A General Review of Hoarding Disorder and Its Comorbidities

Leyan Chen[1, †], Shuwei Shi[2, *, †], Mingyue Zhang[3, †], Yilin Zhao[4, †]

[1] *101 High School, Beijing, China*
[2] *China-UK College, Shenzhen City, Guangdong Province, China*
[3] *University of Glasgow, Scotland, UK*
[4] *Jiangxi Normal University, Nanchang City, Jiangxi Province, China*
**Corresponding author. Email: guanghua.ren@gecacdemy.cn*

† These authors contributed equally

ABSTRACT

Hoarding behavior is named as pathological collecting, which involves saving of many useless objects that seem to be worthless to others. Obsessive compulsive disorder, depression and anxiety disorders are psychiatric disorders that are considered as frequent comorbid conditions for hoarding disorders. A general review which explained and analyzed the comorbidities of hoarding disorder was conducted. This paper also included pharmacologic treatment and psychotherapy for hoarding disorder and how comorbidity impacts the treatment. This review focused on research into comorbidity and hoarding disorder published between 1980 and 2021 based on Google Scholar. The results suggested that obsessive compulsive disorder and depression are the two leading comorbidities of hoarding disorder. Evidence has also confirmed the positive effects posed by cognitive behavioral therapy as well as emphasized the negative effects caused by comorbidity on the treatment outcomes. However, further studies into hoarding disorder are required and highly promoted.

Keywords: *Hoarding Disorder, Comorbidity, Obsessive Compulsive Disorder (OCD), Depression, CBT*

1. INTRODUCTION

Hoarding disorder (HD) gained more and more research attention due to the high exposure of media coverage and news about cases studies focusing on detrimental circumstance caused by hoarding [1, 2]. It was not until 2013 that hoarding disorder was first defined as an independent mental illness according to Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) [3]. HD is characterized by persistent difficulty discarding or parting with possessions, paying no attention to the value others may attribute to these possessions, and most people with HD symptoms excessively collect or acquire items that they do not need or for which no space is available [4]. A study has summarized that the prevalence rates range from 2.3% in the UK to 3.7% (5.3% weighted) in the US and 4.6% in Germany [5]. Threats posed by HD to individuals and the society are so worrying and troublesome that more and more research is highly required to promote the development of findings and treatment for HD. This obsessive behavior contributes to obstructed living spaces, anguish, impairment and bring troubles for both sufferer [6, 7] and their family members and friends [8] as the resulting cluttered home environment can lead to health code violations, eviction, family strain, financial burden to the community, and even death due to house fire [6].

Although many people currently still considered HD as a subtype of obsessive-compulsive disorder (OCD), a growing body of empirical work suggested that HD has achieved recognition as a clinical syndrome in its own right [3, 9, 10, 11], and HD has been reported to have increased risks in developing Axis I disorders including schizophrenia, social phobia, organic mental disorders, eating disorders, depression, and dementia [12]. Besides, a large proportion of patients with HD experience no other OCD symptoms [13, 14] illustrated that HD has not been closely linked to OCD and there was a similar high relevance between depression to HD and OCD to HD. It is also illustrated by many researches that hoarding was strongly associated with psychiatric comorbidity [8, 10,

15, 16]. Although several studies have analyzed rates of comorbidities in psychiatric disorders with hoarding symptoms, research into the prevalence, causes and functional impact of co-occurring psychological disorders in HD is limited, and reported rates of psychiatric comorbidities in individuals with hoarding who meet or does not meet criteria for OCD vary widely [15]. Thus, in order to better understand, delineate and set up more targeted and effective treatment for HD, hopefully as well as treatment for other comorbid disorders with HD, it is important and necessary to quantify and summarize the risk and differences data found in various studies related to such comorbidity.

