HOARDING DISORDER: A REVIEW
Transtorno de acumulação: uma revisão

Bárbara Perdigão Stumpf, Cláudia Hara, Fábio Lopes Rocha

ABSTRACT

Hoarding disorder can be defined as a persistent difficulty in discarding items, due to distress associated with such disposal or a perceived need to save items regardless of their actual value. Such behavior must result in the accumulation of clutter, which significantly compromises living conditions, causing distress and/or functional impairment. The most frequently hoarded items are objects and animals. The point prevalence of clinically significant hoarding was estimated to be 1.5 to 2.1% in the general population, and may exceed 6% in the elderly. HD poses a range of health and safety hazards to individuals, especially older adults, generating significant costs to society. The diagnosis of HD is clinical, and should only be established after general medical conditions and other mental disorders that can lead to accumulating behavior have been ruled out. HD appears to follow a chronic, progressive course, and is commonly associated with psychiatric comorbidities. Studies indicate that genetic, familial, cognitive, and traumatic factors are implicated in the etiology of HD. To date, psychotherapies have been the most widely studied therapeutic approaches, but the results of these studies show small effects. Research into pharmacological approaches to HD is still incipient, precluding any conclusions of efficacy.

KEYWORDS: hoarding disorder; collecting; psychopathology.

RESUMO

O transtorno de acumulação (TA) pode ser definido como uma dificuldade persistente de desfazer-se de itens devido ao sofrimento associado com o descarte ou uma necessidade percebida de guardar posses a despeito de seu valor real. Tal comportamento pode resultar no acúmulo de objetos, o que compromete significativamente o uso da moradia, causando sofrimento e/ou prejuízo funcional. Os itens acumulados mais frequentemente são objetos e animais. A prevalência do transtorno é de 1,5 a 2,1% na população em geral, podendo ser maior que 6% em idosos. O TA causa riscos à saúde e à segurança dos indivíduos, especialmente dos idosos, gerando um custo relevante para a sociedade. O diagnóstico de TA é clínico e só deve ser feito após a exclusão de condições médicas gerais e outros transtornos mentais que podem levar ao acúmulo de objetos. O TA parece ser um transtorno de curso crônico e progressivo, comumente associado a comorbidades psiquiátricas. Estudos indicam a participação de fatores genéticos, familiares, cognitivos e de experiências traumáticas na etiologia do TA. A abordagem terapêutica mais estudada até o momento foram as psicoterapias, mas os resultados mostram efeito pequeno. Os estudos farmacológicos existentes são muito incipientes, não permitindo conclusões de eficácia.

PALAVRAS-CHAVE: transtorno de acumulação; colecionismo; psicopatologia.
INTRODUCTION

The act of hoarding is not a behavior confined to humans. No other species, however, fills their lives with objects as human beings do. People are capable of creating attachments and even intimacy with inanimate objects.1

The concept of possession of objects as if “part of ourselves” is established around the age of two. Throughout childhood, intense relationships with one particular object can develop. In the first half of adolescence, possessions start to become a sort of “crutch” for the self. During the second half, they become a reflection of who and what we are, which persists into adulthood. In old age, our possessions become mementos of life; an aid to reflection and nostalgia, as well as a source of comfort. Most of the time, this is part of the healthy aging process. In a way, our relationships with objects can be defined as a reflection of our interpersonal relationships.1

Hoarding disorder (HD) can be defined as a persistent difficulty in discarding items, due to distress associated with such disposal or to a perceived need to save items regardless of their actual value. This difficulty in discarding items can result in clutter, in which hoarded items fill up living spaces and significantly jeopardize housing conditions. For accumulating behavior to be classified as hoarding, it must cause distress or functional impairment and cannot be attributable to another clinical illness or psychiatric disorder.2

The items most often hoarded are objects (e.g., clothes, papers, books, empty food packaging) and animals. Difficulty organizing the home, the shame brought on by messiness or clutter, and criticism from others makes hoarders commonly isolate from social interaction.1 This social withdrawal, in turn, facilitates increased hoarding. HD poses a wide range of risks to the health and safety of individuals, especially older adults, as it leads to poor hygiene, animal infestation, and increased risk of falls, serious injury, and even death (by burial under “avalanches” of collapsing piles of objects or in house fires). In addition, the disorder causes distress to the affected individual himself, his family, and the community in which he lives. Hoarders also constitute a significant economic burden, including expenses for fire and rescue services, health and social services, as well as unemployment and disability benefits.3

