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IS HOARDING A NORMAL PHENOMENON, PERSONALITY DEFORMITY, OR A MENTAL DISORDER

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ABSTRACT: Hoarding behavior is a normal phenomenon commonly observed in all corners of the world to prevent future scarcity of resources and overcome challenges of survival. Hoarding signs typically develop in childhood or early adolescence, which may become a serious disorder in the late phase of life. At present, hoarding disorder has been covered under the chapter of 'Obsessive-Compulsive and Related Disorders' along with obsessive-compulsive disorder, body dysmorphic disorder, trichotillomania (hair-pulling disorder), and excoriation (skin-picking) disorder as per DSM-5. Hoarding disorder (HD) is defined as a persistent difficulty discarding possessions, resulting in an accumulation of belongings, causing severe clutter and the congestion of living areas. HD appears to be a chronic problem that presents a burden on family and society. Pharmacotherapy of this disorder exhibits a gloomy picture since no approved allopathic medicines are available for its management. The best clinically proven way to manage hoarding disorder is with cognitive behavioral therapy, which motivates the patient specifically in addressing the key characteristics of this disorder. Recent lines of evidence suggest that hoarding disorder is therapeutical, neuro-biologically, socially, and genetically a personality disorder distinct from anxiety as well as obsessive-compulsive disorder. This review article depicts with the help of a diagram how HD is different from normal collecting/hoarding behavior. The hoarding disorder may be looked upon as an extension of the normal collecting (hoarding) phenomenon, which not only becomes a personality deformity but presents a dangerous clinical picture in elderly individuals complicated by the presence of other psychiatric co-morbidities.

INTRODUCTION:

Preamble: Hoarding behavior is a normal phenomenon commonly observed in all corners of the world to prevent future scarcity of resources and overcome survival challenges. Hoarding symptoms typically develop in childhood or early adolescence, which may become a serious disorder in the late phase of life. At present, the available data from developed and developing countries indicate that hoarding behavior is a universal phenomenon with consistent pathological features and clinical signs.

Hoarding is taken as the acquisition of items unnecessarily and the inability to discard them even though they appear useless to others. Hoarding symptom was earlier embedded in the diagnosis of obsessive-compulsive personality disorder (OCPD). Compulsive hoarding was considered as a symptom of Obsessive-compulsive disorder (OCD) within the umbrella of anxiety disorders as per

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DSM-4. Compulsive hoarding was thought to be driven by obsessional fears of losing important items, which the patient believes could be needed later [1]. Living spaces become sufficiently cluttered due to hoarding to preclude the activities for which they were designed, causing significant obstruction in social and/or occupational functioning [2-3]. Family relationships are frequently under great strain. Hoarding disorder (HD) is not a part of anxiety disorders and has recently been recognized as an independent disorder explicitly different from OCD [4]. Hoarding disorder (HD) has now been identified as a distinct disorder in the newly added chapter of 'Obsessive-Compulsive and Related Disorders' (OCRDs) in DSM-5 [5].

Hoarding disorder (HD) is defined as a persistent difficulty discarding possessions, resulting in an accumulation of belongings causing severe clutter and the congestion of living areas. Individuals suffering from hoarding disorder have an excessive emotional attachment to their belongings and are highly sensitive about their possessions. This behavior creates significant distress and adversely affects the day-to-day functioning of the individual with hoarding disorder. In addition, HD presents a burden on family and society in terms of increased occupational impairment since the patient suffering from HD experiences great difficulties in carrying out his occupation [6-7]. Several lines of evidence suggest that hoarding disorder is clinically [8-12], neurobiologically [13], socially, and genetically 14, a mood disorder distinct from anxiety disorders. However, we do not have sufficient evidence to rule out the possibility of hoarding disorder as a major personality deformity assuming dangerous proportions in elderly age. This article distinguishes between the natural instincts of hoarding (normal collecting), characteristics of hoarding disorder, and relation, if any, with OCD.

History: Hoarding first received national attention in March 1947, when two reclusive brothers, Homer and Langley Colleyer, were found dead in their three-story brownstone home in New York City. Their home was filled with 120 tons of miscellaneous debris, including fourteen grand pianos, an old generator, parts of a Model T Ford, and more than 3,000 books1, with maze-like tunnels as a passage leading through the clutter. The police determined that Langley Colleyer died as a result of collapsing debris, while he was bringing food to his paralyzed brother, who subsequently starved to death. In extreme cases, like the Colleyer brothers, hoarding behavior becomes dangerous and leads to life-threatening consequences. Even in less severe cases, compulsive hoarding interferes with an individual's ability to work, interact with others, and perform basic activities, such as eating or sleeping [15].

Prevalence: Currently, there is uncertainty about the prevalence of Hoarding Disorder (HD) due to methodological limitations, changing definitions that do/do not match the current DSM-5 criteria, samples not being representative of the general population due to self-selection, small samples, and low response rates. Prevalence studies of hoarding disorder representing each nation are not available. However, the prevalence of pathological hoarding in the United States and Europe is reported to be 2%-6%, approximately [4]. Hoarding disorder affects both genders. Nevertheless, the key features of hoarding disorder, such as disproportionate acquisition and extravagant buying, are observed more in females than in males. Compulsive hoarding is a common and chronic disorder associated with a significant individual, family, and social impact, with an estimated prevalence of 5%. Although compulsive hoarding has historically been considered a subtype of obsessive-compulsive disorder (OCD), recent research suggests that it is a distinct disorder having double the prevalence compared to obsessive-compulsive disorder 16, which argues against the conceptualization of compulsive disorder hoarding as a subtype of OCD. Compulsive hoarding appears to be a chronic and relatively stable problem with a high prevalence of co-morbid mental disorders. The prevalence estimates of HD show a wide variation of 1.5% to 6% of the general population [17-18].

