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Anxiety, Obsessive Compulsive and Related Disorders (B Brennan and D Dougherty, Section Editors)

A Review of the Diagnosis and Management of Hoarding Disorder

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Opinion statement

Hoarding disorder (HD) is a severe psychiatric and public health problem characterized by extreme challenges with discarding possessions and severe acquisition resulting in excessive clutter that impairs daily functioning and may cause substantial health and safety risks. Over the past 20 years, research on HD has grown substantially and lead to its recent designation in the DSM-5 as a discrete disorder. The key features of the cognitive behavioral etiological model of hoarding include core vulnerabilities, information processing deficits, cognitions and meaning of possessions, and emotionally driven reinforcement patterns. This model has served as the theoretical foundation for efficacious, specialized cognitive behavioral treatment (CBT) for hoarding and validated hoarding assessment measures. The individual manualized CBT treatment has been adapted for delivery through various modalities (e.g., group, web-based, self-help), populations (e.g., geriatric), and providers (e.g., clinicians, peer support, case managers). While CBT is associated with significant reductions in hoarding severity, clinical levels of hoarding symptoms persist for greater than half of treatment completers; thus, more efficacious treatments need to be developed. Further research is necessary to elucidate components of the CBT model and their interaction, in order to inform treatment targets. Although research on pharmacological treatments for HD is in the nascent stages and extant results are somewhat mixed, future studies may assess medication as a standalone treatment or combined with CBT. Family-focused hoarding interventions may also be important given

that persons with hoarding behaviors may have limited insight and motivation and its negative effects on the family. Current data indicate a cost-effective and coordinated response that combines community-based and individualized interventions for hoarding may be optimal in order to (1) reach the broadest group of clients with hoarding (e.g., beyond those who voluntarily seek treatment), (2) maximize incentives and motivation through housing, health services, and safety laws, (3) enhance communication and coordination between diverse teams of providers, (4) provide sustainable comprehensive services in a stepped care approach, and (5) reduce stigma.

Introduction

Hoarding disorder (HD) is a severe psychiatric condition marked by extreme saving behaviors, collecting tendencies, and debilitating clutter. Until relatively recently, HD was under-recognized, poorly understood, and thought to be rare. In 2013, this condition became a discrete diagnosis in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders [DSM-5; 1], estimated to affect between 1.5 and 5 % of the population [2••, 3]. Hoarding is a complex phenomenon, often marked by high rates of physical and psychiatric comorbidity [2••, 4], lack of insight, and associated features (e.g., indecision, perfectionism, attention difficulties) that complicate the manifestation and course of the disorder [5].

A growing appreciation exists that HD as a syndrome confers serious ramifications for the general well-being of the patient and their families. Patients have high rates of unemployment and social services utilization, are at increased risk for evictions, and report poor quality of life [6, 7]. Hoarding symptoms are often extremely burdensome, frustrating, and discomfiting to family members, who can also be affected by possible risks to health and safety (e.g., falls, fire) [8–11]. Social services may be called upon to remove children, elders, or pets from the home in severe hoarding cases and/or when hoarding is accompanied by poor sanitation [12–14]. On a community level, the time and financial costs associated with hoarding are staggering [7]. A report by the San Francisco Task Force on Compulsive Hoarding [15] estimated that hoarding-related costs to landlords, social service agencies, as well as personal, familial, and community costs in the city of San Francisco amounted to over $6 million annually. These considerations support the need for effective interventions to incorporate multiple agencies, multidisciplinary teams of treatment providers and human service personnel, and comprehensive approaches, underscoring our conceptualization of hoarding as an acute mental health and public health problem.