The clinical relevance of HD increases as individuals age.4,5 Elderly individuals with hoarding behavior constitute a highly vulnerable population, with a 5-year mortality rate of approximately 50%.5 However, even in older adults with a history of psychiatric treatment, HD is usually underdiagnosed and untreated. Thus, it is imperative that health professionals, especially those who care for the elderly, be familiar with the symptoms of HD and evaluate properly for this disorder.4,5

Within this context, the objective of this article is to present a narrative review of HD.

History

Interest in the phenomenon of hoarding began in the 20th century, alongside the expansion of the psychoanalytic movement. In 1908, Freud detailed the so-called “anal character” as a combination of three peculiarities: orderliness, obstinacy, and parsimony (which could reach “the point of avarice”). More specifically, Freud’s description of parsimony was probably one of the earliest sketches of what would later be called hoarding. In 1912, Jones identified two key aspects of Freud’s anal trait of parsimony: the “refusal to give” and “the desire to gather, collect, and hoard.” Jones suggested that money, books, time, food, and other objects were fecal equivalents of the anal character. Later, hoarded possessions were also conceptualized as phallic symbols, transitional objects, a pathological way of relating, and as the last vestiges of patients’ object relations, among others.6

The term “hoarding” was introduced into the scientific terminology to describe the food-collecting behavior of certain animals, especially rodents.6 It was first applied to humans in a 1966 scientific paper, referring to the extreme end of a continuum of accumulating behavior.7 Subsequently, hoarding has been reported in a number of psychiatric disorders, raising questions about how best to classify such behavior. In the late 1980s, Greenberg described several psychopathological aspects seen in primary hoarding: early onset (in the third decade of life), preoccupation with accumulation to the exclusion of work and family, poor insight, little interest in receiving treatment, and no attempt to curb the compulsion.8 In the following decade, Frost and Hartl recognized HD as a disorder they called “compulsive hoarding”, a term no longer in use. Their criteria for compulsive hoarding were:

1. the acquisition of, and difficulty discarding, large numbers of possessions that appear to be useless or of limited value;
2. living spaces sufficiently cluttered so as to preclude the activities for which those spaces were designed; and
3. significant distress or functional impairment caused by the hoarding.8
Diagnosis

Until the 4th revised edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR), hoarding was classified as a symptom of Obsessive-Compulsive Personality Disorder (OCPD), and indirectly related to Obsessive-Compulsive Disorder (OCD). In DSM-5, Hoarding Disorder was classified as an independent disorder. The DSM-5 diagnostic criteria are described in Chart 1.

In the 10th revision of the International Classification of Diseases (ICD-10), hoarding is not mentioned at all, whether as symptom or as syndrome, dependent or independent of other diagnoses. However, it is believed that, like DSM-5, the 11th revision (ICD-11) will have a chapter on OCD and related disorders, which is expected to include HD.6,7

Differential diagnosis

Cluttered living spaces are not always pathognomonic of HD. A diagnosis of HD can only be established after other clinical conditions (e.g., brain tumor, cerebrovascular disease, Prader-Willi syndrome) and mental disorders (e.g., OCD, autism, depression, schizophrenia) that can lead to accumulating behavior have been ruled out. The main differential diagnoses of HD are described below.

Normative collecting

HD must be differentiated from normative collecting.7-10 The habit of acquiring and accumulating objects of a specific type (e.g., stamps, coins, objets d’art) is commonly known as collecting. Collectors are usually methodical individuals who organize, clean, and catalog their items. More than 50% of school-age children keep collections, and many retain the habit into adulthood. Among adults, about 30% engage in collecting behavior. However, collecting tends to decrease over time, as opposed to hoarding, which tends to increase with advancing age.1,10 The main differences between normative collecting and HD are presented in Table 1.