Hoarding symptoms typically develop in childhood or early adolescence and spans well into the late stages [8, 19-21]. The severity of hoarding increases with each decade of life. The mean age of onset of hoarding symptoms has been estimated to be 13.4 years, with a large segment (around 60%) of patients reporting that the onset of hoarding symptoms commenced by age 12 years, and the majority of patients (around 80%) by age 18 years [20]. Hoarding symptoms are thrice as common in

older adults (age range 55-94 years) than in younger adults (age range 34-44 years) [18, 22]. Moreover, HD symptoms worsen over time; therefore, most study samples consist of elderly patients [23]. Thus, research characterizing hoarding in late life is of substantial clinical importance. In a recent well-designed study, the prevalence estimate of HD was found to be 2.5 % and was consistent across a range of western/developed countries although, there was significant variation between studies in terms of response rates, location, gender proportions, and assessment methods applied [18]. Psychopathology of hoarding is a life-long process wherein patients exhibit a waxing and waning phenomenon.

Etiology: The reasons, causes, or etiology of hoarding disorder are largely unknown. However, certain predisposing factors, which might result in hoarding symptoms based on literature reports [5, 24] have been summarized in **Fig. 1**.

• Hoarding disorder is genetically transmitted, although candidate genes have not yet been consistently identified.

• Hoarding behavior is found to run in families with approximately every patient having close relative suffering from hoarding disorder

• Bitter early life experiences and traumatic episodes appear to be intimately associated with hoarding symptoms.

• Scarcity of resources/ material deprivation in childhood and tough living conditions often lead to hoarding behavior to overcome challenges of survival.

• Emotional attachment to possessions and distress associated with discarding possessions compel the individual to the preservative of items resulting in hoarding disorder.

• An unfavorable environment coupled with stress and advanced age determines who will develop and when the hoarding symptoms.

• Organic brain damage or neuro-degeneration leading to indecisiveness/information-processing deficits may produce hoarding symptoms.

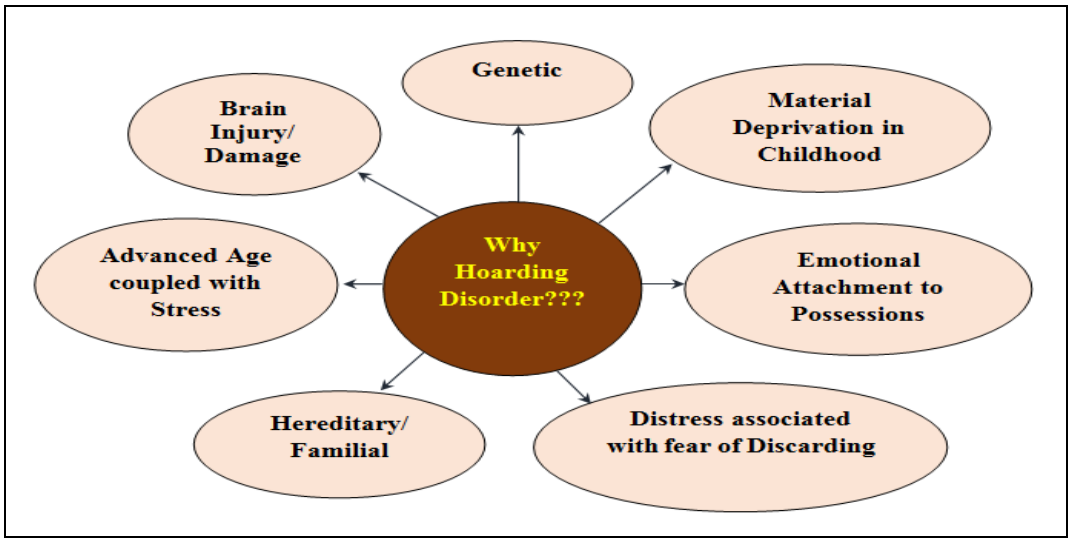

FIG. 1: ETIOLOGICAL FACTORS/ REASONS LEADING TO HOARDING DISORDER

Animal Hoarding: Animal hoarding may be a special manifestation of hoarding disorder. Most individuals who hoard animals also hoard inanimate objects. Animal hoarding, a distinct nosological entity is described as the "accumulation of a large number of animals, severe over-crowding of these animals and failure to provide minimal standards of nutrition, adequate space, and sanitation". Furthermore, there is an absence of veterinary care for diseased hoarded animals4. The mean number of animals per hoarder is found to be as large as 40, irrespective of the fact that there is an affectional bond with each hoarded animal [25]. The most prominent differences between animal and object hoarding are the extent of unsanitary conditions and the poorer insight into animal hoarding.

A Comparative Account of Normal Collecting (Hoarding) *vs.* Hoarding Disorder: HD in 80-90% of cases is accompanied by excessive buying, acquisition, collecting, and/or stealing items. Hoarded items are usually unnecessary and do not have sufficient space at home for their storage. However, HD must be distinguished from normal collecting **Fig. 2**, which is common among the population. From an evolutionary perspective, the tendency to collect