2. METHODOLOGY

This paper reviewed research published between 1980 and 2021, and one electronic database Google scholar was used. The key terms include: "boarding disorders OR boarding OR OCD OR depression OR personality disorder OR anxiety OR mental disease" and "comorbidity OR treatment". The language was limited to English. This paper focused on collecting and comparing statistical data (e.g., comorbidity rate, incidence rate), symptoms and behaviors of HD and its comorbidities. Information of the treatment for HD was included as well. Therefore, this paper is considered to be written in a thorough and detailed way.

3. RESULT AND DISCUSSIONS

3.1. Hoarding Disorder and OCD

Obsessive compulsive disorder is distinguished by the occurrence of either obsessions (intrusive thoughts or images which increase anxiety), compulsive rituals (repetitive actions which lower anxiety and prevent feared consequences) or, most commonly, both obsessions and compulsions [17, 18, 19]. Although HD and OCD have different diagnostic criteria and are defined as separated conditions, they however can and do sometimes co-occur. Some non-primary HD behaviors represented by OCD populations can be found in terms of bona fide OCD. It is rare (around 5% of people suffering from OCD) but possible to share alike form of OCD symptoms. Apart from this, many research provide evidence for relatively high frequency of OCD in patients with HD, for instance, research conducted by Pertusa et al [11] revealed that 48% HD sufferers met criteria for OCD, while in 2007, another study carried out by Grisham and associates [20] represented a more significant number of individuals who had severe HD problems as well as reported obsession or compulsion symptoms as high as 56.7%. Further, some studies suggested that approximately 15% to 40% of OCD patients suffer from hoarding problems and saving compulsions [21, 22, 23].

On the other hand, research into comorbidity can be deeply affected by many external factors. There are many known causes of OCD and HD differentiation. First of all, results are likely to vary within a wide range due to different recruitment methodologies. To be more specific, individuals recruited directly from community showed relatively less comorbidity compared with hoarding sample populations recruited from clinic [19]. One possible explanation is that HD patients recruited from community through newspapers and advertisements are usually lacking in awareness of seeking for treatment. Therefore, it is almost impossible to find these people in medical clinic and offer them diagnosis and treatment. To better understand the distinction between a variety of studies, two examples of lower proportion of HD patients who met criteria for OCD can be observed. In one study, zero percent of HD patients were reported to have problems related to OCD [24]. Another large sample-based study (217 HD patients) found that less than 20% patients showed symptoms of OCD [10]. The gender difference also causes an alternation in counting frequency of OCD in HD. According to the study mentioned above, 28% of male HD participants met criteria for OCD, while only 18% of female HD patients had OCD related problems [10], and this is only one example which represents the connection between gender difference and comorbidity. Moreover, whether gender plays a role in HD and comorbid OCD merits attention in future research.

3.2. Hoarding Disorder and Depression

Depression is a mood disorder which causes a persistent feeling of sadness and loss of interest [25]. It is generally known as major depressive disorder (MDD) or clinical depression, and it can lead to various emotional and physical problems such as appetite and sleep disturbances. It is proposed that people who suffer from depressive disorders may have trouble doing normal day-to-day activities. This problem caused by depressive disorders can also be found in HD sufferers, which inspired people to search for the relationship between HD and depressive disorders. Further, it is suggested by Coles et al. [26] that the relationship between hoarding behaviors and depressive symptom can be easily understand via the high levels of disturbance and suffering associated with hoarding. Referring to two different twin studies, both compulsive hoarding and major depressive disorder-recurrent unipolar (MDD-RU) were considered to be inheritable [27, 28]. Also, regarding to the distress and physical harm associated with hoarding, it is reasonable and possible to find similar symptoms between depressive disorders and HD [19]. Therefore, it is worth and valuable to conduct more research into HD and comorbid MDD.

