

A New Explanation: Compensation Mechanism in Comorbidity Disorders of Hoarding Disorder

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Abstract. Hoarding Disorder (HD) is a new category of Obsessive-Compulsive Spectrum Disorder (OCSD). Developing research has provided assessment, phenomenological, and cognitive-behavioral evidence for the independent diagnosis of HD from Obsessive-Compulsive Disorder (OCD). Meanwhile, HD was also found to be comorbid with various other mental disorders with significant impairments for its externality. The paper has reviewed several comorbidity research about HD, aiming to generalize the prevalence and duration of comorbidity disorders in HD conditions. In addition, this paper has also tentatively introduced the concept of compensatory mechanism to interpret the reasons for comorbid conditions in HD, especially the acquisition of specific beliefs or emotional attachments where some Personality Disorders could also form. In conclusion, Generalized Anxiety Disorder (GAD) and Major Depressive Disorder (MDD) are most likely comorbid with HD, whereas posttraumatic stress disorder (PTSD) and Obsessive-Compulsive Personality Disorder (OCPD) might be absent after arguing. Impulse Control Disorder (ICD) could supersede a certain stage of HD with the absence of psychological compensation. Attention Deficit Hyperactive Disorder (ADHD) could also be comorbid with HD on a neurological basis, it could however not conclude that the compensation functions and require further investigation. Based on summarizing and assessing comorbidity disorders in HD, the present paper has provided recommendations for future research development and optimization of therapies.

Keywords: Hoarding Disorder; comorbidity; differential feature; compensatory mechanism.

1. Introduction

Hoarding Disorder (HD), a new category of Obsessive-Compulsive Spectrum Disorder (OCSD), is characterized by persistent difficulty discarding or parting with possessions, regardless of their actual value, as a result of a strong perceived need to save the items and distress associated with discarding them [1]. The development of HD has witnessed ever-growing attention for its impairment as it significantly has impeded social or occupational life for the patients [2]. Meanwhile, other comorbidity disorders in HD also enter the view of clinicians, for they are playing decisive roles in later interventions, involving obsessive-compulsive disorder (OCD), Major Depressive Disorder (MDD), Generalized Anxiety Disorder (GAD), Attention Deficit Hyperactive Disorder (ADHD), Personality Disorder (PD), Impulse Control Disorder (ICD) and other Anxiety-related Disorders. Such a comorbid condition could create an excessive degree of depressive mood or amplify the extent of impairment.

Historical arguments have provided confirmatory conclusions for HD about its prevalence, duration, group characteristics, and exclusion basis for certain comorbidities. However, it still lacks evidence for the etiology of comorbidity disorders in HD and their interactive or prerequisite functionings. Wherein, the cognitive perspective has attracted the attention of this paper, and it seems to fill in the gaps in existing research on behavioral and statistical comorbidity investigation and could provide pathological arguments for prevalent comorbidities in HD.

Above all, a modern etiological study has already proven the importance of emotional attachments in the onset of HD, and they could affect specific neurocognitive circuits, resulting in other comorbidity disorders caused by such an impairment [3,4]. Based on that, a self-defensive physiological and psychological process, known as a compensatory mechanism, has accessed the scope of this paper, for which a review has proposed that the compensatory function has played a role

in the emotional attachments in HD patients given their previous impaired inter-personal relationships or emotional failure [5].

Overall, there is a need to explore such an important process, for whether it could also influence comorbid conditions in clinical or non-clinical HD. Bygone literature has provided credible conclusions for the comorbidity rate and phenomenological manifestation in HD, whereas connecting psychological compensation and existing comorbid results or differential features of comorbidity disorders of HD for the first time has become the highlights of this paper.

2. The General Overview of HD

As shown in Table 1, DSM-V has specifically proposed the diagnostic criteria for HD, which is mainly characterized by excessive acquisition (phase of onset), clutter (phase of continuity), and difficulty discarding (phase of impairment) [1]. Besides, the individual insight toward compulsive hoarding plays a crucial role in clinical diagnosis. Patients with good insight might report more symptoms compared with those who have cognitively failed. Additional environmental assessment (e. g. observation of living space, or other family members' complaints) should be given to the latter to define whether they have met the full criteria of HD [2].