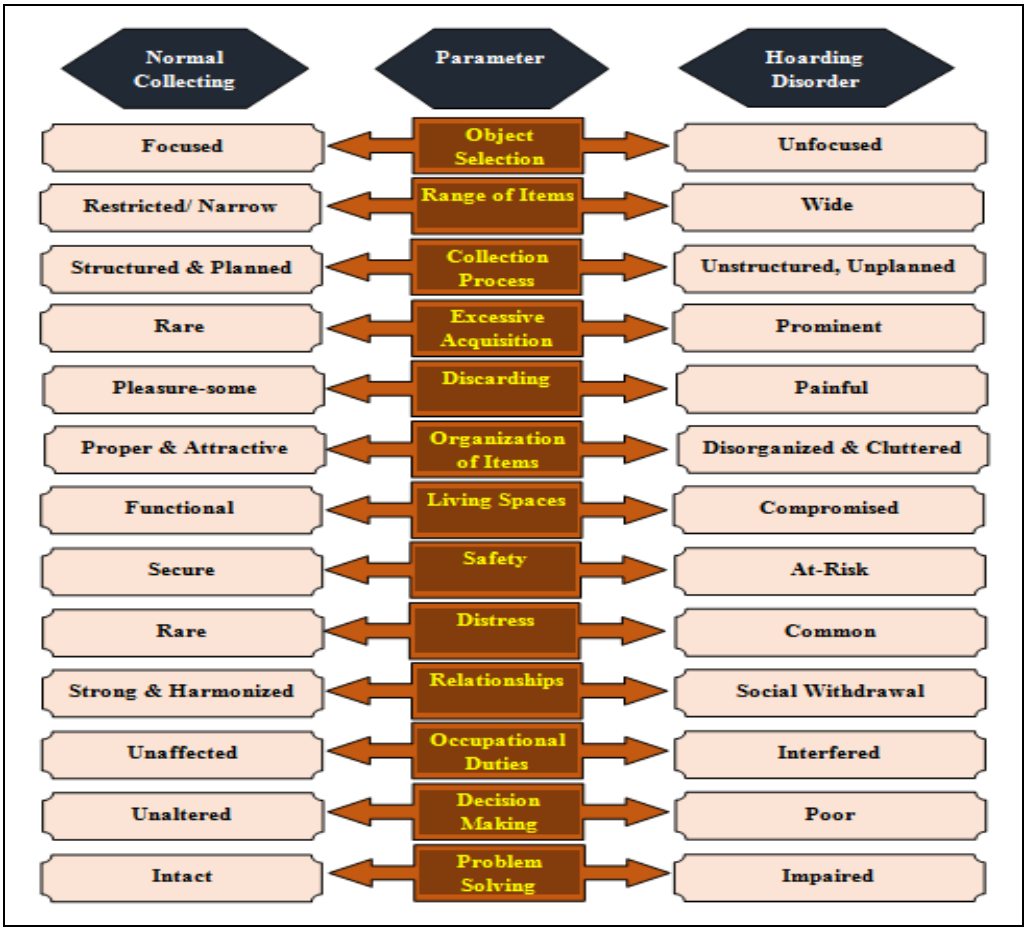

FIG. 2: COMPARATIVE ACCOUNT OF NORMAL COLLECTING *VS.* HOARDING DISORDER

Objects can be regarded as an adaptive phenomenon granting survival when there is a dearth of resources [26]. Hoarding disorder contrasts with normative collecting behavior, which is organized and systematic, even if in some cases the actual amount of possessions may be similar to the amount accumulated by an individual with hoarding disorder. According to a cross-sectional study, almost 70% of normal children displayed this trait of hoarding, who begin to gather and store their possessions, while they are of about two years of age, and this behavior peaks, when they become about six years old [27]. The preservation of possessions by patients suffering from HD is intentional, whereas passive accumulation of items and the absence of distress upon removal of these items are observed in normal collecting/hoarding. Normal collectors differ from hoarders as they display minimal clutter, no difficulty in grouping / arranging these accumulated objects and exhibit normal decision-making ability **Fig. 2** [17]. The key element that differentiates between normal hoarding behavior and hoarding disorder as a clinical entity is that the latter results in the accumulation of a large number of possessions that covers and clutters the living areas of the house, obstructing their use and causing distress or impairment [14, 28]. Collecting behavior tends to become pathological in those patients who show specific patterns of brain damage affecting the prefrontal areas of the brain, which mediate cognitive function, decision-making, attention, and emotions. Indeed, there is recent evidence for a unique increase in prefrontal grey matter volume (Brodmann areas) in HD, compared to healthy controls [29]. This neuro-biological abnormality may

relate to the patho-physiology of HD [30]. Hoarding behavior is partially familial or attributable to genetic factors, in that half of HD patients have a relative who also hoards. Environmental factors mainly have a time-specific effect accounting for the change of hoarding symptoms during different life phases [31]. HD is characterized by "persistent difficulty in discarding or parting with possessions, regardless of their real value, as a result of a strong urge to preserve the belongings and fear of distress on discarding them"[DSM-5] [4]. This disorder presents a chronic and debilitating condition that represents a significant public health concern. Therefore, hoarding disorder appears to be an extension / magnification of the normal collecting (hoarding) phenomenon. The unpleasant experience (traumatic events) of scarcity (material deprivation) faced in the early phase of life compels these individuals for excessive acquisition to meet survival challenges of life [26]. These individuals are reluctant to discard objects, which may find use in the future. This behavior takes the form of hoarding disorder at the advanced age of life when the source of income is limited, and co-morbidities prevail, rendering the patients helpless and indecisive.

Characteristics of Hoarding Disorder: Hoarding disorder is characterized by seven key elements:i. Excessive acquiring, ii. Difficulty discarding,iii. Clutter, iv. Distress, v. Indecisiveness, vi. Mal-adaptive beliefs, and vii. Disrupted functioning at home as well as at workplace [15, 32].

1. Excessive Acquiring: Excessive acquiring is taken as collecting unnecessary objects, accumulation of things through compulsive buying, compulsive acquiring of free things, or, more rarely, stealing. Many patients spend inordinate amounts of time looking for and retrieving objects to take home with abnormal behaviors, inclusive of excessive buying or rummaging through trash bins. Approximately 85% of individuals with self-reported hoarding symptoms report excessive acquisition [33]. In some cases, excessive acquiring may be impulsive. Many patients with hoarding symptoms describe acquiring objects as "thrilling" or "exciting" and "enjoy the hunt." Alternatively, acquisition behaviors appear to be compulsive (negatively reinforced strategies for regulating unpleasant emotion). Many patients describe feelings of restlessness or discomfort when instructed to refrain from acquiring; others report fears that not acquiring will lead to a "missed opportunity" and subsequent feelings of regret. The most commonly saved items are newspapers, magazines, albums, old clothes, bags, books, and diaries, but virtually any item can be saved. The nature of items is not limited to possessions that most other people would define as useless or of limited value.