Recent studies suggested that a higher comorbidity rate can be observed in MDD compared with OCD [10,

19, 20]. It is noteworthy that MDD was marked as the most frequent comorbid condition among individuals with HD (>50%) [10]. This conclusion can be supported by another study conducted by Samuels et al. [30], 68% hoarders met criteria for MDD symptoms which is greater than all other Axis I disorder included in that study. But such prevalence in comorbidity cannot last forever. Through the investigation done by Tolin and colleagues [31], 51.2% of HD patients were reported to meet criteria for depressive disorder.

There are also some studies which stand for low rate of comorbidity of HD and depressive disorder. It is suggested that only a moderate correlation can be found between hoarding and depression [14, 26, 32]. Besides, the possibility of suffering from MDD among hoarders and non-hoarders may not be as distinct as we thought. Take Wheaton et al. [32] as an example, the people with obsessive compulsive disorder who have hoarding disorder or not have no significant difference in have other comorbid psychiatric disorder.

3.3. Hoarding disorder and Anxiety Disorder

Anxiety disorders are a cluster of mental disorders characterized by persistent and uncontrollable worry, feelings of anxiety and fear [3]. It is likely to pose huge threats to individuals' social, occupational, and personal function [3]. Generalized anxiety disorder (GAD) is a well-known subtype of anxiety disorders. Many studies have linked HD to a relatively high rate of GAD, in between 30% to 45% [20, 30, 33, 34]. A study evaluated OCD patients showed that 42% of participants with hoarding symptoms also met criteria for GAD, and the percentage was 10% higher than OCD participants without hoarding symptoms [30]. In a similar study, some other types of anxiety disorders were also involved. It is reported that 45% of people with hoarding suffered from comorbid social phobia, a mental health condition that causes someone to feel marked and persistent fear and anxiety in performance or all social situations [35], as well as 38% for specific phobia, which involves unreasonable or irrational fear related to a specific object or situation, and nearly one fifth percent for separation anxiety disorder, a disorder which is often found in children (sometimes adults) who experience excessive anxiety due to separation from home or from people to whom the individual has a strong emotional attachment [36].

But several studies reveal a comparatively low rate of comorbidity with HD. In one study, only 3.8% of individuals with HD symptoms satisfied the criteria for GAD. In another research, GAD is even described as unrelated to hoarding [37].

Some studies suggest that there are many comorbidities of hoarding disorder, such as generalized anxiety disorder, social phobia and so on. But in other studies，the connection between hoarding disorder and other mental disorder is not obvious. The contradiction may come from the differences of characteristics of the subjects. For example, people who have hoarding disorder and are willing to talk to something about their hoarding are less likely to suffer from social anxiety.

3.4. Treatment Challenges for Treating HD

Despite significant advances in hoarding treatment formulation, it is still a challenging topic for researchers due to the distress and functional impairment associated with hoarding symptoms [19, 33, 38]. Two effective treatments for OCD, ‘pharmacological interventions’ [39] and ‘exposure and response prevention therapy [40] were failed to pose expected positive results on HD. Only 31% of hoarders responded clinically to exposure and response prevention, which was significantly lower than those with non-hoarding OCD symptoms [40]. The possible reasons summarized by Tolin and his colleagues that may be case reports describe patterns of poor insight, treatment refusal, lack of cooperation, and absence of resistance to the hoarding behavior [41,42, 43, 44, 45] It is also worth noting that comorbidity conditions can make the treatment even more complicated [19]. Regarding to what Kaplan and Hollander [46] suggested in their case report, the comorbid conditions of schizotypal personality disorder and attention-deficit/hyperactivity disorder (ADHD) exacerbated the patient's overall impairment.

3.5. Treatment-Pharmacologic Treatment and Psychotherapy for HD

There are also many pharmacotherapeutic options such as selective serotonin reuptake inhibitors (SSRIs) and the serotonin-norepinephrine reuptake inhibitors (SNRIs), but through the analysis and examination of related studies, although SSRIs and SNRIs can make contribution to the treatment for individuals with OCD and hoarding symptoms, more research and experiments regarding the efficacy of pharmacotherapy in HD are still in high demand [47].