The core features of hoarding include extreme difficulties discarding possessions, severe clutter, and excessive acquiring [16]. These traits are dimensionally distributed [17•], such that clinically significant hoarding does not differ qualitatively from normative saving behaviors and instead reflects an extreme end of the spectrum. The types of objects collected by hoarding patients (e.g., clothing, paper items, music, utility objects, and containers) do not differ substantially from those collected by healthy populations [18]. Yet the quantity of saved items can be so extreme that the clutter renders living spaces unfit for daily activities (e.g., kitchen inaccessible due to clutter). Though less common, some cases of HD that are also linked with poor sanitation can occur when accumulated items include such things as urine, used food containers, and/or excessive numbers of animals [19, 20][1]. and/or squalor is beyond the scope of the current review; please see [21, 22]. Hoarding patients enrolled in clinical research tend to be older, female, and unmarried [2••, 5]. Although a preponderance of female patients is standard across laboratory and clinical research, several epidemiological investigations suggest that clinical hoarding symptoms are equally common across both sexes [3, 23, 24]. The association between older age and hoarding is also somewhat unclear. Some studies have reported that older adults show increased symptom severity [25, 26], while others have not [3, 23]. With regard to age-of-onset, retrospective studies indicate that symptoms first develop in the mid-teens and during young adulthood, with clinically significant and severe symptoms emerging on average in the mid 30s [26, 27, 28•]. Symptoms for most patients tend to be persistent and are generally challenging to treat [26].

[1] The discussion of animal hoarding and/or squalor is beyond the scope of the current review; please see [21, 22].

Diagnosis of hoarding disorder

Leading up to the 5th edition of the DSM, research on hoarding increased exponentially [29], which helped make a compelling case that (a) hoarding met all the criteria for a mental disorder [30], and (b) there were sufficient advantages and few insufficient disadvantages to identifying hoarding as a discrete diagnosis [29]. Importantly, the literature that carefully explicated HD clearly differentiated it from obsessive compulsive disorder (OCD) and obsessive compulsive personality disorder, the two conditions with which hoarding symptoms were historically linked identified [31].

The DSM-5 diagnostic criteria for HD [1], along with the proposed ICD-11 criteria [32], are outlined in Table 1. The most central feature captured by DSM-5 Criteria A and B is persistent difficulties discarding possessions, which emerge from a perceived need to save items and distress that arises when forced to part with objects. As specified by the ICD-11, objects are saved for a number of reasons [33], the most common being strong emotional attachment (i.e., emotional significance), perceived instrumental characteristics (e.g., useful; avoiding waste; memory aid), and the intrinsic value (e.g., perceived uniqueness; aesthetically attractive). Debilitating clutter represents an additional hallmark feature of HD (DSM-5 Criterion C), though it may not be severe if a third party (e.g., spouse, housing agency) is actively intervening. Acquiring by purchasing new items and/or collecting free things is listed in DSM-5 as a specifier, given that not all hoarding patients endorse active acquiring behaviors [3, 29]. However, around 90 % of HD patients do endorse at least some acquiring behaviors [34, 35], and it appears that individuals who deny engaging in current acquiring may be actively avoiding triggers or cues to acquire [34, 36]. These findings indicate that acquiring is an important facet to consider for all HD patients, and although not yet finalized, the proposed ICD-11 criteria reflect this by not designating acquiring as a specifier [32]. Finally, the DSM-5 includes an insight specifier, with three categories: good/fair, poor, or absent insight. Differences in insight are striking between self-referred patients (often good/fair) and those identified through community intervention or family referrals (often poor or absent), and have significant implications for help-seeking, assessment, and adherence to treatments [37–39].

The DSM-5 criteria for HD have demonstrated good sensitivity and specificity [40]. A London field trial further supported the criteria, finding that they had high validity and reliability, were acceptable and non-stigmatizing to patients, and did not overly pathologize normative saving behaviors [35]. A number of validated assessment instruments have been developed, and it is recommended that a multi-informant approach be used to aid in the most accurate diagnosis of HD [41]. Mataix-Cols and colleagues [42] drafted and validated the Structured Interview for Hoarding Disorder (SIHD), which reflects a semi-structured instrument to assist with diagnosing patients. The gold standard self-report measure is the Saving Inventory Revised [SI-R; 43], which captures symptom severity across the three hallmark features of hoarding. A parent-rated Children's Saving Inventory, which parallels the SI-R, has also been validated [44]. The five-item Hoarding Rating Scale [45] serves as an excellent clinician-administered or self-report scale which can be used as a standalone