2. Difficulty Discarding Possession: The difficulty in discarding possessions refers to any form of discarding, including throwing away, selling, giving away, or recycling. Individuals with compulsive hoarding are typically characterized by an inability or reluctance to discard objects, including those that others would perceive as "trash" or "junk" [34]. The reasons expressed by individuals suffering from hoarding disorder for preserving or not discarding the useless items are similar to those expressed by normal individuals who do not hoard. The apprehensions carried by patients suffering from HD include that the object may be useful or needed in the future in addition to sentiments attached and misbeliefs about its use. The only difference is that these beliefs are applied to a greater number of possessions by HD patients. Attempts to discard items are rejected because of substantial emotional distress [7, 14].

3. Clutter: Acquisition and failure to discard are not typically considered pathological unless they are accompanied by significant clutter. Clutter is defined as a large group of usually unrelated or marginally related objects piled together in a disorganized fashion in spaces designed for other purposes. Extreme clutter and restricted movement through living spaces is the most visible and striking symptom associated with hoarding disorder. Reports of inability to sleep in beds, sit in chairs, or eat at tables are common problems observed among patients suffering from hoarding disorder. The severity of clutter may reach the point that free movement into various rooms of the home becomes difficult and is possible only through small passages or pathways passing through clutter stacked to the ceiling. The clutter is also generally characterized by a random collection of items. For example, important documents may be mixed with clothing on a dining table. In some

cases, living areas may be uncluttered because of the third-party intervention (*e.g.*, family members, cleaners, local authorities). However, the absence of clutter doesn't indicate the disappearance of hoarding disorder since the essential diagnostic behavior of the patient continues to remain unchanged.

4. Distress: Basic functions such as cooking, cleaning, moving through the house, and even sleeping are interfered with clutter, thereby making hoarding a dangerous problem. Domestic appliances, devices, and electronic gadgets may get broken due to cluttering. Utilities like electricity, gas, and water may get out of order, as repair work becomes problematic [15]. In most severe cases, HD can cause public health and legal matters, subjecting patients, their families as well as neighbors susceptible to injuries due to falling (especially aged people), poor sanitation, and fire. The clutter and associated safety hazards may sometimes lead to threats of eviction of children or elderly from home by government agencies [35]. Any attempts to discard or clear the possessions by third parties result in high levels of distress [4]. Embarrassed by the clutter, individuals with hoarding problems avoid inviting friends, family, or repair workers to their homes, leading to social isolation, family conflict, distress, and poor housing conditions [36].

5. Indecisiveness: Indecisiveness is a striking feature of individuals suffering from hoarding disorder and their blood relatives. Individuals with compulsive hoarding show typical reluctance to discard objects, which others perceive as junk. Furthermore, these individuals are poor decision-makers as regards the proper arrangement or storage of these items. They avoid making decisions about the sorting of possessions [37]. Individuals suffering from HD carry pleasant memories related to their belongings. They hold maladaptive beliefs about their things and exhibit deep emotional attachment.

6. Maladaptive Beliefs: Compulsive hoarding may also be maintained by certain misbeliefs and emotional attachments to possessions. Beliefs about possessions fall into four main categories: emotional attachment to possessions, memory-related concerns, responsibility for possessions, and desire for control over possessions [34, 37]. Emotional attachments include an over appreciation for the aesthetic or sentimental value of objects. Individuals with compulsive hoarding often comment that objects represent a beloved person, memory, or part of their identity. Discarding possessions, therefore, is often equated with losing a loved one, an important memory, or part of own identity (and therefore discarding is avoided). Utility/Purpose beliefs include an exaggerated belief in the utility of objects. Individuals with HD simply think of an imaginary use of an object for which they preserve it even if it is unlikely. Patients who hoard often explain their need to keep certain possessions due to fears that they will forget relevant information or lose an important memory if they discard an object [38]. They state that they prefer to leave objects out in the open (*e.g.*, piling important papers on the table) rather than systematically placing them (in a cupboard/ file cabinet) due to the fear that they will forget that they have or where they placed the item. Finally, individuals, who hoard frequently, display an exaggerated sensitivity to others touching their possessions.

7. Disrupted Functioning at Home, as well as Workplace: Unnecessary hoarding of useless items occupies useful space at homes or workplace interfering with activities for which living rooms were designed. Clutter interferes with day-to-day functions such as cooking, cleaning, washing, dining, moving through the house, and even sleeping, making hoarding a dangerous problem, exposing people to health risks, short-circuits, fire breakouts, and accidents [15]. Finally, hoarding symptoms have also been associated with significant work loss. HD is associated with occupational damage, poor quality of relationships, and frequent conflicts with neighbors and local authorities [36, 39]. Thus, patients exhibit significant impairments in optimal functioning at home as well as at the workplace due to compulsive hoarding.

Diagnosis and Prognosis: Although sufficient data is not available on family history and prognosis of hoarding disorder, it appears to exhibit a chronic, progressively deteriorating pattern. A few reports in the literature suggested that the age of onset was most often in childhood or early adolescence [18, 27]. Compulsive hoarding may be a life-long, gradually

developing phenomenon for some individuals, whereas for others, hoarding behavior may develop at an advanced age as a consequence of the loss of a family member or some precious material [40]. There are two main official manuals, namely, the "International Classification of Diseases" (ICD) (circulated by World Health Organization, WHO) and the "Diagnostic and Statistical Manual of Mental Disorders" (DSM) (compiled by the American Psychiatric Association, APA), which are updated from time to time to facilitate the diagnosis [41].

The 11th revision of the International Classification of Diseases (ICD-11) is at the draft stage and is expected to be published by the WHO for prospective implementation from January 2022. At present, Hoarding Disorder is listed under the category of 'Obsessive-compulsive or related disorders' alongside other anxiety disorders in the updated chapter on "Mental, Behavioral and Neurodevelopmental Disorders" in the draft of ICD-11. The category of Obsessive-compulsive or related disorders includes Obsessive-compulsive disorder, Hoarding disorder, Body dysmorphic disorder, Olfactory reference disorder, Hypochondriasis, Body-focused repetitive behavior disorders, and Substance-induced obsessive-compulsive or related disorders [42] .