“Organic” accumulation

Another differential diagnosis is so-called “organic” accumulation, also known as “Diogenes syndrome” or “severe domestic squalor”. This clinical condition, most common in the elderly, is characterized by a breakdown in and rejection of social standards, reflected by severe self-neglect and squalor, progressive withdrawal from social contact, reduced insight into the problem, and accumulating behavior focused on objects and trash.3,12

A diagnosis of HD is sometimes suggested for hoarders who live in severely unhealthy conditions, surrounded by garbage, rotten food, and/or excreta. However, domestic squalor is frequently associated with cases of acquisition/accumulation secondary to organic pathology; in such cases, a diagnosis of HD should not be made.7,11 The phenomenological differences between “organic” accumulation and HD are summarized in Table 2.

OCD

To the first psychoanalysts, “anal traits” (precursors of what is now termed OCPD) and OCD were part of the same spectrum, had common etiopathogenetic factors, and
shared a variety of symptoms. As parsimony (or, in recent parlance, hoarding) is one of the so-called anal traits, it was believed that hoarding could represent a symptom of OCD. To these first theorists, accumulation could take on the characteristics of a compulsion, defined as a behavior that is recognized by the individual as his or her own, irresistible, unpleasant, and repetitive. Perhaps as a consequence, hoarding obsessions and compulsions are reported by almost 53% of patients with OCD. However, only a minority of these individuals (approximately 5%) have this dimension as the most prominent clinical manifestation of the disorder. There are several phenomenological differences between accumulating symptoms seen in OCD and those of HD. For instance:

1. HD-related thoughts differ from OCD-related thoughts insofar as the former are less intrusive, characterized by poorer insight, associated with pleasure and reward in most cases, and often unrelated to other prototypical themes of OCD (obsessions with aggressive, sexual, religious, contamination-related, or symmetry-related content);
2. in HD, symptoms are perceived as ego-syntonic, unlike the obsessions/compulsions of OCD-related accumulation, which are usually egodystonic;
3. in HD, distress is brought on by clutter, whereas in OCD, it is the result of intrusiveness;
4. in OCD, thoughts trigger an urgent desire to get rid of them and/or perform a ritual to relieve them, which is uncommon in HD; and
5. the reasons for accumulating are different in HD and OCD. In HD, hoarding results from the fear that items may be needed in future (intrinsic value) or from a strong emotional attachment to possessions. In OCD, accumulation aims to alleviate obsessions, prevent damage caused by aggressive obsessions or fears of contamination, relieve feelings of incompleteness, or simply serve as an avoidant behavior (Table 3).

Accumulation should only be seen as a symptom of OCD when it is clearly secondary to typical obsessions. The relationship between obsessive thoughts and the resulting behavior (accumulation/hoarding) is the same as that between traditional obsessions and compulsions. Nevertheless, HD and OCD can coexist in the same patient and be completely independent conditions.

**Epidemiology**

Ascertaining the prevalence of HD is no easy task, as hoarders tend to minimize and be ashamed of their problem. Studies on the prevalence of HD performed prior to the publication of DSM-5 reported rates around

<table>
<thead>
<tr>
<th>Feature</th>
<th>Normative collecting</th>
<th>Hoarding disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Very focused; objects are bound by a cohesive theme, with a narrow range of object categories</td>
<td>Unfocused; objects lack a cohesive theme, and the accumulation contains a large number of different object categories</td>
</tr>
<tr>
<td>Acquisition process</td>
<td>Structured; planning, searching for items, organizing the collected items</td>
<td>Unstructured; lack of advance planning, focused searching, or organization</td>
</tr>
<tr>
<td>Excessive acquisition</td>
<td>Possible, but uncommon; items primarily acquired by purchasing</td>
<td>Very common; &gt;80% of items bought or collected for free</td>
</tr>
<tr>
<td>Level of organization</td>
<td>High; rooms are functional and collected items are organized, stored, or displayed in an orderly fashion</td>
<td>Low; the functionality of rooms is compromised by the presence of clutter</td>
</tr>
<tr>
<td>Distress</td>
<td>Rare; for the majority of collectors, the activity is pleasurable, although for a majority, collecting may result in distress due to factors other than clutter (e.g., finances)</td>
<td>Required for diagnosis; distress is often a consequence of the presence of excessive clutter, forced discarding, or inability to acquire</td>
</tr>
<tr>
<td>Social impairment</td>
<td>Minimal; collectors have high rates of marriage, and the majority report engaging in social relationships as part of their collecting behavior</td>
<td>Often severe; hoarding disorder is consistently associated with low rates of marriage and high rates of relationship conflict and social withdrawal</td>
</tr>
<tr>
<td>Occupational interference</td>
<td>Rare; scores on objective measures indicate that collectors do not experience clinically significant impairment at work</td>
<td>Common; occupational impairment increases with hoarding severity; high levels of impairment at work have been reported</td>
</tr>
</tbody>
</table>