Table 1. Diagnostic criteria for hoarding disorder

DSM-5 criteria [1]	Proposed ICD-11 criteria [32]
Essential (required) features	
Criterion A. Persistent **difficulty discarding** or parting with possessions, regardless of their actual value.	Excessive **acquisition** of, and **failure to discard**, possessions, regardless of their actual value. Items may be hoarded because of their emotional significance (e.g., association with a significant event, person, place, or time), instrumental characteristics (e.g., usefulness), or intrinsic value (e.g., aesthetic qualities).
Criterion B. This difficulty is due to a **perceived need to save items** and distress associated with discarding them.	Difficulty discarding items due to a **perceived need to save items** and distress associated with discarding them.
Criterion C. The difficulty discarding possessions results in the accumulation of possessions that congest and **clutter** active living areas and substantially compromises their intended use. If living areas are uncluttered, it is only because of the interventions of third parties (e.g., family members, cleaners, authorities).	Items are accumulated to a degree that living spaces become **cluttered** and their use or safety is compromised.
Criterion D. The hoarding causes **significant distress or impairment** in social, occupational, or other important areas of functioning (including maintaining a safe environment for self and others).	The symptoms result in **significant distress or significant impairment** in personal, family, social, educational, occupational or other important areas of functioning
	Excessive acquisition is characterized by repetitive urges and/or behaviors related to buying, stealing or amassing items, including those that are free.
Exclusion criteria	
Criterion E. The hoarding is not attributable to another medical condition (e.g., brain injury, cerebrovascular disease, Prader-Willi Syndrome).	The hoarding is not attributable to another medical condition.
Criterion F. The hoarding is not better accounted for by the symptoms of another mental disorder (e.g., obsessions in obsessive compulsive disorder, decreased energy in major depressive disorder, delusions in schizophrenia, cognitive deficits in major neurocognitive disorders, or restricted interests in autism spectrum disorders).	The hoarding is not better accounted for by the symptoms of another mental disorder.
Specifiers	
*Specify if with **excessive acquisition***: If difficulty discarding is accompanied by excessive acquisition of items that are not needed or for which there is no available space.	
Specify level of insight: • *Good/Fair*: The individual recognizes that hoarding-related beliefs and behaviors are problematic. • *Poor*: The individual is mostly convinced that hoarding-related beliefs and behaviors are not problematic despite evidence to the contrary. • *Absent or delusional*: The individual is completely convinced that hoarding-related beliefs and behaviors are not problematic despite evidence to the contrary.	

measure or in conjunction with the Clutter Image Rating (CIR) [46, 47]. The CIR scale provides a visual pictograph of different degrees of clutter, thereby providing clinicians and patients a means to objectively quantify the level of clutter. Either home visits or recent photographs of the home can be used to verify clutter ratings [48], something that is particularly important given the variable insight mentioned above. Additional measures have been developed to assess the degree of functional impairment, environmental and health-related risks, as well as personal and domestic squalor [49].

Etiology of hoarding

The cognitive behavioral etiological model of hoarding (Fig. 1) has garnered substantial empirical support since its inception [16]. The model includes biopsychosocial factors and posits that the key features of hoarding arise from a confluence of core vulnerabilities, executive functioning deficits, cognitive styles/beliefs, and emotionally driven reinforcement patterns [50]. Data indicate that hoarding is familial [51], with approximately 50 % of the variance attributed to genetic factors [52]. A recent adolescent twin study found that these estimates may differ based on both developmental stage and gender. While genetic and non-shared environmental effects accounted for most of the variance in male adolescents, shared and non-shared environmental (but not genetic) effects explained the most variance in female adolescents [53]. These data indicate that both factors are important vulnerabilities for HD. Although no extant studies have examined specific genetic mechanisms with clearly defined HD samples [51], research has supported an association between hoarding and stressful or traumatic life events [54, 55]. In particular, interpersonal loss events, but not material deprivation, seem to be linked with more discarding and acquiring behaviors [26, 56].

Information processing deficits have also been associated with hoarding tendencies. Decision making deficits and greater impulsivity [57–60], along with compromised sustained attention and working memory functions, have all been noted in clinical case reports and neuropsychological investigations. Additional executive functions that appear to be implicated in hoarding include poor organizational faculties and impaired planning, memory, and visuospatial learning [61]. Findings have been somewhat mixed across studies, and research is still needed to untangle the mechanisms by which specific executive functions are associated with the core features of hoarding. Nevertheless, evidence is mounting that HD is associated with a general deficit in self-regulatory abilities [62], a hypothesis supported by emerging neuroimaging research on HD. Only a handful of studies have been conducted [63], but as a group they point to discarding problems being associated with abnormalities in cognitive and affective brain circuits, including the orbitofrontal cortex, dorsal anterior cingulate cortex, and temporal regions [64–67].