Turning to psychotherapy for HD, cognitive behavioral therapy (CBT) is profoundly effective treatment for many psychiatric disorders [48, 49] as well as HD [47]. The key point of behavioral component is to sort and discard materials in a methodical and structured way, either in the therapeutic department or at home, while the cognitive component focuses on resolving cognitive distortions associated with fear of discarding and urge to acquire [47]. To note, it is considered to be a promising intervention for HD and compulsive hoarding [38, 46, 49, 51,].

4. DISCUSSION

This general overview assessed three common comorbidity disorders of HD by summarizing and examining past research papers.

Starting from OCD, this overview paper demonstrates different opinions and insights into the classification of HD, whether it is belonged to OCD or not. Based on what I found so far, HD is included in DSM-5 [3], and it is recommended as a separate diagnostic entity and independent condition. Observing and discussing them as separate phenomenon is extremely important as HD and OCD tend to have different epidemiological and neurocognitive profiles as well as different treatment outcomes [2]. Although HD is no longer considered as a subtype of OCD, there is still etiological overlap between them. There is a wide range of comorbidity and co-occur rates found in different research, around 15% to 40%. But in one study, the percentage of hoarders who reported clinically obsession or compulsion was as high as 56.7%.

Further, it is apparent that HD shares many similar symptoms with depression such as a feeling of loss of grief and sadness. Therefore, conducting research into depression and hoarding comorbidity plays an imperative role in promoting scientific and medical development of both depression and HD. Some research suggested that OCD is the most common comorbid condition found in individuals with hoarding, while the others disagree and believe that MDD should be considered as the most comorbid one. Persuasive research carried out by Frost et al. [10] represented a comorbidity rate of over 50%, which reported that MDD occurred in over half of people with HD.

The third psychiatric disorder mentioned in this paper is anxiety disorder. Comorbidity rates found for several subtypes of anxiety disorder was listed in this review paper, including social phobia (45%) (social anxiety disorder), GAD (42%), specific phobia (38%) and separation anxiety disorder (23%) [30]. Several results are selected from different research, so external factors must be carefully considered while comparing and analyzing the data.

Apart from this, the effect of comorbidity on treatment of HD was discussed in this paper. The most significant conclusion can be given is that comorbidity is likely to make HD more difficult to treat. Besides, the impact could be interactional for both HD and comorbidity disorders [19]. But in the bright side, CBT appears to be a feasible, promotive, widely applied treatment for HD and many other psychological disorders [48, 49, 50].

However, there are several limitations to this study. Firstly, results have not been proved to show any regular patterns that can predict the future research outcomes. Secondly, due to a lack of research resources on Chinese or other foreign language-based websites and limited access permission to academic research database, Google Scholar is the only available search engine that I can used while doing my research. Therefore, the data may be not broad and well-rounded enough to support paper results.

There is a suggestion that this study would like to propose. There are many external factors which cannot be neglected while studying past researches and planning future directions. Individual differences of recruited participants such as gender, age, income, experience, education, marital status [41] as well as experimental design such as method, duration and sample size are all important elements, which are likely to pose huge influence on the outcoming data. From my personal perspective, the results would be clearer and more comparable if a table or histogram is listed in a general review.

5. CONCLUSION

This general review summarized and reported previous research to summarize three main types of comorbidity disorders of HD and collate data of comorbidity rates. Research into the treatment of HD and how comorbidity influences the outcomes of treatment were also demonstrated. In the last section of results report, applying CBT into the treatment of HD is suggested and promoted, and more research into CBT and other possible treatment for HD is highly recommended.

