

# Etiological models of hoarding disorder

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## Mini review

Hoarding disorder (HD) is defined by the Diagnostic and Statistical Manual version 5 (DSM-5) as a persistent difficulty discarding or parting with possessions, regardless of the value others may attribute to them.<sup>1</sup> HD raises public health concerns (e.g. squalor, dirtiness and bad odor)<sup>2</sup> and frequently results in house/home evictions.<sup>3</sup> Twenty four percent of all preventable fire fatalities occurred in hoarding households.<sup>4</sup> The management of HD is challenging: first, because patients' pass through multiple public services before receiving formal psychological counseling,<sup>3</sup> further there are limited treatment options,<sup>5</sup> and later authors highlight that the lack of knowledge about HD etiology limits the development of new treatment approaches. In this article, we review different evidence-based etiological models of HD.<sup>6</sup> The objective of this work is to make a brief review of published hypotheses about HD aetiology.

Genetic studies revealed that the heritability of HD<sup>7</sup> can explain 55-77% of the variance in HD. According to Monzani et al.,<sup>8</sup> one latent heritable factor could be etiological factor for three obsessive-compulsive spectre disorders (OCD, HD and body dysmorphic disorder). Timpano et al.,<sup>9</sup> argued that variance in the Brain-derived neurotrophic factor (BDNF) coding gene could be such a factor. The BDNF is a protein which regulates the neurogenesis in adults.<sup>10</sup> Variance in BDNF is observed also in OCD, depression, body dysmorphic disorder and other conditions associated with impulse/emotion regulation. This study was carried out within the framework of the general etiological hypothesis that HD is an exaggerated form of a normal evolutionary behavior of collecting and saving possessions. The study also reported the association between BDNF gene variance, obesity and HD.

At the level of brain functions, neuroimaging and neuropsychological studies in hoarding behavior have yielded equivocal results. The most common finding among the brain imaging studies was decreased metabolism in the lateral orbit frontal cortex and anterior cingulate cortex. Findings of neuropsychological studies are difficult to meta-analyse due to difference in targeted functions and methods used.<sup>11</sup> However, hoarders without OCD have poorer delayed visual and verbal recall and used less effective organizational strategies for visual recall; less confidence in their memory and a greater level of worry concerning the potentially catastrophic consequences of forgetting; slower reaction time and increased impulsivity.<sup>11</sup> A well-validated battery of neuropsychological tests revealed only a difference in planning/problem-solving in people with HD without OCD compared to controls. It is possible that people with HD display decision-making difficulties specific only to items of

personal significance, which would not be captured by these standard neuropsychological tasks.<sup>11</sup>

Frost & Hartl<sup>12</sup> proposed a cognitive model of HD, which includes (1) information processing deficits; (2) problems in forming emotional attachments; (3) behavioral avoidance and (4) erroneous beliefs about the nature of possessions. *The information processing* deficit includes deficits in decision-making deficits in categorization/organization, and difficulties with memory functions. This deficit in decision making shows in indecisiveness about the likelihood of future needs; avoiding judgement about whether objects have sentimental or instrumental value; the fear of mistakes during discarding possessions; doubts as to whether the people with HD would be able to re-acquire an object if needed. Taken together, HD leads to lower threshold for saving due to fear of harm associated with not having a needed object and a fear of damage to possessions. Keeping the possessions avoids the anticipated experience of deprivation. The deficit in categorisation manifests itself in a difficulty for the hoarder to decide on the number of item categories and a sufficient amount of objects per category. Usually the number of objects per category is less for the people with HD than in people without HD, because for people without HD each object is unique and irreplaceable, which makes the discarding more difficult. As well, this leads to difficulty (together with indecisiveness) in the organising of possessions while sorting possession during decluttering. Difficulties with memory include a lack of confidence in memory and the overestimation of the importance of remembering or recording information which frequently provokes people without HD to acquire newspapers, books and others. Together with information processing, HD results in concerns like "if I forget something", "if I will need some information". *Emotional attachment to possessions* is shown in pure sentimentality or in "safety signals" and a sign of a safe familiar environment. *Behavioral avoidance* is probably caused by hoarders' fear of making mistakes and by avoidance of the emotional trauma associated with discarding of cherished possessions. *Beliefs about the nature of possessions* and beliefs about the necessity of maintaining control over possessions, beliefs about responsibility for possessions,

and beliefs about the necessity of perfection. Many experimental and observational studies corroborate the observations provided in the Frost and Hartl model of HD and emotional reactivity,<sup>13</sup> intolerance of uncertainty,<sup>14</sup> anxiety sensitivity<sup>15</sup> and impulsivity.<sup>16</sup> The model has become a basis for classical cognitive-behavioral therapy (CBT) for HD, whose efficacy has been established in clinical trials.<sup>17</sup> The CBT protocol involves the stages of psychoeducation and demystification of HD; improvement of decision-making and organisation skills; exposure with response prevention; cognitive reconstruction; relapse prevention.<sup>17</sup> This model can explain why and how HD persist, but it does not fully explain how HD starts.<sup>18</sup> Moreover, this model does not address the idiosyncratic motivations for hoarding and does not describe the synergy between components of the model.