HD was found to be a significantly impaired mental illness due to its externalizing. Many HD patients are living in an unsanitary condition which contributes to the risk of infections, broken social or family relationships, and/or extreme psychiatric impact. In addition, it has been found that HD could create life-long suffering in the majority of patients, with a lifetime prevalence of 1.7% of the population and a collective rate of 2.5% of the middle-aged population [6]. Adolescents were observed to be the most vulnerable group to have an onset of HD, which is expected to be 2% [7]. The hoarding tendencies would exacerbate with greater numbers of symptoms while the youngsters are becoming older. Another study also showed that women could behave as more significantly impaired in the duration of their later years, whereas men could report higher severity when they have acquired the initial onset of HD [8]. This could be interpreted as women with HD are more active to participate in treatments, rather than demonstrating the gender difference as an influential factor in the prevalence of HD. Mixed reports on gender differences are situated in the understanding of HD, thus further investigation is required to provide more evidence. Familial hoarding tendencies were also found to significantly correlate with symptoms manifested in the younger generation. However, it does not mean genetics account for the entire phenomenon, as the cognitive schema accumulated in the teenagers' growths should also play roles in later HD tendencies [3].

Table 1: The DSM-V diagnostic criteria for HD.

Diagnostic Criteria	300.3 (F42)
A. Persistent difficulty discarding or parting with possessions, regardless of their actual value.	
B. This difficulty is due to a perceived need to save the items and to distress associated with discarding them.	
C. The difficulty of discarding possessions results in the accumulation of possessions that congest and clutter active living areas and substantially compromise their intended use. If living areas are uncluttered, it is only because of the interventions of third parties (e.g., family members, cleaners, authorities).	
D. The hoarding causes clinically significant distress or impairment in social, occupational, or other important areas of functioning (including maintaining a safe environment for self and others).	
E. The hoarding is not attributable to another medical condition (e.g., brain injury, cerebrovascular disease, Prader-Willi syndrome).	
F. The hoarding is not better explained by the symptoms of another mental disorder (e.g., obsessions in obsessive-compulsive disorder, decreased energy in major depressive disorder, delusions in schizophrenia or another psychotic disorder, cognitive deficits in major neurocognitive disorder, and restricted interests in autism spectrum disorder).	

In terms of cognition, various beliefs (e.g., the reliance on the availability of objects or materialism) and specific emotional attachments were reported by the majority of HD patients [3]. The attachments could involve particular cognitive-behavioral processes, such as the personification of objects, contributing to the strangeness of collected items. This cognitive pattern could be exaggerated by animal hoarders, manifesting as excessive attachments towards animals, extreme mess produced by animals, and an overwhelmingly anxious emotional state after losing these animals [9].

And above all, since HD was proposed to be an independent category of OCD by the aforementioned epidemiological and psychopathological evidence, it has gained more clinical attention for its diagnostic process and subsequent intervention. Traditional medicine such as antidepressants should decide whether to be given after evaluating the living condition of patients, as the risk of other infections or physical diseases should be taken into consideration. CBT and its variation, like family-based therapy, could effectively prohibit the prevalence of HD in the younger generation in the family, while other methods such as community-based CBT are still waiting for more evidence [10]. Besides, comorbidity disorders could also contribute to the complexity of the diagnosis of HD as well as the differential diagnosis. This paper has illustrated some possible comorbidity disorders in HD etiologically and psychosocially, which are shown below.

3. Comorbidity Disorders

Although HD has been recognized as an independent diagnosis, it could normally meet the criteria of other mental illnesses in clinical conditions. In general, the particular duration of HD is accompanied by considerable anxiety or depression, which could fulfill the diagnostic feature of 'clinically significant impairment'. Reviewing the arguments in comorbidity research, therefore, seems to make the impairment clear identification.

3.1. Major Depressive Disorder(MDD)

MDD has been proven to be the most pervasive comorbidity disorder in HD. From a larger baseline of research, the comorbidity rate was found to be 69% [11].