Concerning the essential features of the diagnostic criteria for Hoarding Disorder, the ICD-11 guidelines closely mirror the DSM-5 approach. Diagnostic criteria highlighted in DSM-5 have been depicted in Figure-3. Persons fulfilling the diagnostic criteria for hoarding disorder are further categorized according to additional features, or "specifiers". One feature is whether the person engages in the excessive acquisition; another feature is the extent to which the person recognizes that hoarding-related beliefs and behaviors are problematic. For example, an individual is diagnosed to be suffering from HD if he exhibits difficulty in discarding possessions accompanied by excessive acquisition of items that are not needed or for which there is no available space. These people typically experience distress if they are unable to acquire items or are prevented from acquiring items. Patients with compulsive hoarding are typically characterized by an inability or reluctance to discard objects, including those that others would perceive as "trash" or "junk". Such individuals who hoard may possess information-processing deficits that result in confusion or misinterpretation about the value of possessions and difficulty in organizing and discarding. Case studies of individuals who began to collect useless objects after brain injury [43] suggested that these information-processing deficits may be related to frontal lobe dysfunction. Indecisiveness is a core feature of compulsive hoarding [44].

Individuals who hoard demonstrate an inability to easily and intuitively distinguish between trash and treasure. They carry a misbelief that an unreasonable quantity of their possessions is valuable, which contributes to their difficulty in determining which ones to keep and which ones to discard [45]. Patients showing core symptoms of hoarding disorder such as difficulty discarding items, clutter, or excessive acquisition may have poor insight (illusion), absent/delusional insight, or good insight. Patients with poor insight appreciate to some extent that they have problematic hoarding behavior. These patients can be convinced of their hoarding disorder by motivational counseling, which in turn would help in successful treatment outcomes. Whereas patients who do not believe that they have some hoarding problem cannot be convinced despite sufficient evidence to the contrary, reflecting a total lack of insight/information processing deficit in the patient.

On the other hand, patients who recognize well that they have problematic hoarding behaviors reflect the good insight and are willing to follow treatment strategies [4]. Since children typically do not control their lifestyle, purchasing, and disposing patterns due to domination by and intervention of parents and elderly members of the family, the diagnosis should be accounted for it. The diagnosis of hoarding disorder is generally made on a careful psychopathological interview with the patient, such as the "Structured Interview for Hoarding Disorder" to establish whether the specified diagnostic criteria are met. An accurate diagnosis of hoarding disorder can be made only after investigating the presence of other neurologic conditions (*e.g.,* traumatic brain injury or brain tumor), mental disorders (*e.g.,* autism spectrum disorder or dementia), and psychotic disorders (schizophrenia or obsessive-compulsive disorder)

that can lead to the excessive accumulation of possessions. While diagnosing a patient, clinicians should easily be able to distinguish hoarding disorder from normal collecting, which is a widespread human phenomenon [24].