REFERENCES

[1] H. J. Kim, G. Steketee & R. O. Frost, Hoarding by elderly people, in Health & Social Work, 26(3), 2001, pp. 176–184. DOI: https://doi.org/10.1093/hsw/26.3.176

[2] D. Mataix-Cols, R. O. Frost, A. Pertusa, L. A. Clark, S. Saxena, J. F. Leckman, D. J. Stein, H. Matsunaga & S. Wilhelm, Hoarding disorder: A new diagnosis for DSM-V?, in Depress Anxiety, 2010, 27(6), pp. 556–572. DOI: https://doi.org/10.1002/da.20693

[3] American Psychiatric Association, Diagnostic and statistical manual of mental disorders (5th ed.), American Psychiatric Press, 2003.

[4] D. Mataix-Cols, Hoarding disorder. New England Journal of Medicine, 2014, 370(21), pp. 2023–2030. DOI: https://doi.org/10.1056/nejmcp1313051

[5] R. O. Frost, V. Hristova, G. Steketee, & D. F. Tolin, Activities of daily living scale in hoarding disorder, in Journal of Obsessive-Compulsive and Related Disorders, 2013. 2(2), 85–90. https://doi.org/10.1016/j.jocrd.2012.12.004

[6] D. F. Tolin, D. F. Frost, R. O. Steketee & K. Fitch, Family burden of compulsive hoarding: Results of an internet survey, in Behaviour Research and Therapy, 2008a, 46(3), pp. 334–344. DOI: https://doi.org/10.1016/j.brat.2007.12.008

[7] M. Wilbram, S. Kellett, & N. Beail, Compulsive hoarding: A qualitative investigation of partner and carer perspectives. British Journal of Clinical Psychology, 2008, 47(1), pp. 59–73. DOI: https://doi.org/10.1348/014466507X240740

[8] D. F. Tolin, R. O. Frost, G. Steketee, K. D. Gray & K. E. Fitch, The economic and social burden of compulsive hoarding. Psychiatry Research, 2008b, 160(2), pp. 200–211. DOI: https://doi.org/10.1016/j.psychres.2007.08.008

[9] L. F. Fontenelle, M. V. Mendlowicz, I. D. Soares, & M. Versiani, Patients with obsessive-compulsive disorder and hoarding symptoms: A distinctive clinical subtype?. in Comprehensive Psychiatry, 2004, 45(5), pp. 375–383. DOI: https://doi.org/10.1016/j.comppsych.2004.03.005

[10] R. O. Frost, G. Steketee, & D. F. Tolin, Comorbidity in hoarding disorder, in Focus, 2015, 13(2), pp. 244–251. https://doi.org/10.1176/appi.focus.130218

[11] A. Pertusa, R. O. Frost, M. A. Fullana, J. J. Samuels, G. Steketee, D. Tolin, S. Saxena, J. F. Leckman & D. Mataix-Cols, Refining the diagnostic boundaries of compulsive hoarding: A critical review, in Clinical Psychology Review, 2010, 30(4), pp. 371–386. DOI: https://doi.org/10.1016/j.cpr.2010.01.007

[12] G. Steketee, & R. Frost, Compulsive hoarding: Current status of the research, in Clinical Psychology Review, 2003, 23(7), pp. 905–927. DOI: https://doi.org/10.1016/j.cpr.2003.08.002

[13] R. O. Frost, G. Steketee, D. F. Tolin, & Brown, Comorbidity and diagnostic issues in compulsive hoarding, in Annual Meeting of the Anxiety Disorders Association of America, 2006.