Both clinical and non-clinical samples who had HD with MDD were tested [12, 13]. Representatively, the non-clinical groups were recruited by public media, claiming that people with great clutter, excessive acquisition, and difficulty discarding are wanted, and they were mixed with a certain number of recommended patients by psychiatric centers. Moreover, the mixed condition proved the former conclusion, where over 50% of participants were comorbid with MDD [12]. However, the source participants in another report were clinical anxiety treatment seekers. Nonetheless, around 19% of them had revealed the symptoms of MDD, which was positively correlated with the impairment of hoarding behaviors [13]. Notably, the latter had not completely excluded the hoarding symptoms as the symptoms of obsessive-compulsive disorder (OCD) despite a realization in that research and a declaration that HD should be considered as an independent identity. Another limitation of both studies is the samples were predominantly based on developed areas and mainly characterized by white people, posing a further consideration that more representative comorbidity literature (e.g., focused on mixed, significantly different ethnic groups, or characterized by underdeveloped populations) should be established.

Determining the etiology of mental disorders could be the navigation of later interventions, especially in a talking or cognition-based therapy, such as CBT. Accordingly, subjective complaints of patients could be crucial evidence to retrospect the onset and duration of HD as well as MDD. Distressful moods were reported to dominate later saving or forsaking behaviors, and it could contribute to subjective complaints about memory and attention impairments as well as worsening depression, despite the absence of objective performance of memory was also proved [4]. There was also an argument that depression has played a cognitively dysfunctional role in the comorbidity condition with HD, and partially accounts for the onset of HD [14].

Based on these points, this paper would suggest an ‘interactive effect’, in which either MDD or HD could function earlier and cause another subsequent comorbidity. Elaborately, extreme depressive affection could be triggered by strong anxious feelings of difficulty discarding, or impaired relationships caused by clutter. Similarly, the pre-existing MDD could also induce the compensatory mechanism, which has dedicated partial dysphoria resulting from damaged personal relationships to specific emotional attachments to objects and later removes the emotional distress by excessive hoarding [5]. In this case, positive reinforcement and empirical information exchange through learned behavior could also lead to the development of preoccupations with HD. Therefore, the assessment focused on the order of the comorbidity between HD and MDD should be carried out through systematic interviews of HD duration as well as the history of depression in clinical situations, which could be beneficial to initiating a clinical intervention.

3.2. Generalized Anxiety Disorder (GAD)

Studies have shown the comorbidity rate of HD and Anxiety-related Disorders could fluctuate between 12% and 25% [13]. Other research baselines also indicated that 18% of patients could experience HD comorbid with GAD [11].

Similar to depressive duration, GAD is widely reported in the discarding phase, which could attribute to the actual fear or potential risks of losing hoarded collections, impaired social or family relationships, and potential apprehension of socialization. Some symptoms of HD patients could also be observed as social avoidance like the emergence of Social Anxiety Disorder or Specific Phobias (e.g., Agoraphobia) [13, 15]. Predominant anxiety could otherwise lead to introvert characteristics, resulting in hoarding tendencies, which could also interpret the high prevalence of HD comorbid with GAD. In the same way, psychological compensation could also function as a shifted preoccupation from an anxious action (i.e., insecurity of association or frustrated socialization) to self-directed hoarding behavior [5].

As for clinicians, anxiety checking is another nonnegligible evaluation for HD about whether it plays a role in inducing an HD or is acquisitive by HD impairments. Additionally, anxiety is substantially regarded with OCD reported by patients [13]. Thereby reviewing the hoarding symptoms of patients seems to be necessary and differentiating them from normal collection or compulsions of OCD if they are indeed present.