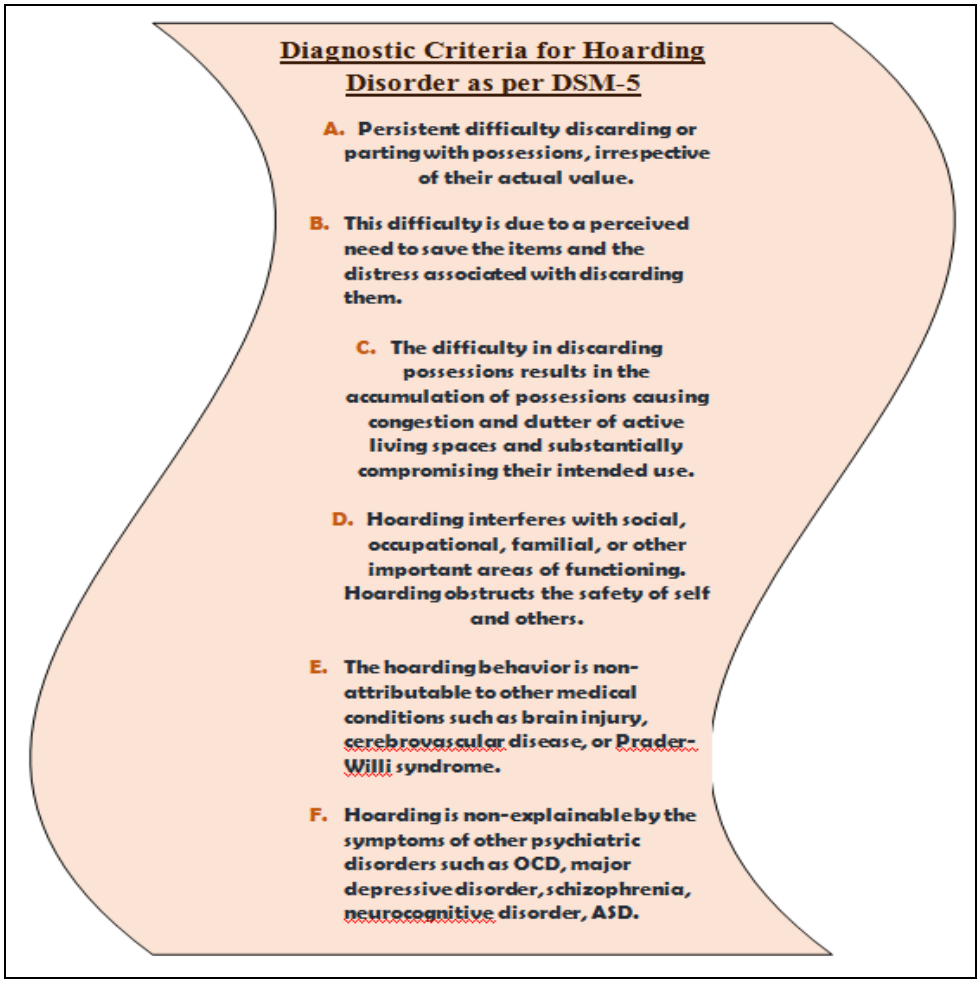

FIG. 3: DIAGNOSTIC CRITERIA FOR HOARDING DISORDER AS PER DSM-5

Symptoms: Compulsive hoarding symptoms represent a discrete clinical disorder. The core symptoms include a craving to preserve, difficulty in discarding, excessive acquisition of useless material, and clutter. The clinical signs such as indecisiveness [44], perfectionism [46], procrastination, distractibility, difficulty organizing tasks [47], attention deficits [48], difficulty in the classification of objects [49] and forgetfulness are thought to play a crucial role in hoarding disorder. Neuro-psychological testing revealed that individuals suffering from hoarding disorder exhibited an inability to concentrate [50-51], delayed response time, high impulsivity, and poor ability to detect target stimuli. It has been suggested that inattentiveness and impulsivity or compulsivity dimensions are the core characteristics of HD [24]. This suggestion originates from the finding that patients with HD often shift attention from one particular item to another disconnected item, with poor decision-making during sorting tasks [37, 52]. Inability to concentrate observed during childhood and not hyperactivity appears to be associated with lifetime hoarding symptoms [53]. HD patients may also show acquisition-related disorders such as compulsive buying, kleptomania, and excessive acquiring of items [54-55]. The ability to classify possessions, an important skill in maintenance also appears to be compromised in hoarding. Patients suffering from hoarding disorder, when asked to categorize personal possessions consumed longer time and created more categories than healthy controls or OCD patients [56].

Co-morbidities: Compulsive hoarding is associated with high psychological and intellectual disabilities. Psychiatric disorders such as major depressive disorder (MDD), social anxiety disorder

(SAD, also known as social phobia), generalized anxiety disorder (GAD), OCD, dementia, eating disorders, autism, mental retardation, psychosis, and attention deficit- hyperactivity disorder (ADHD)are the most common co-morbid conditions associated with hoarding disorder concomitantly [14, 57-58]. Approximately 75% of individuals with hoarding disorder have a co-morbid mood or anxiety disorder, and up to 50% of cases have a major depressive disorder. A few patients diagnosed with OCD meet the diagnostic criteria for HD. These co-morbidities may often compel the patient to visit a physician for treatment. Hoarding symptoms are usually not revealed by the patient suffering from hoarding disorder, while the physician takes the history of the patient for precise diagnosis. These coexisting conditions, rather than the hoarding, are often the main reason for consulting the physician and may contribute to the overall disability of a person suffering from hoarding disorder. Persons with hoarding disorder, particularly older persons, show worse general health and more medical problems than normal individuals.

Pharmacotherapy: Hoarding disorder is considered a fairly resistant disorder to drug treatment, and presently, there are no approved allopathic medicines for its management. Treatment of pathological hoarding disorder within OCD generally involves management with serotonin-reuptake inhibitors (SSRIs). Research suggests that compulsive hoarding is responsible for drug treatment dropout or failure59. Pharmacological interventions with SSRIs generally find favorable results in OCD patients without hoarding symptoms than those with hoarding symptoms [60-62]. Very few clinical studies have been conducted on HD-only populations, although HD prevalence is about twice that of OCD, after the diagnostic / nosographic split. A recent single-blind trial showed that extended-release venlafaxine administered for 12 weeks significantly decreased the severity of hoarding symptoms in patients suffering from HD [63]. Unfortunately, advanced age is inversely proportional to improvement in hoarding symptoms, which becomes worrisome since a large portion of HD-diagnosed patients is elderly. The reduction of hoarding symptoms correlated positively with overall improved global functioning. Methylphenidate showed favorable results in a few SSRI/SNRI-resistant patients suffering from HD, who responded well to the therapy showing significant improvement [64]. Administration of paroxetine to patients with hoarding disorder showed improvements in hoarding symptoms [65]. Another trial involved the use of atomoxetine, a medicine more specifically used for an inattentive subtype of ADHD, which targets attentional and inhibitory control networks. Flexible atomoxetine dosages (40-80 mg) administered for 12 weeks elicited some improvement in a few patients suffering from HD [66]. Since atomoxetine appeared to be effective in diminishing HD symptoms, therefore, controlled clinical trials need to be carried out with atomoxetine as a promising candidate for the management of HD. Several case studies highlight the difficulties involved in managing late-life compulsive hoarding inclusive of delicate handling of elderly patients, co-existent psychiatric illnesses, the importance of caution, and non-adherence to treatment [59].

Non-Drug Treatment:

Cognitive-Behavioral Treatment of Compulsive Hoarding: The best clinically proven way to manage hoarding disorder is with cognitive-behavioral therapy. A specific cognitive-behavioral treatment (CBT) for compulsive hoarding has been developed with promising results [67]. A multi-component cognitive-behavioral therapy including goal-setting, education about hoarding disorder, the importance of organizing, decision-making skills training, motivation enhancing techniques, practice in sorting and discarding objects, and resisting the acquisition of new items need to be offered to the patient suffering from hoarding disorder. Lack of motivation to change hoarding behavior has been identified as a big hurdle in managing the patients suffering from HD. Although most individuals who present for treatment exhibit some recognition that they have a hoarding problem seem to be reluctant to make the necessary changes in their behavior [59, 68]. The therapist should not take a confrontational role. This only increases resistance, and patients suffering from HD may become rebellious since most hoarding individuals have already experienced family members and friends attempting to convince or compel them to discard their possessions. Cognitive Behavioral Therapy

for hoarding disorder motivates the patient in addressing the following issues-i and discouraging Excessive Acquiring, ii. Encouraging Discarding, iii. Improving Sorting/ Organizing Skills and Problem-Solving Ability

i. Discouraging Excessive Acquiring: The majority of individuals with pathological hoarding behavior exhibit some degree of excessive acquiring that contributes to clutter, financial distress, and discomfort [14-15]. For a few patients, acquiring may be the most debilitating symptom that needs to be addressed immediately; for others addressing acquiring may be delayed until later in treatment. Nevertheless, almost all patients with compulsive hoarding need to decrease their acquiring at some point to reduce the clutter at home. The initial strategy for reducing acquiring is avoiding the triggers that stimulate the acquisition of things (stimulus control). The hoarding patient can reduce acquiring initially by avoiding the situations that elicit excessive acquiring behavior. A discipline for acquiring can be implemented by weighing and outweighing the advantages and disadvantages and learning to differentiate between what is needed versus desired. Furthermore, all measures which help in the cognitive restructuring of acquisition-related misbeliefs [67, 69] yield positive outcomes.