From a cognitive-behavioral perspective, specific beliefs about objects (e.g., this item could be useful; this object is unique; this object has feelings), the self (e.g., I am responsible for this possession; this item represents a piece of me; I can't rely on my memory), and other people (e.g., others cannot be trusted with my belongings; I'm not understood by others) have also been tied to hoarding symptoms [50, 68, 69]. These beliefs are, in turn, associated with strong

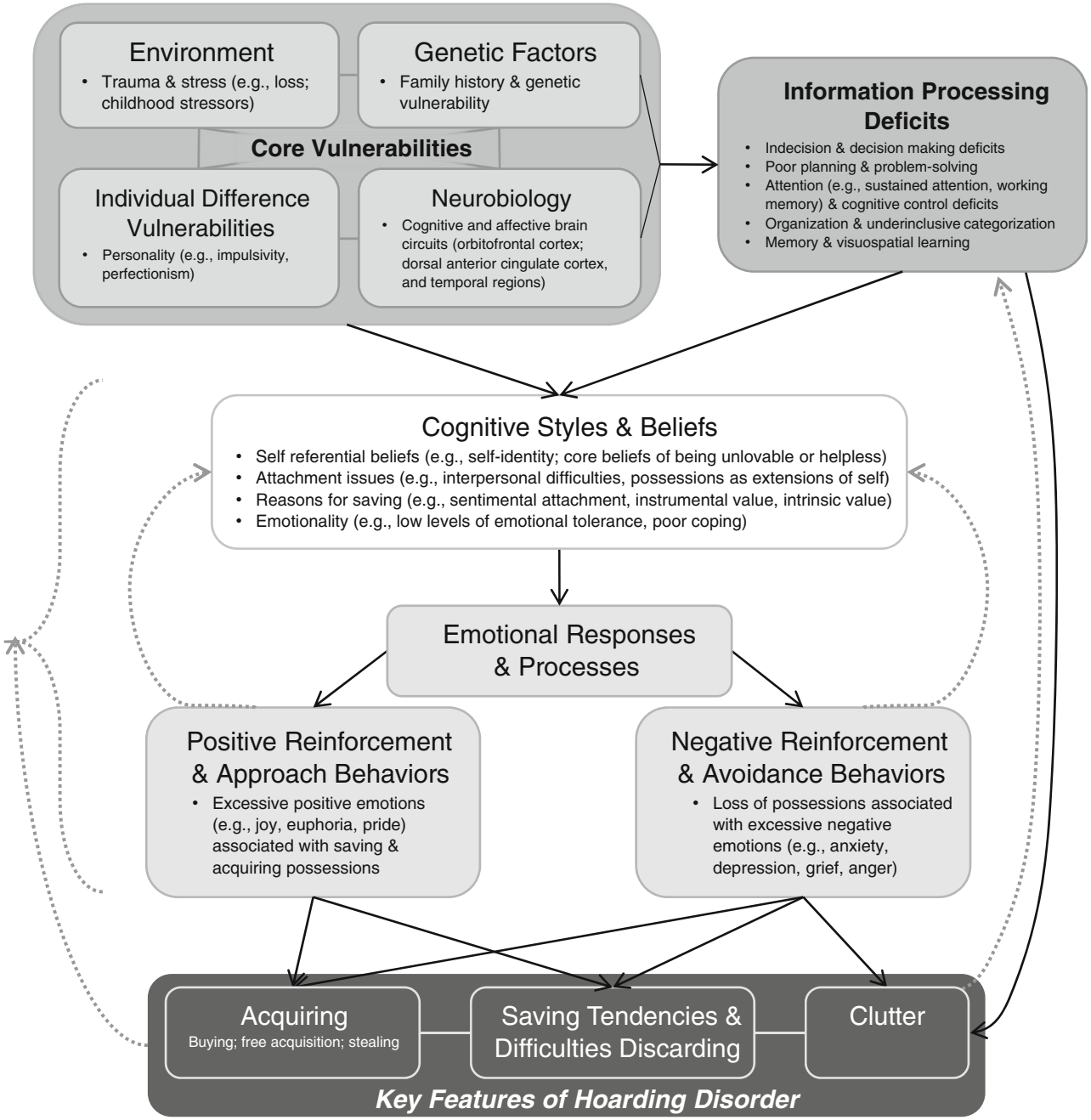

Fig. 1. The etiological model of hoarding disorder. *Black arrows* indicate direct associations, whereas *gray dashed arrows* indicate reinforcement feedback loops.