3.3. Attention Deficit Hyperactive Disorder (ADHD)

ADHD is a category of neurodevelopmental disorders, which is characterized by impairing levels of inattention, disorganization, and/or hyperactivity-impulsivity [1]. The diagnostic features of ADHD could be neurological inabilities, which are measured by a series of neurocognitive tests. Additionally, both subjective and objective cognitive impairments of inattention were proved to be sufferings of HD patients, where the need to consider ADHD as a comorbidity disorder in HD arise [4, 14]. From an epidemiological perspective, it is expected that children and adolescents (aged between 10 and 20 years) have the highest incidence of HD, which is most likely to overlap with ADHD during this period [8]. Meanwhile, as both ADHD and HD are externalizing disorders, symptoms of hyperactivity might be overwhelmed by the excessive collection of objects. Besides, the lifetime could witness the ever-growing severity of both ADHD and HD, for the subjective inattention resulting from HD symptoms could, in turn, increase the hoarding behaviors, and the objective failure of attentiveness would develop since childhood [4]. Furthermore, as ADHD is also externalizing and cognitive-behaviorally affected, patients would be more likely to subjectively compensate, manifesting as over-actions of self-correct, even such behaviors could be compulsive. However, there is still a need for further investigation to confirm the hypothesis and tentatively connect compensation and compulsive hoarding.

Overall, ADHD is positively correlated with the comorbidity of HD. Specifically, Attention Deficit Disorder (ADD), as the subtype of ADHD seems to be more appropriate for HD patients who demonstrate inattention, while hyperactivity is a much more general diagnostic feature than

preoccupations with hoarding particular objects [12]. Both further psychopathological research of ADHD comorbid with HD and clinical attention would serve to equip psychiatrists with a more integral understanding.

3.4. Impulse Control Disorder(ICD): Addictive Buying and Kleptomania

The concepts of impulsions and obsession are similar, with both cognitive urgency and behavioral dysfunction. Addictive Buying and Kleptomania have been proven to replace symptoms of HD in their specific duration, namely, the acquisition of objects [12]. This means the relationship between HD and ICD does not fulfill the premise of comorbidity disorders—co-occurrence. In this case, the diagnosis of ICD should be given, instead of the HD. Although later conditions could be met with golden standards of HD, which is characterized by filling with cumulated commodities, freebies, or booties. At this point, it would serve as a clinical diagnosis of HD, although ICD behavior may recur.

Different from specific emotional attachments in the normal acquisition phase in HD, compulsive buying or stealing duration in ICD seems to be like a traditional OCD, where the compulsions or impulsions could be uncontrolled. However etiologically, compulsions in OCD are driven by reduced anxiety in obsessions, compared with impulsions aiming for initial satisfaction.

Having said that, ICD could gain more impairment when it has taken the place of normal means of collection and does not alleviate later clutter or anxiety manifesting in HD duration. Meanwhile, ICD could not be seen as a kind of compensatory protection from depression or anxiety. Consequently, an effective treatment (e.g., systematical desensitization) should be conducted to deal with hazardous ICD hoarding tendencies.

3.5. Personality Traits

It should be notable that personality traits do not mean the diagnosis of personality disorders, despite HD as a 15% factor of specific personality disorders (Schizoid, Compulsive, Negativistic, Masochistic, and Borderline) [11]. It has also shown that depressive, avoidant, dependent as well as schizoid personality domains served commonality with HD. This finding has made sense with the foundation of another comorbidity research. All these four characteristics are accompanied by externalizing social withdrawal as well as emotional defects that are either flattened affectivity, or disordered deficiency of self-esteem or self-confidence. The depressive personality traits could be interpreted by the duration of MDD comorbid with HD, whereas avoidant or dependent personalities are manifested as GAD or Specific Phobia or explained by subjectively complained demotivation as well as hard decision-making [14]. The specific emotional attachment could also function to some extent, as a means of self-protection from loneliness in HD patients with depressive, avoidant, or dependent personality traits, given their subjective willingness to socialize [1]. A schizoid personality trait, categorized as a different cluster of personality domains from the above three, could be explained by shifted beliefs (e.g., personification) or affectivity from desirable social objects to inanimate objects [3]. In this situation, the hoarders' emotional attachments could be distorted and reveal obsessions toward bizarre items [16].

4. Differential Diagnosis

Among forepassed field reports of HD, it has been found that the difference between the baseline of certain mental disorders and HD has produced confusion, regarding whether they could be made a comorbidity diagnosis, especially PTSD. By reviewing past literature, some contradictions or fallible points for clinicians seem to conclude.