ii. Encouraging Discarding: Encouraging discarding forms the main component of hoarding treatment. Many sessions are dedicated to these activities in the therapist's office or the patient's home. Exposure and Response Prevention (ERP) aims to discard as many items as possible, as quickly as possible, while refraining from perfect inspection of these objects [70]. The goals of encouraging discarding in CBT include identifying and challenging maladaptive beliefs about possessions. Thus, the discarding session is viewed as an opportunity for the patient to practice efficient decision-making and arrive at rational beliefs with the assistance of the therapist, rather than enforcing the patient to discard a certain number of items. During discarding exercises, the therapist facilitates adaptive decision-making by asking the patient challenging questions, such as: "Do you actually need this, or you just crave for it?" "Do you already have sufficient space to store this item?" "Preserving this item helps or harms your life?" "Tell me; what is the worst thing that would happen if you discard this material?" "Would your course of life change if you dispose of this?" "Is your identity or social status dependent on storing this item and at stake?" The patient is encouraged to ask these questions to himself through repeated sessions, eventually incorporating them into his decision-making strategies. "If you let go of this and then, later on, find out you needed it, could you get another one?" "Is this valuable and important?" Similarly, patients are taught to use simple rules of thumb for deciding to keep or discard items, for example, "To acquire/keep this, I need to have (a) enough time to deal with it, (b) enough money to afford it, (c) a specific plan to use it, and (d) adequate space for keeping it."

iii. Improving Sorting/ Organizing Skills and Problem-Solving Ability: Preliminary evidence suggests that compulsive hoarding may be associated with poor problem-solving ability and organizational skills, which in turn makes it difficult to reduce clutter. Poor problem-solving ability and weak organizational skills often lead to increased distress. Problems with categorization / classification, (information-processing deficits) play a key role in hoarding disorder, which needs to be adequately addressed during CBT. Patients with hoarding disorder show a tendency to create too many categories during the storage of items and have difficulty in grouping items together [56]. Patients are taught to generate fewer categories / groups and clubbing together similar items during therapy. They are also taught a systematic method of making decisions about what to do with their possessions; whether to keep/discard them, how to discard them, and where to store them, *etc.* [71]

How Hoarding Disorder differs from Obsessive-Compulsive Disorder??: One of the most striking differences between hoarding disorder and OCD is apparently in the quality of symptoms, which are "ego-syntonic" in the case of hoarding patients, whereas, they are traditionally "ego-dystonic" in the case of OCD patients **Table 1**. Most patients suffering from OCD recognize that their obsessions and compulsions are illogical and distressing [72]. Whereas individuals with compulsive hoarding experience no distress, refuse to recognize their hoarding problem, and do not consider their hoarding behavior to be illogical [73]. Overall,

compulsive hoarding is associated with high Axis I (psychological disorders) and Axis II (intellectual disability) co-morbidities, with as many as 92% of hoarding patients being diagnosed with suffering from other psychiatric disorders concomitantly [57-58]. This is not the case with OCD, which occurs as an independent disorder. Furthermore, compulsive hoarders have poorer insight when compared to OCD patients [62, 74]. Neuroimaging studies have revealed that patients suffering from hoarding disorder exhibit different patterns of neural activity as compared to OCD patients [13, 75-76]. Furthermore, HD and OCD display different activation patterns during Go/No-Go task performance. HD patients exhibit hyperactivation of the right precentral gyrus with correct rejects, while OCD patients show hyperactivation of their orbit frontal cortex bilaterally [77-78]. Perhaps the most clinically relevant difference between OCD and compulsive hoarding is in the difference in response to pharmacotherapy **Table 1**.

TABLE 1: HOW HOARDING DISORDER DIFFERS FROM OBSESSIVE-COMPULSIVE DISORDER

Comparison	Obsessive-Compulsive Disorder	Hoarding Disorder
Definition	Obsessive-Compulsive Disorder (OCD) is characterized by absurd, recurrent, intrusive, and troubling thoughts (obsessions) followed by certain stereotyped actions (compulsions)	Hoarding disorder is characterized by persistent difficulty in discarding possessions, excessive acquisition of useless items marked by severely cluttered living spaces, and distress.
Symptoms	Ego-dystonic	Ego-syntonic
Recognition of behavior by the patient	Illogical	Logical
Distress	Arises from obsessions	Arises from clutter and fear of discarding possessions
Neural activity pattern	Bilateral hyperactivation of the orbitofrontal cortex	Hyperactivation of right pre-central gyrus
Feelings	Unpleasant	Pleasant
Compulsive actions	Present	Absent
Living spaces	Not affected	Cluttered and compromised
Insight	Good	Usually poor or absent
Decision-making ability	Intact	Impaired
Problem recognition	Recognize their problem	Refuse to recognize their problem
Co-morbidities	Usually do not exist	Co-morbidities such as psychiatric disorders and intellectual disability coexist
Pharmacotherapy	Medicines particularly SSRIs are effective	No medicines are available for management and SSRIs are not effective

Pharmaco-logical interventions with SSRIs generally are quite effective in reducing OCD symptoms but show a poorer prognosis in patients with hoarding symptoms [59-62]. In the light of the above findings, the authors are of the view that except for the word 'compulsive' hoarding disorder is distinct and not connected to OCD. However, hoarding disorder, beyond doubt presents a personality deformity.