2 to 4%, rising up to 6% in subjects over the age of 55.\(^{14-19}\) Of these studies, only one was not conducted in the Western world.\(^{19}\) In the first epidemiological study to follow the DSM-5 diagnostic criteria, conducted in the United Kingdom, the estimated prevalence was 1.5% in both sexes, with the highest prevalence found in older adults.\(^{20}\) In a study conducted in the Netherlands, the prevalence of HD was 2.12% in both sexes, with a linear rise in prevalence of approximately 20% every 5 years.\(^{21}\) In Brazil, a cross-sectional study carried out in Curitiba (PR) on the frequency of accumulating behavior showed a rate of 6.45 hoarders per 100,000 population.\(^{22}\) This study estimated a rate of 1 case of compulsive hoarding per 15,503 population, 7,390 men, 8,133 women, 1,753 older adults (over 60 years), 716 elderly men, and 1,037 elderly women. This rate is lower than those reported in international studies, probably because only hoarders reported to government agencies were included in the sample. The reduction in prevalence in studies conducted after publication of the DSM-5 is possibly due to the recent standardization of diagnostic criteria for HD, especially with the exclusion of cases secondary to other conditions. In previous studies, authors used their own definitions of clinically meaningful accumulating behavior and identified members of populations that met those criteria.\(^{7}\)

**Table 2** Phenomenological differences between accumulating behaviors secondary to macroscopic brain damage in patients with brain injury or dementia and the accumulating behaviors of hoarding disorder.

<table>
<thead>
<tr>
<th></th>
<th>“Organic” accumulation</th>
<th>Hoarding disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Onset</strong></td>
<td>Generally sudden in cases of brain damage. Can be more insidious if secondary to a dementing process</td>
<td>Insidious. Usually starts in childhood/adolescence and has a long natural history</td>
</tr>
<tr>
<td><strong>Ability to discard hoarded items</strong></td>
<td>Variable (some are able to discard their possessions easily or do not care if others discard them, while others are very reluctant)</td>
<td>Inability to discard hoarded items is a core feature of hoarding disorder</td>
</tr>
<tr>
<td><strong>Nature of acquiring behavior</strong></td>
<td>Generally indiscriminate, but can be more selective (acquisition of specific items, e.g., umbrellas, or according to their shape/color) in some cases</td>
<td>Items are always acquired/hoarded according to their perceived intrinsic, practical, or emotional value, but can be more indiscriminate in some cases</td>
</tr>
<tr>
<td><strong>Utility of hoarding behavior</strong></td>
<td>Often purposeless (individuals display little or no interest in the accumulated items) and items seldom used</td>
<td>More purposeful (items are hoarded for specific emotional or practical reasons), although items are often not used</td>
</tr>
<tr>
<td><strong>Hoarded items</strong></td>
<td>Any item, including rotten food</td>
<td>Any item, although hoarding of rotten food is rare</td>
</tr>
<tr>
<td><strong>Squalor and/or self-neglect</strong></td>
<td>Frequent (especially in cases of dementia)</td>
<td>Thought to be relatively uncommon, although more research is needed</td>
</tr>
<tr>
<td><strong>Associated features</strong></td>
<td>Severe personality changes, as well as behaviors commonly attributed to brain dysfunction such as pathological gambling, inappropriate sexual behavior, compulsive shopping leading to financial difficulties, theft, stereotyping, tics, and self-injurious behaviors</td>
<td>No severe personality changes or other behaviors clearly attributable to brain dysfunction. Excessive acquisition, shopping, and stealing may be present</td>
</tr>
<tr>
<td><strong>Cognitive processes and motivations for hoarding</strong></td>
<td>Hoarding apparently devoid of identifiable cognitive and emotional processes, although more research is needed</td>
<td>a) Information processing deficits: decision making, categorization, organization, and memory difficulties; b) emotional attachment to possessions; c) behavioral avoidance; d) erroneous beliefs about possessions</td>
</tr>
<tr>
<td><strong>Insight and help-seeking behavior</strong></td>
<td>Insight poor or absent. Patients seldom seek help</td>
<td>Insight ranges from good to poor or absent. Initially, hoarding behavior can be ego-syntonic; it becomes increasingly distressing as clutter increases. Help-seeking is probably related to the degree of insight</td>
</tr>
<tr>
<td><strong>Prevalence</strong></td>
<td>Unknown (&lt;1%)</td>
<td>Approximately 2-5%</td>
</tr>
<tr>
<td><strong>Genetic</strong></td>
<td>Unknown, but there are anecdotal reports of relatives independently living in squalor</td>
<td>Yes. Hoarding disorder tends to run in families and appears to be moderately heritable</td>
</tr>
</tbody>
</table>