[14] K. D. Wu & D. Watson, Hoarding and its relation to obsessive–compulsive disorder, in Behaviour Research and Therapy, 2005, 43(7), pp. 897–921. DOI: https://doi.org/10.1016/j.brat.2004.06.013

[15] C. A. Archer, K, Moran, K. Garza, J. J. Zakrzewski, A. Martin, C. Y. Chou, S. Y. Uhm, J. Chan, M. Gause, M. Salazar, J. Plumadore, L. C. Smith, K. Komaiko, G. Howell, O, Vigil, D. Bain, S. Stark, R.S. Mackin, M. Eckfield, E. Vega, J. Y. Tsoh, K. L. Delucchi, & C. A. Mathews, Relationship between symptom severity, psychiatric comorbidity, social/occupational impairment, and suicidality in hoarding disorder, in Journal of Obsessive-Compulsive and Related Disorders, 2019, 21, pp. 158–164. DOI: https://doi.org/10.1016/j.jocrd.2018.11.001

[16] B. J. Hall, D. F. Tolin, R. O. Frost & G. Steketee, An exploration of comorbid symptoms and clinical correlates of clinically significant hoarding symptoms, in Depression and Anxiety, 2013, 30(1), pp. 67–76. DOI: https://doi.org/10.1002/da.22015

[17] J. S. Abramowitz, & L. Reuman, Obsessive compulsive disorder. In V. Zeigler-Hill & T. K. Shackelford, (Eds.), Encyclopedia of personality and individual differences, 2020, Springer, pp. 3304–3306. DOI: https://doi.org/10.1007/978-3-319-24612-3_919

[18] D. J. Stein, Obsessive-compulsive disorder, in The Lancet, 2002, 360(9330), pp. 397–405. DOI: https://doi.org/10.1016/S0140-6736(02)09620-4

[19] M. G. Wheaton, & A. Van Meter, Comorbidity in hoarding disorder. In R. O. Frost & G. Steketee (Eds.), The Oxford handbook of hoarding and acquiring, 2014, pp. 75–85. Oxford University Press. DOI: https://doi.org/10.1093/oxfordhb/9780199937783.013.003

[20] J. R. Grisham, M. M. Norberg, A. D. Williams, S. P. Certoma & R. Kadib, Categorization and cognitive deficits in compulsive hoarding, in Behaviour Research and Therapy, 2010, 48(9), pp. 866–872. DOI: https://doi.org/10.1016/j.brat.2010.05.011

[21] G. L. Hanna, A. Yuwiler & J. K Coates, Whole blood serotonin and disruptive behaviors in juvenile obsessive-compulsive disorder, in Journal of the American Academy of Child & Adolescent Psychiatry, 1995, 34(1), pp. 28–35. DOI: https://doi.org/10.1097/00004583-199501000-00010

[22] D. Mataix-Cols, E. Nakatani, N. Micali, & I. Heyman, Structure of obsessive-compulsive symptoms in pediatric OCD, in Journal of the American Academy of Child & Adolescent Psychiatry, 2008, 47(7), pp. 773–778. DOI: https://doi.org/10.1097/CHI.0b013e31816b73c0

[23] S. A. Rasmussen, & J. L. Eisen, The epidemiology and clinical features of obsessive compulsive disorder, in Psychiatric Clinics of North America, 15(4), 1992, pp. 743–758. DOI: https://doi.org/10.1016/S0193-953X(18)30205-3

[24] J. F. Samuels, O. J. Bienvenu, M. A. Grados, B. Cullen, M. A. Riddle, K. Y. Liang, W. W. Eaton, & G. Nestadt, Prevalence and correlates of hoarding

behavior in a community-based sample, in Behaviour Research and Therapy, 2008, 46(7), pp. 836–844. DOI: https://doi.org/10.1016/j.brat.2008.04.004

[25] S. C. Litin, Mayo clinic family health book. Mayo Clinic Press, 2018.