4.1. Obsessive-Compulsive Disorder (OCD)

HD has ever been considered a subtype of OCD, for some observations indicate that typical characteristics of OCD emerged in patients who demonstrated HD tendencies [17]. From the cognitive perspective, the preoccupation with object acquisition was once believed to be equivalent

to a certain type of obsession with a particular ritual. Nevertheless, ever-growing phenomenological evidence has been proposed for the breakaway recognition of HD, in terms of clutter, excessive acquisition, and difficulty discarding, with specific interview-style questions for the degree of impairments [18]. In current clinical conditions, HD was categorized independently by interviewing patients about their hoarding history as well as consulting their co-residents, neighbors, or themselves, whose HD symptoms used to be diagnosed as OCD semblance [18].

Furthermore, pathological supports have also been provided by DSM-V contributors, including the absence of intrusive thoughts, anxious patterns, and subsequently nearly replicated responding behaviors [15]. The chronically formed emotional attachments would be functioned, rather than the sudden onset of obsessions. Again, the phenomenological reports that involve subjective selections, personal justification like the personification of objects, or difficulties in getting rid of particular objects could also prove the fundamental distinction between OCD and HD, a growing cognitive pattern. As young sufferers of HD increase their longevities, it is highly probable to witness the attachments to objects could develop into uncontrollable reliance, that is the preoccupation with objects, despite some reasonable interpretations like individual beliefs. Preoccupations in HD are however different from the obsessions of OCD with excessively passive anxiety, whereas they are rather a positive and active emotional pursuit. Therefore, the diagnosis of HD should only be given when the most anxious phase, the externalizing discarding or clutter disrupts the normal functioning of patients.

When it comes to comorbid OCD in HD, it has been shown that its rate was lower than other anxiety-oriented disorders [12]. Nonetheless, there could still be precise OCD symptoms in HD patients, such as repetitive washing or checking driven by preemptive fear of impurity or unsafety. Once both motivated hoarding and unmotivated compulsion are reported, the comorbidity diagnosis of OCD and HD should be taken into consideration. Meanwhile, different degrees of insight, subjectivity, and willingness also deserve further attention to give a differentiation diagnosis clinically.

Besides, it still lacked the evidence that supports the psychological compensatory process that could affect the onset of OCD. However, the weirdness of collected items would be manifested by the hoarding specialization of personal rationalization when HD patients have comorbid OCD [16]. In this case, the anxiety caused by the compulsively cognitive-behavioral process might convert to specific dependence on objects through compensatory strategy, despite the lack of conclusive evidence.

Based on the arguments talked above, the current proof stands up for a distinctive conceptualization of OCD and HD, although they could have rare comorbidity rates. To consider the different cognitive-behavioral processes as well as the medication resistance, this paper would suggest consulting the beginning for either OCD or HD with checking whether compensation plays the decisive role in orders of acquisition, where the primordial preoccupations could be the key to later CBT.

4.2. Posttraumatic Stress Disorder(PTSD)

Existing evidence has shown that contradicted reports in HD comorbid with PTSD, despite both of them could have a common foundation that is early experienced or present trauma.

Traumatic events were found to significantly correlate with the acquisition of HD [19]. Wherein the number of experienced stressful events contributed to the severity of HD symptoms in HD patients with or without OCD. Specifically, more than half of the participants with HD in the study above recognized the relationship between either particular traumatic events or durable risky environments and their later acquisition of HD [19]. Both stressors played a role in the development of specific attachments to objects as a shifted emotional security from turbulent growth to dependable hoarding patterns. Additionally, the epidemiological information also indicated that the initial onset of hoarding symptoms appeared in the adolescent period or early adulthood, which could be predicted by the phenomenon of earlier traumatic life or ongoing traumas.

Nevertheless, traumatic events do not become potential stressors that result in PTSD. Individuals would report anxiety or depression related to ongoing stress or distressful events in their childhood and be sensible to neutral stimuli in their life. Instead, hoarding tendencies have replaced the manifestation of stress response and make it not a diagnosis of PTSD. Under the circumstances, a positive compensatory mechanism could protect patients from early suffering, where an emotional attachment removed a certain level of experienced stress, despite such a protective behavior could be compulsive later.