Source: after Snowdon et al., 2012.\(^{12}\)
HD appears to follow a chronic, progressive course. Accumulating behavior typically begins in adolescence, with a mean age at onset between 11 and 15 years. Initially, symptoms do not cause distress or impairment, but usually become problematic around the fourth or fifth decade of life.²³,²⁴ The mean age at treatment initiation is approximately 50 years.²⁴ HD diagnosed later in life tends to be more severe.⁵

HD is associated with psychiatric comorbidities, including high rates of depression, generalized anxiety disorder (GAD), social phobia, attention deficit/hyperactivity disorder (ADHD), and OCD.⁵ In older adults with HD, specifically, the most frequent comorbidities are depression (14–54%), anxiety disorders, personality disorders, posttraumatic stress disorder, and substance use disorders.⁵ In addition, individuals with HD have a worse overall health status compared to controls, especially in older populations.²⁴

**Etiology**

The causes of HD are unknown, but some theories have been proposed.

**Genetics**

HD appears to have a strong genetic component. Familial studies conducted before 2013 showed that hoarding was more common among first-degree relatives of compulsive hoarders compared to controls.²⁵-²⁸ The first study conducted after publication of the DSM-5 evaluated symptoms of hoarding among parents and siblings of patients with a diagnosis of HD, and compared them to relatives of individuals with OCD and community controls. Participants in the three groups reported a higher rate of hoarding symptoms among female relatives (mothers and sisters) compared to males (fathers and brothers), and the rates found in relatives of individuals with HD were higher than those found in the other groups.²⁹

### Table 3: Characteristics of hoarding in patients with hoarding disorder vs. hoarding secondary to obsessive-compulsive disorder.

<table>
<thead>
<tr>
<th></th>
<th>Hoarding disorder</th>
<th>Hoarding as a dimension of obsessive-compulsive disorder</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relationship between hoarding and obsessive-compulsive symptoms</td>
<td>Hoarding not related to obsessions/compulsions</td>
<td>Hoarding behavior is driven primarily by prototypical obsessions or is the result of persistent avoidance of onerous compulsions</td>
</tr>
<tr>
<td>Checking behavior associated with hoarding</td>
<td>Rare and mild</td>
<td>Frequent and severe</td>
</tr>
<tr>
<td>Obsessions related to hoarding (e.g., catastrophic consequence or magical thinking)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Mental compulsions related to hoarding</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Ego-syntonic/ego-dystonic</td>
<td>Usually ego-syntonic: hoarding thoughts are associated with pleasant feelings of safety</td>
<td>Usually ego-dystonic: intrusive or unwanted, repetitive thoughts</td>
</tr>
<tr>
<td>Presence of obsessive-compulsive symptoms other than hoarding</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Distress</td>
<td>Comes from clutter (product of behavior)</td>
<td>Comes from intrusion</td>
</tr>
<tr>
<td>Main reason for hoarding</td>
<td>Intrinsic and/or sentimental value</td>
<td>Other obsessional themes</td>
</tr>
<tr>
<td>Type of hoarding</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Common items (old clothes, magazines, CDs, letters, pens, bills, newspapers, etc.)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Bizarre items (feces, urine, nails, hair, used diapers, rotten food, etc.)</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Excessive acquisition</td>
<td>Usually present</td>
<td>Usually absent</td>
</tr>
<tr>
<td>Insight</td>
<td>Frequently poor or absent</td>
<td>Generally good, although poor insight may be present</td>
</tr>
<tr>
<td>Course of hoarding behavior</td>
<td>Hoarding tends to increase in severity as the person ages</td>
<td>Hoarding does not increase in severity as the person ages (usually)</td>
</tr>
<tr>
<td>Global severity/interference</td>
<td>Usually moderate</td>
<td>Usually severe</td>
</tr>
</tbody>
</table>

Source: After Albert et al., 2015.⁷
Findings from genetic studies are consistent with those of familial studies, suggesting that accumulating behavior is heritable. However, specific genes predisposing to HD have not been consistently identified.

