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Exploration of Saving cognition and Distress tolerance as predictor factors for hoarding behavior

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Abstract: **Hoarding is defined as the acquisition of and failure to discard a large number of possessions, which results in debilitating clutter and subsequent impairment and distress. *This study* aimed to examine the association between saving cognition and distress tolerance as predictor factors for hoarding behavior. An exploratory descriptive research design was utilized in this study. *Setting:* The study was carried out in Faculty of Nursing, Assiut University, and Faculty of Nursing, Sohag University, Egypt. Subject: The total number of nursing students from two faculties' was587 students. *Tools: Data were collected through,* Personal data sheet, Distress Tolerance Scale, Saving Cognitions Inventory and Hoarding Rating Scale-Interview. *Results:* there were statistically significant relation between saving cognition scale and distress scale (r= 0.244) with (P. value=0.001). There were statistically significant correlation between distress tolerance scale and hoarding(r= 0.143) with(P. value=0.001). *Conclusion:* There were positive correlation between hoarding and saving cognition. Saving cognition and distress tolerance are predictor factors for hoarding behavior. *Recommendations:* It was recommended that: Future researches are needed to replicate the results in samples with clinically significant levels of hoarding.**

Keywords: **Saving cognition, Distress tolerance, Hoarding.**

1. INTRODUCTION

Hoarding disorder (HD) is a widespread and debilitating psychiatric condition, characterized by high degrees of co morbidity, and is acknowledged as a separate diagnosis in the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders DSM- 5; American Psychiatric Association(APA). HD—or compulsive hoarding, as it has been frequently termed—is characterized by the strong urge to save items and/or distress associated with discarding them, giving rise to clutter (American Psychiatric Association) APA***,(2013).***

Clarissa, et al., (2016) stated that, hoarding disorder (HD) is characterized by persistent difficulty discarding or parting with possessions, resulting in clutter that precludes the use of active living spaces for their intended purposes. Hoarding behaviors and their related clutter cause significant distress and/or impairment in functioning, compromising individuals' ability to maintain a safe environment for themselves and those around them.

Neave, et al., (2017) considered that, the items most often hoarded are objects (e.g., clothes, papers, books, empty food packaging) and animals .Difficulty organizing the home, the shame brought on by messiness or clutter, and criticism from others makes hoarders commonly isolate from social interaction. This social withdrawal, in turn, facilitates increased hoarding. Hoarding behavior poses a wide range of risks to the health and safety of individuals .In addition, the hoarding behavior causes distress to the affected individual himself, his family, and the community in which he lives. Hoarders also constitute a significant economic burden, including expenses for fire and rescue services, health and social services, as well as unemployment and disability benefits.

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Large amounts of clutter can pose immediate risks to an individual's physical welfare by acting as a fire hazard, blocking exits during emergencies, producing an unsanitary environment, and creating a risk of falling objects. Beyond physical hazards, hoarding is associated with higher rates of psychological disability, work impairment, social disability, and family conflict ***Frost,et al., (2008)& Tolin a, et al., (2008).***

Individuals with hoarding problems have difficulty discarding their saved possessions, leading to distress and interpersonal problems such as conflicts with family members and embarrassment about having visitors to the home. For some individuals hoarding can become a debilitating condition, causing substantial functional impairment as well as economic and family burden ***Tolin b, et al., ((2008).***

Hoarders typically have problems with decision making and executive function; poor sleep is known to compromise cognition generally, so if hoarders have cluttered/unusable bedrooms (and less comfortable, functional beds), any existing risk for cognitive dysfunction, depression and stress may increase as sleep quality worsens, **American Academy (2015).** ***Ashley*** **, (2013),** indicated that, stress may represent an underlying vulnerability, which interacts with other risk variables, such as negative urgency and distress tolerance, to increase difficulties discarding. The results also indicate that hoarding cognitions may make individuals more reactive to stress.

Prevalence estimates of hoarding in the general population range from 2% to 6% ***Nordsletten ,et al., (2013); Timpano ,et al., (2011); Mueller, et al., (2009) .*** Also ***Pertusa ,et al., (2010)*** suggested that hoarding problems may be surprisingly common in the population lifetime prevalence estimates 2–14%. Hoarding can often be a debilitating problem for adults and is often associated with poorer mental health functioning and response to treatment .Michelle, et al., (2019), revealed that, cognitive-behavioral therapy (CBT) used to treat obsessive-compulsive disorder (OCD) can be successful for youth with hoarding symptoms.

Operational definition:

Hoarding disorder (HD) defined as persistent difficulty discarding or parting with possessions, resulting in clutter that precludes the use of active living spaces for their intended purposes. It is included in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) as an independent disorder, and is accompanied by an excessive acquisition specified ***APA, (2013).***

Significance of the study:

Hoarding disorder is associated with high rates of psychiatric comorbidity, most notably with major depressive disorder and generalized anxiety disorder, and greater levels of physical health problems, including obesity and arthritis ***Frost et al.,(2011)***. Also stress may interact with or exacerbate other vulnerabilities, to create as factor that contributes to hoarding behaviors. So the present study could be helpful to investigate the specific contributions of anxiety and depression to hoarding behaviors.

Aim of the study:

This study aimed to examine the association between Saving cognition and Distress tolerance as predictor factors for hoarding behavior.

Research Questions:

- Is there a relation between saving cognition and distress tolerance?
- Is saving cognition and distress tolerance are predictor factors for hoarding behavior?

2. SUBJECTS AND METHOD

Research Design:-

An exploratory descriptive research design was utilized in this study.