As for some particular beliefs, such as obsessive materialism, they have been hypothesized to be induced by material deprivation. It was however rejected by a non-significant difference in deprived economy-induced HD symptoms between hoarders and non-hoarder [19]. In other words, the notion of possession could be cultivated by more complex learning, rather than direct compensation. Relatively, the impaired interpersonal relationship or emotional insecurity caused by undesirable traumatic experiences (e.g., bereavement, injury, or other general disasters) could activate psychological compensation to generate a sense of safety and develop specific beliefs through social learning or empirical experience acquisition [3].

Considering the function of the compensatory mechanism and the degree of traumatic events reported, the comorbidity diagnosis of PTSD in HD patients could be absent, which was also proved by a more representative sample used in another study [12]. Yet there was a report indicating that HD patients could have a rate of 28% comorbid with PTSD from a larger research baseline, but it lacked detailed information or an argumentative statement for the psychopathology of such a comorbid condition [11].

4.3. Obsessive-Compulsive Personality Disorder (OCPD)

HD was proven to be related to typical obsessive characteristics, involving perfectionism, indecision, and procrastination [3]. However, the arguments above have rejected the assumption that HD reflects a subtype of OCD. Nonetheless, both the OCD traits as well as the hoarding behaviors seem to be accounted for by OCPD, and current OCPD diagnostic criteria have still mentioned the presence of hoarding [1]. This leaves us a further consideration for potentially comorbid OCPD in HD, but studies before DSM-V have raised objections [15]. Above all, the emotional attachment to specific objects is a certain factor for the onset of HD, it is however unsupported by OCPD criteria, mentioned as discarding worn-out or worthless objects [1]. Although among field reports the clutter of HD could be related to the accumulation of useless objects, the particular beliefs that hoarded things are available or economical have stuck to HD patients [3]. This means that OCPD does not fulfill HD criteria etiologically, but phenomenologically.

In addition, the onset of HD seems to predict the acquisition of OCPD. The concept of obsessive-compulsive characteristics could be developed when hoarding is becoming compulsive. It has been proven that the frequency of the onset of OCPD could be raised by the acquisition of HD, and remain higher rate than any other personality disorder [12, 15]. However, there is still no evidence claiming the pathology of the subsequent OCPD in HD patients.

5. Discussion

It could be seen in clinical diagnostic criteria that HD has been independent of OCD, which should give credit to reliable assessment tools of HD and phenomenological evidence resulting from demographic data [1, 18]. In detail, the cognitive-behavioral process of HD has witnessed a shift from repetitive, addictive, and dysfunctional patterns of hoarding behavior to developing beliefs of emotional attachments, aiming to have a clearer explanation of the hoarding tendencies or clinical hoarders and the risk of observed or potential comorbidity disorders, given the emotional or irrational bonding with specific objects and related dyscontrol.

As above, clinical reports have already proven various symptoms of depressive mood in HD, especially the emotional state caused by the separation of hoarded objects. Meanwhile,

epidemiological data and surveyed participants in particular populations have also indicated the liability to MDD or anxiety disorder in HD patients [11-13]. However, the statistical evidence has merely interpreted that Anxiety-related Disorders could be comorbid with HD simultaneously, without the claim of a sequence of occurrence. To figure this out, this paper suggests that the concept of the compensatory mechanism could be tentatively introduced into comorbidity disorders evaluations, which seems to help explain an 'inductive effect' of mental disorders from the basis of a recent review that claimed frustrated relationships could especially result in emotional reliance on objects [5]. Nonetheless, the process of compensation still lacks validity for its unmeasurability. To testify, there should be rigorous investigations into personal impairment in interpersonal relationships, ongoing interviews about the depressive duration, designated scales for distorted emotion with an acquired belief of attachment to objects, and most importantly, some potential signs for the remission of depression as a self-protective process deserve further studies.

Besides, phenomenological research has demonstrated the possibility of the presence of ADHD and ICD in HD patients. But the existing literature has not provided abundant evidence to support the function of the compensatory mechanism. Known proof leaves the need to explore further investigation into the generation of emotional attachments in those with either ADHD or HD or ICD and HD. Something that seems to explain the phenomenon could be unsatisfied dignity needs or relationship development. The destructed self-esteem acquisition could be compensated by a need for stable, durable, and obsessive dependence on hoarding objects and then deteriorate the duration of ICD or ADHD.