emotional responses and may interact with an underlying emotional vulnerability [70], including the ability to tolerate negative emotions and poor coping skills [71–73]. Of note, HD is characterized by both strong positive emotions (e.g., joy, pride) that reinforce approach behaviors like acquiring and saving, as

well as intense negative emotions (e.g., anxiety, grief, anger) that reinforce avoidance behaviors including difficulties discarding and procrastination.

Further research is needed to clarify the model for HD outlined in Fig. 1, particularly with regard to how the different components interact with one another. A particular challenge for this research will be to better understand the developmental progression of core vulnerabilities, information processing deficits, and emotional processes, as well as how these risk factors may interact over time [74, 75]. This is particularly important given the wide discrepancy between the average age of clinical populations and the typically early onset age for HD. A related consideration is whether culture impacts either the expression or development of HD. To date, very little research has examined hoarding across cultures, though initial findings suggest that it is not just a Western, industrialized-nations condition [76]. Overall, a more nuanced understanding of the etiological model of hoarding will be necessary to further develop and expand upon current treatments and prevention efforts.

Current treatments for hoarding

As reviewed above, HD is a complex psychiatric problem that presents multiple and significant challenges for treatment, ranging from multifaceted presentations, low insight, variable motivation, and comorbidities. Indeed, the historical treatment literature has largely presented hoarding symptoms as a distinctly and acutely difficult treatment target [31, 77, 78]. Using the etiological model of HD as a theoretical foundation, Steketee and Frost were the first to develop an efficacious, specialized cognitive behavioral treatment (CBT) for hoarding [79, 80]. Initially designed as a manualized treatment for individual clients, CBT for hoarding has since been effectively adapted for use with groups and geriatric populations, as well as self-help, internet, and community formats. Table 2 summarizes the core components of CBT for hoarding.

Treatment starts with careful assessment of hoarding symptoms, associated impairment or safety concerns, and comorbidity. This information helps develop a case formulation [81] which is used to focus and select treatment modules. Treatment commences with psychoeducation on the etiological model of hoarding and treatment rules, and also helps patients articulate desired and realistic treatment goals. Skills training facilitates practice with problem solving and organizing, as well as decision making approaches. Classic cognitive therapy techniques focused on acquiring and saving beliefs are combined with hoarding-specific behavioral techniques. The latter include exposures targeting sorting and discarding, as well as non-acquiring shopping trips. Therapists are encouraged to focus on helping clients increase alternative sources of enjoyment and coping and to use motivational interviewing throughout treatment to maintain momentum. Home visits are also encouraged. Treatment concludes with several sessions aimed at relapse prevention.

CBT for hoarding was first tested and refined through a pre-post pilot study [82], followed by a randomized controlled trial in which Steketee and colleagues [83] compared 26 sessions of CBT for hoarding (including monthly home visits) to a 12-week waitlist control. Results demonstrated that 41 % of patients experienced clinically significant reductions in hoarding symptoms. While a number of patients were still symptomatic at the conclusion of the trial,

Table 2. Cognitive behavioral interventions for hoarding: emphasis of treatment components across different forms treatment delivery