### Trauma

Individuals with HD often report traumatic life events preceding or exacerbating the disorder. Notably, in elderly hoarders, reported rates of posttraumatic stress disorder range from 3.5 to 18%. Studies have suggested that certain types of traumatic events have a stronger association with HD. For instance, interpersonal traumas (such as domestic violence, accidental or tragic loss of a loved one, or neglect in childhood) are the types of traumatic event most commonly reported by patients with HD. The experience of interpersonal trauma can result in strong emotional attachment to possessions or belongings that provide a sense of security. This may be the reason why patients with HD experience difficulty separating from their belongings and are prone to excessive acquisition. Furthermore, a perceived threat to their possessions (e.g., loss of belongings in a fire, forced disposal of objects) is commonly reported before the onset of accumulating symptoms. One study examined the relationship between trauma (including physical/sexual abuse, crime, and disasters in general) and tendencies to acquisition and hoarding. The authors reported that the development of HD is also related to the intensity of the traumatic event, particularly physical/sexual abuse. However, there are no prospective studies confirming a causal relationship. Contrary to popular belief, there is no evidence to support that material deprivation in childhood predisposes to HD.

### Cognitive-behavioral model

According to the cognitive-behavioral model proposed by Steketee and Frost, HD develops as a result of emotional responses associated with certain thoughts and beliefs about possessions. Individuals find it difficult to discard possessions, seeking to avoid the anxiety associated with discarding and decision making, while positive emotions associated with belongings facilitate their acquisition and storage. Frost and Hartl proposed that three primary factors contribute to accumulating behavior:

1. beliefs related to possessions and excessive emotional attachment;
2. behavioral avoidance, which develops as a result of emotional distress associated with discarding items;
3. and information processing deficits in attention, categorization, memory, and decision-making (Figure 1).

Research and clinical observation suggest that accumulating behavior in HD serves to avert distress and provide comfort, which probably perpetuates the disorder through positive and negative reinforcement. Studies examining the associations between hoarding, emotion, and mood have related poor emotional regulation, high comorbidity with depression, and low distress tolerance to excessive acquisition and difficulty discarding. While this evidence supports the proposition that hoarding behaviors can be driven by emotional difficulties, the mechanisms whereby some components of the current model contribute to such behaviors are unclear.

### Clinical features

As mentioned above, accumulating behaviors typically begin in early adolescence and tend to become more severe over the years. When HD is subdivided into its main symptoms of clutter, acquisition, and difficulty discarding, acquisition (whether through purchase, “picking”/collecting, or even stealing) appears to start later than the other symptoms. One possible explanation is the greater physical and financial independence of individuals as they reach adulthood. Symptoms begin to interfere with functioning around the age of 25, and significant impairment is observed around the age of 35 years.

HD is associated with significant functional impairment for both patients and families. One study showed that the level of carer overload experienced by relatives of patients with HD was comparable to or even higher than that reported in the literature by relatives of individuals with dementia.

Individuals can hoard objects, animals, and even electronic information. Animal hoarding in particular is characterized by accumulation of animals without providing proper care and an adequate environment, as well as health and safety risks and impairment of occupational and social functioning. The houses of animal hoarders are cluttered, disorganized, and dysfunctional. Squalor is frequent, urine and feces are commonly found in living areas, and animal cadavers may be present. These hoarders have great difficulty giving up their animals to people who are able to care for them properly, and develop intense attachments that result in significant impairment.
Assessment

Individuals with HD usually present to health services brought by other persons or government agencies that have identified the problem; spontaneous help-seeking is rare. The diagnosis of HD is clinical. Tests are ordered solely to rule out organic diseases that may be responsible for accumulating behavior. Several diagnostic instruments can assist in the diagnosis of HD, such as the Saving Inventory Revised (SI-R), UCLA Hoarding Severity Scale (UHSS), Hoarding Rating Scale-Interview (HRS), and Structured Interview for Hoarding Disorder (SIHD). To the best of our knowledge, only the SI-R has been validated for use in Brazil.