PTSD and Personality Disorders in the comorbid condition with HD could be more complicated, as the mixed reports account for different comorbid rates. A solid conclusion comes from different research is that the correlation between experienced or ongoing traumatic events and hoarding tendencies [12, 19]. It could be explained by seeking a more stable emotional attachment from dead people, terrified injury, separation, or other general traumatic events. Meanwhile, the findings investigated could support the hypothesis of the weakening effect given the fundament of the compensatory mechanism, making the diagnosis not fulfill the criteria of PTSD. While one study has reported the second-highest comorbid rate of HD with PTSD, the original data and the source of its citation could not be seen [11]. In other words, the conclusion that the tendency of comorbid PTSD in HD patients is doubtful. Personality failure could contribute to the dysfunction of hoarding behaviors. OCPD has hoarding as part of its diagnostic criteria, but it does not have the same assessment and cognitive-behavioral pattern as HD, which means there is no causation or correlation. Notably, however, some other Personality Disorders could still be present in HD patients, for undesirable personality traits could be developed in deprived childhood backgrounds and be raised with failed or insufficient care for affection, which might lead to distorted relationships and deformed socialization, which is followed by an increased risk of emotional attachments to objects and a disabled cognitive-behavioral pattern.

Overall, the comorbidity investigation could significantly contribute to the clinical diagnosis of comorbid HD conditions or the differentiation from some mental illnesses, regarding their pathology and etiology, for further medical care or specific treatment of complex and significant-impaired individual life. Unlike typical anti-depressants (e.g., SSRIs) used in OCD conditions, drugs are less effective in HD patients and face higher risks [10, 17]. Instead, designated CBT seems to be more targeted to deal with the acquisition of emotional attachments to objects. To a further extent, understanding and suspending the compensatory process seems to deserve more clinical attention. Additionally, and especially, CBT could help trace the source of the original mental illness and control or reform the etiology of destructive hoarding behaviors. To sum up, this paper has tried to provide a new explanation for clinical guidance of HD, waiting for more investigation to justify the validity of the introduction of the compensatory mechanism and tentatively put it into practice.

6. Conclusion

This paper has summarized the epidemiological, psychopathological, and phenomenological evidence of the tendencies, behaviors, cognitive schematism, prevalence, onset, duration, diagnosis, and treatment or intervention of HD, proving some comorbid conditions in HD and proposing potentially possible explanations.

Overall, HD is characterized by three stages, the stage of acquisition of objects, the stage of disordered hoarding, and the stage of difficulty discarding. HD symptoms could be observed among teenagers between 10 and 20, manifesting as one of the stages of HD, or several. The symptoms could deteriorate with the process of aging and witness the longest duration among all OCSD. The prevalence of HD could vary in different populations, which requires more targeted research to justify a certain population.

Psychosocially, emotional attachments to specific objects contribute significantly to the acquisition of HD, which could be caused by childhood traumatic experiences or ongoing stressful events, or the formation of Schizoid, Compulsive, Negativistic, Masochistic, or borderline personality disorder by early adulthood. However, the traumatic events could not affect individuals drastically to meet the criteria of PTSD. To rationalize and connect the findings of cognitive traits and their comorbid rate of HD, the psychological compensatory mechanism seems to match the phenomenon, especially induced by impaired relationships.

MDD and GAD could have significant comorbid rates with HD, posing extra clinical attention. Similarly, the mechanism of compensation could still function to some extent. Additionally, OCD is proven to be pathologically different, with different obsessive patterns and related compulsion tendencies. ICD could replace the object acquisition stage of HD and accompany subsequent HD symptoms, which need the help of special intervention. ADHD could also be comorbid with HD for some neurological impairments or compensated behavioral dysfunction but requires further investigation.

Last but not least, traditional medical treatment for OCD seems to be inappropriate in HD, but CBT could be more effective and targeted. There is a need to conduct more studies to individualize clinical diagnosis of HD with comorbidity disorders to prove the effect of the compensatory mechanism. To retrospect the origin of HD or comorbid mental illnesses with inverse compensation could be beneficial to clinical diagnosis and treatment.

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