	Psychosocial treatment modalities				
Core techniques	Individual CBT [83, 84••]	Group CBT [89, 90, 95, 98]	CBT for older adults [87]	Self-help and peer support groups [93, 94, 99]	Online CBT [115]
Number of sessions	*~26*	*12–20*	*~24*	*15*	*variable*
Assessment	**XX**	XX	X	x	x
• Hoarding symptoms	XX	XX	X	x	x
• Impairment and safety	XX	XX	X		
• Associated features and comorbidity	XX	XX	X		
Psychoeducation	**XX**	XX	XX	X	X
• Treatment goals and rules	XX	XX	XX	X	X
• Definition of hoarding	XX	XX	XX	X	X
• Introduction to CBT model	XX	XX	X	X	X
Motivation	**XX**	XX	X	X	x
• Motivational interviewing	XX	X	x	x	
• Visualization tasks and costs/ benefits of hoarding	XX	X	x		
Skills training	**XX**	XX	**XX**	x	x
• Problem solving	XX	XX	XX	x	
• Decision making	XX	XX	XX	X	
• Categorization and organizing	XX	XX	XX	x	
Cognitive techniques	**XX**	XX	X	x	x
• Cognitive restructuring	XX	XX	x		
• Cognitive strategies to help during exposures	XX	XX	X	x	x
Behavioral experiments and exposure	**XX**	XX	**XX**	X	x
• Sorting and discarding exposures			X		
• Non-acquiring exposures			X		
• Imaginal exposures					
• Behavioral experiments					
• Behavioral strategies to reduce acquiring					
• Alternative sources of enjoyment and coping					
• Clean-outs					
Relapse prevention	**XX**	XX	**XX**	X	x
• Review skills					
• Strategies to maintain skills					
• Self-led sessions					
• Booster sessions					

Note: XX implies major focus, and x implies more minor focus

clinical effects were large and follow-up findings indicated that treatment gains were largely sustained at 12 months [84••]. Pretreatment severity of hoarding, along with perfectionism and male gender were predictors of worse outcome. The individual therapy format of CBT for hoarding has been extended to elderly hoarding patients with promising initial findings [85], but additional research [86] indicated that some modifications might be necessary for geriatric populations. Ayers and colleagues [87] have since conducted a successful open trial of a modified CBT for hoarding that combines cognitive rehabilitation with behavioral techniques, focusing mainly on skills training and behavioral exposures and less on cognitive techniques.

To improve the efficiency of treatment delivery, CBT for hoarding has also been adapted to several group formats. First, the individual CBT manual was modified for delivery with groups (GCBT), with promising initial findings [88] that were confirmed by several pre-post studies [89–91]. Treatment approaches differed slightly across trials in the number of sessions and inclusion of non-professional assistants and home visits. An additional modification of CBT for hoarding has been the development of a non-professionally or peer facilitated, short-term, action-oriented, biblio-based support group. The manual for this group is based on the Buried in Treasures Book (BIT) [92], which closely mirrors the individual CBT for hoarding manual (see Table 2). The BIT groups have been found to significantly decrease hoarding symptoms with large effect sizes [93–95], though similar to findings with the other treatment modalities, a large number of patients remained symptomatic at the conclusion of group. An additional parameter that has been investigated is whether web-based or video-enhanced CBT would prove beneficial. Although still in the pilot phase, results for an internet treatment group [91] and webcam supplemented individual therapy [96] seem promising.

Considered as a whole, the data examining CBT for hoarding is promising. A recent meta-analysis [97••] found that CBT was particularly effective in reducing difficulty discarding, and to a lesser degree clutter and acquiring. Findings also demonstrated that younger and female participants, as well more sessions and home visits were associated with better clinical outcomes. Importantly, two recent studies have examined whether CBT for hoarding could be successfully administered in more naturalistic, real-world settings [98, 99]. Both investigations found significant symptom reductions, in line with more controlled trials. Despite these largely positive findings, a number of limitations and concerns remain. Foremost is the fact that across all of the research on CBT for hoarding, rates of clinically significant change tend to be modest, leaving many patients in the HD range [97••].

Alternative treatment modalities

Several alternative treatment modalities are currently being considered and tested as stand-alone interventions or in conjunction with CBT for hoarding. Earlier research considering medications for OCD demonstrated that those with hoarding generally did not respond as well to selective serotonin reuptake inhibitors (SSRIs) and other serotonergic drugs compared to non-hoarding OCD patients [78]. To date only two empirical studies have considered serotonergic pharmacological agents for HD. The first trial compared paroxetine response in patients with OCD versus those with primary hoarding [100]. Results demonstrated similar improvements in symptoms and functioning

across both groups, though hoarding patients required a significantly longer duration of treatment. The second study was an open-label trial of extended-release venlafaxine, a dual serotonin and noradrenaline reuptake inhibitor [101]. Of the 24 subjects, 23 completed treatment with a mean final dosage of 204 mg/day (range, 150–300 mg); 70 % of completers were considered responders. This study is limited in that no follow-up data were collected to clarify patient tolerance for such high dosages of venlafaxine [102], and many HD patients elect to not pursue medications to begin with. Several additional case reports have been published on HD patients responding to glutamate modulators [103, 104], as well as one small positive pilot trial of methylphenidate, a stimulant [105].