The clinical experience of our team confirms the observations of Frost and Hartl, however, we added to the model three elements to aid an understanding of the inner logic of people with HD and to address this logic in therapy. The first factor is a *poor self-identification* linked probably with negative experience in attachment, perfectionism, traits of personality, as well as familial beliefs and values, acting as predisposing factors. Poor self-identification encourages the people with HD to create a superfluous illusory or self through the collection of objects. We term this illusory self or *super-self*, where people try to augment their initial characteristics with superfluous objects to confirm they are who they wish to be. For example, a woman who wants to be a good housekeeper will start to accumulate recipes; a man wishing to be good handy man can begin to accumulate tools or broken mechanisms; a person who would like to see herself as an intellectual can acquire books. Objects serve to provide validation of the super-self because people with HD cannot rely on other people for feedback due to their previous (negative) experiences of attachment. The second element of our model is *overinvestment* of people with HD in imaginary possibilities and subsequent beliefs in consequences. Such imaginary possibilities produce pathological doubts in possible uses and possible meanings of objects. With time, the objects for people with HD become not only symbols and confirmation of their illusory self, but acquire human-specific qualities and attributes, such as the power to keep memories, to suffer, to feel cold, to feel unsafe, to be afraid and to be grateful. Due to these erroneous beliefs, people with HD can create some kind of the substitute for lack of the social connections by “interacting” with their objects. The third element in the model is dissociation which takes several forms: a dissociation from real life in that important life events always include their possessions or are closely linked to object rather than life. As people without HD in their everyday living constantly check the quality and efficacy of their interaction with other humans, people with HD check their interactions with their objects. As people with HD receive no negative feedback from their possessions, they can persist in these relationships with their objects as the safest attachment possible. Dissociation also takes the form of obliviousness when people with HD cease to be aware of the negative impact of their hoard and view only positive interactions and hence become divorced from the real nature and value of objects, their real needs and their real possibilities and real self. HD starts at mid-adolescence,<sup>7</sup> when poor identity makes teenagers search for self-confidence in possessions. Also, at this age, many healthy adults associate their social status with the attributes of their possessions. However, the act of accumulation objects leads to a magical investment of the objects with desired qualities and so, the hoarding progresses on the basis of mixing illusory attributes with real objects and confusing illusory possibilities with real desires. Consequently hoarding becomes self-sabotaging, and the more people with HD accumulate, the more isolated and dysfunctional become their relationships with significant others. This leads to more

dissociation which in turn leads to more accumulation. To break this vicious circle our therapy addresses how the super self and hoarding sabotages the person with HD’s real or authentic self. Further, during the therapy, the person with HD acquires insight about his/her illusory beliefs in the nature of possession and that the reasons to keep possessions are based on illusions. Therapist and hoarder describe the difference between a real probability of usage and an imaginary possibility of *maybe one day* and the difference between need and illusory preferences and their consequences. After achieving good insight about the motivation for hoarding and the nature of their real self and how hoarding sabotages their real self and potential, people with HD are encouraged to start decluttering bit by bit.

Our approach is termed an inference-based therapy (IBT) because both the acquisition and difficulties in discarding are caused by confusion of illusory possibilities with real needs and probabilities by a reasoning process termed inverse inference.<sup>19</sup> Here the person crosses over from reality to imagination brought investment in imaginary “may be”.

This inferential confusion also extends to the beliefs about and manner of discarding possessions. This IBT approach is thoroughly described in French;<sup>20</sup> and the results are reported in a case-study;<sup>21</sup> and the results of an open trial of the IBT in hoarding has been published.<sup>22–25</sup> Further randomised trials are needed to evaluate the efficacy of the IBT in different subtypes of HD.

