Whittal ML & McLean PD: Group cognitive behavioural therapy for obsessive compulsive disorder. In Frost RO & Steketee G (Eds), *Cognitive approaches to obsessions and compulsions: Theory, assessment and treatment* (pp. 417-434). Amsterdam, Pergamon, 2002

Correspondence:

Patrizia Amici, MA, PhD
Psychologist and Psychotherapist
via Garibaldi, 3, 24 030 Mapello (BG), Italy
E-mail: patrizia.amici@teletu.it