Hoarding treatment programs commonly report that family members call far more frequently about treatment than do HD patients. Accordingly, family-focused interventions represent an additional alternative treatment [106] that may be especially helpful for HD patients with low insight and motivation and to reduce the negative reactions of family members. Tompkins and Hartl [107] were the first to explore these issues with Family-Focused Harm Reduction (FFHR). Harm reduction was originally developed for those with substance use disorders to decrease the harmful consequences of drug use and associated features [108]. Applied to hoarding patients and their families, FFHR includes psychoeducation on HD and teaches family members to reframe low insight and motivation as attributes of the disorder rather than innate character flaws. FFHR also includes training on communication styles, teaches family members how to be coaches for decluttering efforts, and introduces elements of motivational interviewing [109, 110]. Although no formal randomized controlled trials have been conducted, this approach seems promising.

Community-focused interventions

In addition to the very real risks that hoarding behaviors levy on the hoarding sufferer, symptoms can also negatively impact the larger community. Severe clutter can block exits, create fall hazards, cause structural damage, prevent repairs, and create fire hazards. Health and sanitation can also be compromised, resulting in public nuisance complaints and possible involvement of protective agencies, should the welfare of children, older adults, or animals be at risk [111]. In this regard, HD is somewhat unique among mental illnesses, often necessitating more comprehensive interventions for hoarding. In addition to involving multiple agencies, ranging from first responders (e.g., police and fire departments), public health agencies, housing, and protective services, legal counsel may also be implicated. Disability status, the rights of others affected, regulatory mandates, and local ordinances and laws may further complicate the delivery of treatment to hoarding patients [14].

The degree to which the multiple players and domains involved—both those enforcing health and safety regulations and those focused on symptom reduction—are able to effectively communicate and work in tandem will often determine the overall effectiveness of the efforts to mitigate the public health problem and associated risks of hoarding. In recent years, a number of models have emerged to characterize different approaches to multidisciplinary community interventions for HD [14]. These can range

from informal collaborative networks that emerge out of practical working relationships among providers within a community, to more formalized agreements that delineate plans of action and responsibilities across public and private partnerships [111]. The approach that has garnered the most traction to date involves hoarding task forces or community coalitions.

Virtually unheard of a decade ago, currently over 90 active hoarding task forces exist across the USA, Europe, Australia, and Canada [14]. A hoarding task force is defined as a coalition or alliance that emerges, typically, from grassroots efforts to address hoarding—a community-wide effort to help reduce a community problem. The specific nature of task forces can look quite different depending on the municipality, the individuals involved, and the specific needs of the community [112]. Functions can range from more indirect roles, including education and advocacy, to more direct involvement, including case consultation and direct intervention. For example, in some instances the goals of a task force are to deliver trainings and psychoeducational workshops to increase awareness of hoarding and appropriate assessment and interventions. In other instances, task forces represent the central hub for direct service delivery, which can include triaging calls for assistance, coordinating agencies and intervention services, provision of technical training, and even the monitoring of ongoing cases [111].

The goals and strategies used by hoarding task forces often complement those outlined in more traditional cognitive-behavioral individual-focused treatments, while maintaining a community focus [112]. Community efforts aim to balance the goals of the individual (e.g., maintain housing, reduce sanctions, maintain decision making over their possessions) with those of agencies (e.g., reduce public health and safety risks, increase compliance with laws and local ordinances), and of the hoarding task force (e.g., reduce incidence of severe hoarding in the community). Practically, efforts may focus on more short-term goals, such as the reduction of clutter so safety is no longer a concern [e.g., harm reduction model; 113], rather than the direct attenuation of hoarding symptoms, a goal more in line with individualized mental health treatment. In addition to the assessment instruments listed above that may assist with the identification of hoarding behaviors and assessment of related symptoms, the HOMES Multidisciplinary Risk Assessment is helpful in assisting task forces with determining and prioritizing the needs of specific cases [111]. The HOMES provides a checklist to determine which physical and mental health issues are most salient, as well as to identify significant obstacles, endangerment, or other safety concerns (see masshousing.com/hoarding for a free copy of the HOMES).