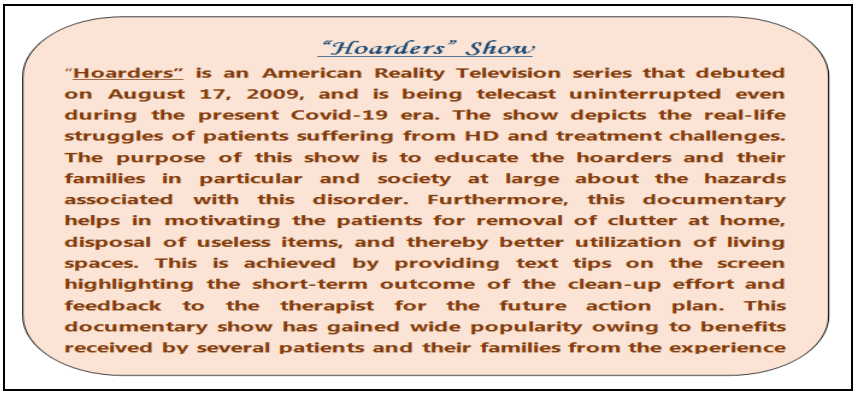

FIG. 4: "HOARDERS" SHOW

Concluding Remarks: Hoarding behavior is a normal phenomenon commonly observed in all corners of the world to prevent future scarcity of resources and challenges for survival. Hoarding is taken as the acquisition of items unnecessarily and the inability to discard them even though they appear useless to others. Hoarding signs typically develop in childhood or early adolescence, which may become a serious disorder in the late phase of life. Hoarding symptom was earlier embedded in the diagnosis of obsessive-compulsive personality disorder (OCPD). However, typical features of OCPD comprise pervasive pre-occupation with orderliness, perfectionism and control that ultimately interferes with the completion of the task. These symptoms indicate that hoarding disorder, which is marked by poor insight, indecisiveness, and clutter, is manifestly a different phenomenon. Compulsive hoarding was considered a symptom of obsessive-compulsive disorder (OCD) within the umbrella of anxiety disorders in the previous edition of DSM [DSM-4].

At present, hoarding disorder has been covered under the chapter of 'Obsessive-Compulsive and Related Disorders' along with obsessive-compulsive disorder, body dysmorphic disorder, trichotillomania (hair-pulling disorder), and excoriation (skin-picking) disorder as per DSM-5. Hoarding disorder (HD) is designated by persistent difficulty in discarding possessions, resulting in an accumulation of belongings, causing severe clutter and the congestion of living areas. This behavior creates significant distress and adversely affects the day-to-day functioning of the individual. HD presents an unnecessary burden on family and society. Hoarding disorder appears to be a chronic and relatively stable problem with a high prevalence of co-existent mental disorders.

The current clinical picture of hoarding disorder is of desolation/self-destruction. Psychopathology of hoarding is a life-long process wherein patients exhibit a waxing and waning phenomenon. Hoarding is characterized by seven key elements, namely, excessive acquiring, difficulty discarding, clutter, distress, indecisiveness, maladaptive beliefs, and disrupted functioning at home as well as at the workplace. The 11th revision of the International Classification of Diseases (ICD-11) is at the draft stage and is expected to be published by the WHO for prospective implementation from January 2022.At present, Hoarding Disorder is listed under the category of 'Obsessive-compulsive or related disorders' alongside other anxiety disorders in the updated chapter on "Mental, Behavioral and Neurodevelopmental Disorders" in the draft of ICD-11. The essential features of the diagnostic criteria for Hoarding Disorder specified in the proposed ICD-11 guidelines closely mirror the DSM-5 approach. Recent lines of evidence suggest that hoarding disorder is therapeutically, neurobiologically, socially, and genetically a mood disorder distinct from anxiety disorders as well as obsessive-compulsive disorder. Even after seven years of official recognition of hoarding disorder as a separate pathological entity (DSM-5), pharmacotherapy of this disorder exhibits a gloomy picture. Since allopathic-medicines are not effective in reversing hoarding symptoms in contrast to an obsessive-compulsive disorder wherein, selective serotonin reuptake inhibitors show favorable results and benzodiazepines work effectively in anxiety disorders.

Therefore, the hoarding phenomenon appears to be different from both OCD and anxiety beyond doubt. Furthermore, cognitive behavioral therapy (CBT) in general dominates the scene, which motivates the patient specifically in addressing the key characteristics of hoarding disorder such as encouraging discarding, discouraging acquisition, and improving sorting skills. On the other hand, anxiety, as well as OCD, cannot be completely managed solely by CBT. Neuroimaging studies have revealed that patients suffering from hoarding disorder exhibit different patterns of neuronal activity as compared to OCD patients.

Another striking difference between hoarding disorder and OCD is that the hoarding patients exhibit "ego-syntonic" behavior, whereas OCD patients exhibit "ego-dystonic" behavior. Individuals with hoarding disorder consider their hoarding behavior to be logical, whereas patients suffering from OCD recognize their behavior to be illogical. OCD is not commonly associated with co-morbidities, unlike HD. Unfortunately, advanced age is inversely correlated with improvement in hoarding symptoms, which becomes more worrisome because elderly individuals represent a sizeable portion of HD-diagnosed patients.

On the other hand, the incidence of OCD and anxiety disorders is more in younger individuals. These findings emphasize that hoarding disorder is unrelated to anxiety and OCD. In the light of the above findings, the authors believe that except for the word 'compulsive', hoarding disorder is distinct and not connected to OCD. An individual's personality is defined as a combination of behavioral patterns, emotions, intelligence quotient, moral quotient, social relationships, and level of confidence, which evolve from physiological well-being, family upbringing, training, motivation and environmental factors. The hoarding disorder may be looked upon as an extension/magnification of the normal collecting (hoarding) phenomenon. The unpleasant experience of material deprivation faced in the early phase of life compels individuals to practice excessive acquisition to meet survival challenges. This behavior takes the form of hoarding disorder at the advanced age of life when the source of income is limited and co-morbidities prevail, rendering the patients helpless and indecisive. It is noteworthy that the improvement of hoarding symptoms correlates positively with upgraded organizational skills, improved global functioning, and the patient's overall personality. This fact substantiates the assumption that hoarding behavior may be better looked upon as a personality deformity.

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