[26] M. E. Coles, R. O. Frost, R. G. Heimberg, & G. Steketee, Hoarding behaviors in a large college sample, in Behaviour Research and Therapy, 2003, 41(2), pp. 179–194. DOI: https://doi.org/10.1016/S0005-7967(01)00136-X

[27] A. C. Iervolino, N. Perroud, M. A. Fullana, M. Guipponi, L. Cherkas, D. A. Collier & D. Mataix-Cols, Prevalence and heritability of compulsive hoarding: A twin study, in American Journal of Psychiatry, 2009, 166(10), pp. 1156–1161. DOI: https://doi.org/10.1176/appi.ajp.2009.08121789

[28] F. W. Lohoff, Overview of the genetics of major depressive disorder, in Current Psychiatry Reports, 2010, 12(6), pp. 539–546. DOI: https://doi.org/10.1007/s11920-010-0150-6

[29] C. R. Ayers, S. Saxena, S. Golshan, & J. L. Wetherell, Age at onset and clinical features of late life compulsive hoarding, International Journal of Geriatric Psychiatry: A Journal of the Psychiatry of Late Life and Allied Sciences, 2010, 25(2), pp. 142–149. DOI: https://doi.org/10.1002/gps.2310

[30] J. Samuels, Bienvenu III, O. J. Riddle, M. A. Cullen, B. A. M. Grados, M. A. Liang, K. Y. Hoehn-Saric & G. Nestadt, Hoarding in obsessive compulsive disorder: Results from a case-control study, in Behaviour Research and Therapy, 2002, 40(5), pp. 517–528. DOI: https://doi.org/10.1016/S0005-7967(01)00026-2

[31] D. F Tolin, M. C. Stevens, A. L. Villavicencio, M. M. Norberg, V. D. Calhoun, R. O. Frost, Steketee, G., Rauch, S. L., & Pearlson, Neural mechanisms of decision making in hoarding disorder, in Archives of General Psychiatry, 2012, 69(8), pp. 832–841. DOI: https://doi.org/1001/archgenpsychiatry.2011.1980

[32] M. Wheaton, K. R. Timpano, V. H. LaSalle-Ricci, & D. Murphy, Characterizing the hoarding phenotype in individuals with OCD: Associations with comorbidity, severity and gender, in Journal of Anxiety Disorders, 2008, 22(2), pp. 243–252. DOI: https://doi.org/10.1016/j.janxdis.2007.01.015

[33] G. Steketee, R. O. Frost, D. F. Tolin, J. Rasmussen, & T. A. Brown, Waitlist-controlled trial of cognitive behavior therapy for hoarding disorder, in Depression and Anxiety, 2010, 27(5), pp. 476–484. DOI: https://doi.org/10.1002/da.20673

[34] J. F. Samuels, O. J. Bienvenu, A. Pinto, D. L. Murphy, J. Piacentini, S. L. Rauch, A. J. Fyer, M. A. Grados, B. D. Greenberg, J. A. Knowles, J. T. McCracken, B. Cullen, M. A. Riddle, S. A. Rasmussen, D. L. Pauls, K. Y. Liang, R. Hoehn-Saric, A. E. Pulver, & G. Nestadt, Sex-specific clinical correlates of hoarding in obsessive-compulsive disorder, in Behaviour Research and Therapy, 2008, 46(9), pp. 1040–1046. DOI: https://doi.org/10.1016/j.brat.2008.06.005

[35] J. W. Jefferson, Social anxiety disorder: More than just a little shyness, in Journal of Clinical Psychiatry, 2001, 3(1), pp. 4–9. DOI: https://doi.org/10.4088%2Fpcc.v03n0102

[36] R. Redlich, D. Grotegerd, N. Opel, C. Kaufmann, P. Zwitserlood, H. Kugel, W. Heindel, U. S. Donges, T. Suslow, V. Arolt, & U. Dannlowski, Are you gonna leave me? Separation anxiety is associated with increased amygdala responsiveness and volume, in Social Cognitive and Affective Neuroscience, 2015, 10(2), pp. 278–284. DOI: https://doi.org/10.1093/scan/nsu055

[37] J. S. Abramowitz, M. G. Wheaton, & E. A Storch, The status of hoarding as a symptom of obsessive–compulsive disorder, in Behaviour Research and Therapy, 2008, 46(9), pp. 1026–1033. DOI: https://doi.org/10.1016/j.brat.2008.05.006