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## Conflicts of interest

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## References

1. APA. Diagnostic and Statistical Manual of Mental Disorders (DSM–5). 2013.
2. Frost RO, Steketee G, Williams L. Hoarding: a community health problem. *Health Soc Care Community*. 2000;8(4):229–234.
3. Chapin RK, Sergeant JF, Landry ST, et al. Hoarding cases involving older adults: the transition from a private matter to the public sector. *J Gerontol Soc Work*. 2010; 53(8):723–742.
4. Lucini G, Monk I, Szlatenyi C. An Analysis of Fire Incidents Involving Hoarding Households. (Bachelor of Science), Worcester Polytechnic Institute. 2009.
5. Tolin DF, Frost RO, Steketee G, et al. Cognitive behavioral therapy for hoarding disorder: a meta-analysis. *Depress Anxiety*. 2005;32(3):158–166.
6. Bloch MH, Bartley CA, Zipperer L, et al. Meta-analysis: hoarding symptoms associated with poor treatment outcome in obsessive-compulsive disorder. *Mol Psychiatry*. 2014;19(9):1025–1030.
7. Ivanov VZ, Mataix-Cols D, Serlachius E, et al. Prevalence, comorbidity and heritability of hoarding symptoms in adolescence: a population based twin study in 15-year olds. *PLoS One*. 2013;8(7):e69140.
8. Monzani B, Rijdsdijk F, Harris J, et al. The structure of genetic and environmental risk factors for dimensional representations of DSM-5 obsessive-compulsive spectrum disorders. *JAMA Psychiatry*. 2014;71(2):182–189.

9. Timpano KR, Schmidt NB, Wheaton MG, et al. Consideration of the BDNF gene in relation to two phenotypes: hoarding and obesity. *J Abnorm Psychol.* 2011;120(3):700–707.
10. Binder DK, Scharfman HE. Brain-derived Neurotrophic Factor. *Growth factors.* 2004;22(3):123–131.
11. Mataix-Cols D, Pertusa A, Snowden J. Neuropsychological and neural correlates of hoarding: a practice-friendly review. *J Clin Psychol.* 2011;67(5):467–476.
12. Frost, Hartl TL. A cognitive-behavioral model of compulsive hoarding. *Behav Res Ther.* 1996;34(4):341–350.
13. Shaw AM, Timpano KR, Steketee G, et al. Hoarding and emotional reactivity: the link between negative emotional reactions and hoarding symptomatology. *J Psychiatr Res.* 2015;63:84–90.
14. Wheaton MG, Abramowitz JS, Jacoby RJ, et al. An investigation of the role of intolerance of uncertainty in hoarding symptoms. *J Affect Disord.* 2016;193:208–214.
15. Medley AN, Capron DW, Korte KJ, et al. Anxiety sensitivity: a potential vulnerability factor for compulsive hoarding. *Cogn Behav Ther.* 2013;42(1):45–55.
16. Timpano KR, Rasmussen J, Exner C, et al. Hoarding and the multifaceted construct of impulsivity: a cross-cultural investigation. *J Psychiatr Res.* 2013;47(3):363–370.
17. Tolin DF, Frost RO, Steketee G. An open trial of cognitive-behavioral therapy for compulsive hoarding. *Behav Res Ther.* 2007;45(7):1461–1470.
18. Timpano KR, Schmidt NB. The relationship between self-control deficits and hoarding: a multimethod investigation across three samples. *J Abnorm Psychol.* 2013;122(1):13–25.
19. O'Connor K, Robillard S. Inference processes in obsessive-compulsive disorder: some clinical observations. *Behav Res Ther.* 1995;33(8):887–896.
20. O'Connor K, St-Pierre-Delorme MÉ, Koszegi N. Entre monts et merveilles: comment reconnaître et surmonter l'accumulation compulsive. Québec: Éditions MultiMondes. 2012.
21. St-Pierre-Delorme ME, Lalonde MP, Perreault V, et al. Inference-Based Therapy for Compulsive Hoarding: A Clinical Case Study. *Clinical Case Studies.* 2011;10(4):291–303.
22. Blais M, Bodryzlova Y, Aardema F, et al. Open Trial of Inference-Based Therapy in the Treatment of Compulsive Hoarding. *Psychology & Clinical Psychiatry.* 2016;6(3):1–8.
23. Mataix-Cols D, Frost RO, Pertusa A, et al. Hoarding disorder: a new diagnosis for DSM-V? *Depress Anxiety.* 2010;27(6):556–572.
24. Nordsletten AE, Monzani B, Fernandez de la Cruz L, et al. Overlap and specificity of genetic and environmental influences on excessive acquisition and difficulties discarding possessions: Implications for hoarding disorder. *Am J Med Genet B Neuropsychiatr Genet.* 2013;162B(4):380–387.
25. Snowden J, Halliday G. A study of severe domestic squalor: 173 cases referred to an old age psychiatry service. *Int Psychogeriatr.* 2011;23(2):308–314.