A very real distinction between the individual and community intervention approaches is that (a) clients receiving services from a hoarding task force or related agency have rarely *voluntarily* sought those services, in contrast to self-referred patients in individual therapy; (b) community authorities have the ability to enforce health and safe laws, which can provide salient incentives and motivation to address hoarding, which is not the case for CBT providers; (c) mental health professionals are often

limited by health care cost/reimbursement (e.g., eligibility, time-limited coverage), and liability issues (e.g., home visits) and bound by mandatory reporting and privacy regulations (e.g., HIPAA); and (d) community-based approaches may be perceived as less stigmatizing by the individual. Taking these points into considerations, it is understandable that the most successful approaches to mitigating hoarding may include a combination of community-based and individualized interventions, with a diverse team of providers. Although formalized outcome data are not yet published, two examples of such a comprehensive and effective approach is the Hoarding Action Response Team in Vancouver Canada [14] and the home-based case management model developed by the Metropolitan Boston Housing Partnership [114].

Conclusions and future directions

HD is a severe psychiatric and public health burden that remains difficult and complicated to treat. Important advances have been made in developing cognitive behavioral psychosocial treatments across a range of modalities and in incorporating such elements into burgeoning community-based intervention programs. Nevertheless, much remains uncertain regarding how best to alleviate these symptoms and disseminate effective treatments. The challenges facing the field of hoarding research are twofold. First, it is imperative that we continue exploring and further explicating the etiology of hoarding. Gaining greater insight into the core vulnerabilities, as well as their interactions, will enable us to identify additional treatment targets. This includes establishing which features may require more palliative care, in addition to those that could be targeted with either curative (i.e., eliminating the underlying processes that contribute to disorder) or prophylactic (i.e., eliminating processes that contribute to risk for relapse or maintenance) intervention mechanisms. The second challenge, and perhaps the more immediately critical task, is to address the short-comings of our current treatments. On the patient side, we need to re-examine methods to resolve limited insight and treatment motivation. This may include public-education campaigns to reduce the shame and stigma associated with hoarding, as well as additional approaches to incorporate into existing interventions. Future hoarding interventions may integrate modified motivational interviewing approaches to better address hoarding-specific needs, as well as the "carrot and stick" approach used in family-focused treatments and home-based case management models. Regardless of the intervention applied, it is essential to determine how providers from various domains can work most effectively together. Each group—whether mental health clinicians, social service agencies, housing advocates, first responders, and/or families—is associated with distinct mandates that influence the focus of intervention and treatment goals. Addressing this complex problem efficiently and effectively requires a cost-effective and coordinated response. In addition to determining what specific treatment components or modalities work best for specific HD patients, stepped care models may also represent an important area for further investigation.

Compliance with Ethical Standards

Conflict of Interest
Kiara Timpano, Jordana Muroff, and Gail Steketee declare that they have no conflict of interest.

Human and Animal Rights and Informed Consent
This article does not contain any studies with human or animal subjects performed by any of the authors.

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Papers of particular interest, published recently, have been highlighted as:
- • Of importance
- •• Of major importance

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This investigation sought to enhance the accuracy of prevalence estimates for hoarding disorder (HD) by applying the DSM-5 diagnostic criteria during in-home, face-to-face interviews with a diverse community sample. The weighted prevalence was 1.5%, lower than estimates from previous studies. Prevalence rates were greater for older adults and similar between male and female clients. Characterizing the population of persons with hoarding disorder may enhance the identification and treatment of hoarding.

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This meta analytic paper demonstrated that specialized CBT for hoarding disorder (HD) is associated with significant reductions in hoarding symptoms and a large effect size, specifically for the core feature of difficulty discarding. However, the majority of clients still have HD symptoms after treatment. A greater number of treatment sessions and home visits were associated with more improvement in clinical outcomes. These findings have implications for future enhancements of hoarding treatment.

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