During the interview, it is important to probe patients for symptoms of hoarding, as spontaneous reporting is unusual. Patients with HD display varying degrees of insight. They are usually ashamed of their own homes due to clutter, and have probably received much criticism over the years. The formal diagnosis requires an interview conducted by a trained health professional, preferably at the patient’s home, as the presence of clutter is necessary for diagnosis. The home visit allows the clinician to objectively assess the proportion of the disorder, ascertain the extent of the resulting clutter and impairment, and determine whether health and safety risks are present.

If a home visit is impossible, the use of photographs or even video footage to evaluate the extent of the problem is advised. However, it bears stressing that neither a home visit nor the use of photographs/video can replace a thorough psychopathological interview. In patients with poor or even absent insight, which constitute the majority of cases, an interview should be conducted with reliable informants. A study evaluating the accuracy of reports of symptom severity and degree of insight in HD showed good correspondence between the reports of patients and those of informants regarding the severity of clutter, but informants reported higher degrees of squalor. Comparisons between reports of informants and professionals have shown that informants underestimate the insight of individuals with HD. Patients with HD who refused to participate in the study had greater symptom severity and less insight compared to those who participated.

Treatment

The unsatisfactory response of accumulating behaviors to standard treatments for OCD has led to the development of specific approaches to this problem. Early treatments were based on the cognitive-behavioral model of compulsive hoarding, and included training in

---

Vulnerability factors

<table>
<thead>
<tr>
<th>Information processing</th>
<th>Perceptions</th>
<th>Attention</th>
<th>Memory</th>
<th>Categorization</th>
<th>Decision-making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early experiences</td>
<td>Core beliefs</td>
<td>Personality</td>
<td>Mood</td>
<td>Comorbidity</td>
<td>Trauma</td>
</tr>
<tr>
<td>Unworthy</td>
<td>Unlovable</td>
<td>Perfectionism</td>
<td>Depression</td>
<td>Social phobia</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Unlovable</td>
<td>Abandoned</td>
<td>Dependency</td>
<td>Paranoia</td>
<td>Anxiety</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Abandoned</td>
<td></td>
<td></td>
<td></td>
<td>Comorbidity</td>
<td>Social phobia</td>
</tr>
</tbody>
</table>

Beliefs/emotional attachment

<table>
<thead>
<tr>
<th>Beliefs about possessions</th>
<th>Utility</th>
<th>Intrinsic beauty</th>
<th>Sentimental value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs about vulnerability</td>
<td>Safety/comfort</td>
<td>Loss</td>
<td></td>
</tr>
<tr>
<td>Beliefs about responsibility</td>
<td>Waste</td>
<td>Lost opportunity</td>
<td></td>
</tr>
<tr>
<td>Beliefs about memory</td>
<td>Mistake/ misunderstanding</td>
<td>Lost information</td>
<td></td>
</tr>
<tr>
<td>Beliefs about control</td>
<td>Positive emotions</td>
<td>Pride</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Negative emotions</td>
<td>Sadness</td>
<td></td>
</tr>
</tbody>
</table>

Emotional reactions

<table>
<thead>
<tr>
<th>Clutter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquiring</td>
</tr>
<tr>
<td>Difficulty in discarding</td>
</tr>
</tbody>
</table>

decision-making and categorization, exposure to discarding, and cognitive restructuring of irrational beliefs associated with hoarding. 

Various protocols for individual cognitive-behavioral therapy (CBT), group CBT, and self-help treatments were developed for HD. More recently, other approaches have been tested, such as harm reduction (for individuals who are not motivated to change their accumulating behavior), cognitive remediation therapy directed at neurocognitive deficits, family-based interventions to increase the motivation of individuals with HD and/or support the needs of relatives, and pharmacotherapy. 