[38] D. F. Tolin, R. O. Frost, & G. Steketee, An open trial of cognitive-behavioral therapy for compulsive hoarding. Behaviour Research and Therapy, 2007, 45(7), pp. 1461–1470. DOI: https://doi.org/10.1016/j.brat.2007.01.001

[39] D. Mataix-Cols, S. L. Rauch, P. A. Manzo, M. A. Jenike & L. Baer, Use of factor-analyzed symptom dimensions to predict outcome with serotonin reuptake inhibitors and placebo in the treatment of obsessive-compulsive disorder, in American Journal of Psychiatry, 1999, 156(9), pp. 1409–1416. DOI: https://doi.org/10.1176/ajp.156.9.1409

[40] J. S. Abramowitz, M. E. Franklin, S. A. Schwartz, & J. M. Furr, Symptom presentation and outcome of cognitive-behavioral therapy for obsessive-compulsive disorder, in Journal of Consulting and Clinical Psychology, 2003, 71(6), pp. 1049–1057. DOI: https://doi.org/10.1037/0022-006X.71.6.1049

[41] D. D. Christensen, & J. H. Greist, The challenge of obsessive-compulsive disorder hoarding, in Primary Psychiatry, 2001, 8(2), pp. 79–79.

[42] C. L. Damecour & M. Charron, Hoarding: A symptom, not a syndrome, in The Journal of Clinical Psychiatry, 1998, 59(5), pp. 267–272.

[43] P. B. Fitzgerald, The bowerbird symptom': A case of severe hoarding of possessions, in Australian & New Zealand Journal of Psychiatry, 1997, 31(4), pp. 597–600. DOI: https://doi.org/10.3109/00048679709065083

[44] D. Greenberg, Compulsive hoarding, in American Journal of Psychotherapy, 1987, 41(3), pp. 409–416. DOI: https://doi.org/10.1176/appi.psychotherapy.1987.41.3.409

[45] D. Greenberg, E. Witztum & A. Levy, Hoarding as a psychiatric symptom, in The Journal of Clinical Psychiatry, 1990, 51(10), pp. 417–421.

[46] D. F. Tolin, D. F. Frost, R. O. Steketee J. & Muroff, Cognitive behavioral therapy for hoarding disorder: A meta-analysis, in Depression and Anxiety, 2015, 32(3), pp. 158–166. DOI: https://doi.org/10.1002/da.22327

[47] A. Kaplan, & E. Hollander, Comorbidity in compulsive hoarding: a case report, in CNS spectrums, 2004, 9(1), pp. 71-73. DOI: https://doi.org/10.1017/s1092852900008385

[48] C. A. Mathews, Hoarding disorder: More than just a problem of too much stuff, in The Journal of Clinical Psychiatry, 2014 75(8), pp. 893–894. DOI: https://doi.org/10.4088%2FJCP.14ac09325

[49] C. M. Gilliam, M. M. Norberg, A. Villavicencio, S. Morrison, S. E. Hannan & D. F. Tolin, Group cognitive-behavioral therapy for hoarding disorder: An open trial, in Behaviour Research and Therapy, 49(11), 2011, pp. 802–807. DOI: https://doi.org/10.1016/j.brat.2011.08.008

[50] H. Hazlett-Stevens, & M. G. Craske, Brief cognitive-behavioral therapy: Definition and scientific foundations. In F. W. Bond & W. Dryden (Eds.), Handbook of brief cognitive behaviour therapy, John Wiley & Sons, 2002, pp. 1–20 DOI: https://doi.org/10.1002/9780470713020.ch1

[51] J. Muroff, C. Bratiotis & G. Steketee, Treatment for hoarding behaviors: A review of the evidence, in Clinical Social Work Journal, 2011, 39(4), pp. 406–423. DOI: https://doi.org/10.1007/s10615-010-0311-4