Psychotherapy

To the best of our knowledge, four reviews on the psychotherapeutic treatment of hoarding difficulties have been published. In two, the authors found modest responses and high discontinuation rates with treatments not specific for hoarding in patients with OCD and hoarding symptoms, compared to those without hoarding symptoms. A meta-analysis by Tolin et al. showed a significant reduction in the severity of hoarding after HD-specific CBT interventions. The largest effects were seen for difficulty discarding, followed by clutter and acquisition. The rates of clinically significant improvement, however, were low (24–43%), as was improvement in functional impairment. The most recent review included 20 studies and assessed the quality of evidence regarding treatments for HD symptoms and related problems. The treatment approaches evaluated were CBT, pharmacotherapy, cognitive rehabilitation, online support, and family interventions. Most of the included studies (n=17/20) were of CBT-based interventions. Although the majority of the studies were of poor methodological quality, the results obtained with CBT strategies (individual, group, and bibliotherapy support groups) were comparable. However, the reductions in symptom severity were modest. Cognitive remediation, despite little research to support it, improved hoarding symptoms by up to 40%. The authors concluded that no psychosocial technique for HD is superior to others, although the most reliable evidence to date is for individual or group CBT following an HD-specific protocol. 

Studies of psychotherapeutic treatment of HD in the elderly are particularly scarce. Research on the use of CBT for late-life hoarding is limited to case reports and open trials.

Pharmacological treatment

To date, there has been little research into pharmacological treatment of HD. To our knowledge, there are only four published studies on pharmacotherapy for this disorder, only one of which included elderly patients. The first study evaluated the efficacy of paroxetine in 79 subjects with OCD for 12 weeks (mean dose 41.6 ± 12.8 mg/day). Of these, 32 were compulsive hoarders. Both compulsive hoarders and patients with OCD without hoarding symptoms improved with treatment. Accumulating behaviors improved, as did other symptoms of OCD (mean reduction, 24%), as measured by the UHSS. However, paroxetine was poorly tolerated. Only 16 of the 79 patients tolerated a dose of 60 mg/day. Less than half of the sample reached a dose of 40 mg/day, and 12 patients were unable to tolerate more than 30 mg/day. The most common adverse effects were sedation, fatigue, constipation, headache, and sexual dysfunction.

Another study evaluated the efficacy of venlafaxine in the treatment of 24 subjects with HD for 12 weeks (mean dose 204 ± 72 mg/day). The symptoms of hoarding improved, with a mean reduction in UHSS score of 36%. Overall, 96% of participants (n=23/24) completed the study, and no patient discontinued treatment due to adverse effects or lack of efficacy. Twelve of the 23 participants tolerated at least 150 mg/day of venlafaxine, 16 tolerated 225 mg/day, and four received the maximum dose of 300 mg/day. However, the authors reported a significant negative correlation between age and treatment response, suggesting that older patients experienced fewer reductions in hoarding symptoms.

In a case series, four patients with HD without comorbid ADHD were treated with controlled-release methylphenidate for 4 weeks (mean dose 50 ± 9 mg/day). Two participants displayed a modest reduction in hoarding symptoms measured by the SI-R (25 and 32%), especially regarding excessive acquisition. There were no treatment-emergent symptoms such as tics, psychosis, mania, or depression. However, at the end of the study, no participant agreed to continue treatment, due to adverse effects (insomnia and palpitations). More recently, one study evaluated the efficacy of atomoxetine for 12 weeks (40–80 mg/day) in the treatment of 12 patients with HD. The mean reduction in hoarding symptoms was 41.3% (UHSS-measured).

Regarding the acceptability of treatments and services available to individuals with HD, a recent study showed
that the treatments deemed most acceptable by patients were individual CBT, professional organizing services, and self-help books. The least acceptable treatments were medication, cleaning and removal services, and a court-appointed guardian.57

CONCLUSION

HD is a serious, under-researched mental disorder, with a prevalence of 1.5 to 2.1% in the general population, possibly rising to 6% in the elderly. Its course is chronic and progressive. HD was recently included in the DSM-5 as an independent nosological entity. It entails significant costs to society, because of the risks it poses to the health and safety of individuals, especially older adults. Studies indicate that genetic, familial, cognitive, and traumatic factors are implicated in the etiology of HD. To date, psychotherapies have been the most widely studied therapeutic approach, but the results of these studies show small effects. Research into pharmacological approaches to HD is still incipient, precluding any conclusions of efficacy.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

REFERENCES