Settings:

The study was carried out in Faculty of Nursing, Assiut University, and Faculty of Nursing, Sohag University, Egypt, (governmental faculties -Ministry of Higher Education, and encompass multi- residential students).

Subjects:

The total number of nursing students in two faculties was 2529 students. By using software EPI/info, version3.3 with 95% confidence interval (CI), the final estimated sample was 587 students.

University	Number of students	Sample size
Assiut university	1502	307
Sohage university	1029	280
Total	2529	587

Tools of data collection:-

The following tools were utilized for collecting data in this study.

1- Personal data Sheet: - Which was developed by the researchers:-It includes, student's age, grade, Family history of psychiatric disorders and Parental consanguinity.

2- Distress Tolerance Scale (DTS):-It was developed by, ***Simons & Gaher, (2005)***. It contains 15-item self-report measure of one's ability to tolerate psychological distress, which includes four dimensions: tolerance, absorption, appraisal, and regulation. Items are rated on a 5-point Likert scale which ranging from 1 (strongly agree) to 5 (strongly disagree). High scores on the DTS indicate that an individual can tolerate high levels of distress. Low scores reflect low (i.e., distress intolerance) DT. The scale has been found to demonstrate good internal consistency=0 .87.

3- Saving Cognitions Inventory (SCI):- It was developed by, ***Steketee et al., (2003).***The SCI is a 24-items self-report that assesses maladaptive beliefs and emotional attachment to possessions. It contains four dimensions: emotional attachment, control, responsibility, and memory. Each item on the SCI represents a thought associated with one of the dimension. Participants are asked to rate the extent to which they had each thought when deciding whether or not to discard something in the past week. Scoring system ranged from , 1(not at all) to7 (very much). The total score range from 1–168. High score indicate high SCI. The scale has been found to demonstrate good internal consistency=(α values ranged from 0.78to 0,94).

4-Hoarding Rating Scale-Interview (HRS-**I); *It*** was developed by, ***Tolin, et al., (2010).*** The HRS-I is a semi-structured interview that assesses 5 dimensions of hoarding: difficulty using rooms due to clutter, excessive acquisition of objects, difficulty discarding possessions, distress due to hoarding behaviors, and functional impairment due to hoarding. The HRS-I is composed of 5 questions that are rated on an 8-point likert scale ranging from 0 (none) to 8 (extreme). Score of 14 or higher on the HRS indicates a probable hoarding problem/HD diagnosis. The HRS-I has good internal consistency ($\alpha = 0.96$).

Pilot study:-

A pilot study was carried out before starting data collection. It was carried out on60 students (10%) to test clarity and applicability of the study tools and to estimate the time needed to collect data. These 10% of students were included in the study sample because no modification was done. The time needed to complete the tool was 30-45 minutes according to the need for explanation from participant.

Content Validity

These tools were translated into Arabic language and the content validity of the translated tools were checked and back translation technique was done by five panels of experts in psychiatric nursing and medicine field to test the content validity of the tools and no modification was done.

Administrative and ethical considerations:

1-An official permission was granted from The Dean of faculty of nursing to carry out the study after explaining the purpose of study.

2-Research proposal was approved from ethical committee in the faculty of Nursing.

3-There is no risk for the study subjects during application of the research.

4-The study followed common ethical principles in clinical research.

5-Oral consent was obtained from every patient after explaining the purpose of the study.

6-Privacy and confidentiality were assured during the whole study steps.

Statistical analysis

The collected data were coded, categorized, tabulated, and analyzed using the Statistical Package for the Social Science (SPSS 20.0). Data were presented using descriptive statistics in the form of percentages, frequency, mean and standard deviation. Level of significance at $p < 0.05$ was used as the cut off value for statistical significance.

3. RESULTS

Table (1):- Distribution of personal data of the participant students (n= 587)

Items	No	%
Governorate		
Sohage	280	47.7
Assiut	307	52.3
Gender		
Male	200	34.1
Female	387	65.9
Age		
from 18-20 years	278	47.4
20 -24years	309	52.6
Mean ±SD(range)	20.59±1.33(18-24)	
Grades		
First **grade**	137	23.3
Scond **grade**	173	29.5
Third **grade**	150	25.6
fourth **grade**	127	21.6
of psychiatric disease History		
Absence	572	97.4
Presence	15	2.6

Table (1) shows that, the mean age of participant students was (20.59 ±1.33) ranged from (18-24).As regard to gender 65.9% of the participant were female. The majority of participant students don't have history of psychiatric disease (97.4%).

Table (2):- Distribution of mean Score of Saving Cognitions Inventory (n= 587)

Diminution	Max Score	Range	Mean±SD
Emotional Attachment	**70**	**10-70**	**27.45±13.2**
Control	**21**	**3-21**	**10.14±4.82**
Responsibility	**42**	**6-42**	**18.25±7.97**
Memory	**35**	**5-35**	**15.25±6.49**
Saving Cognitions Inventory	168	24-168	71.1±28.22

Table (2) demonstrates that, highest mean score of saving cognition dimensions are emotional attachment (27.45±13.2) followed by responsibility (18.25±7.97), among participant students.

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Table (3):- Distribution of mean Score of Distress Tolerance scale (n= 587)

Subscale	Max Score	Range	Mean±SD
Tolerance	15	3-15	6.81±2.5
Absorption	15	3-15	6.93± 2.58
Appraisal	30	7-30	15.64±4
Regulation	15	3-13	6.81±2.64
Total Distress Tolerance	75	17-62	36.18±8.63

Table (3) reveals that, the highest mean score of distress tolerance dimensions are appraisal (15.64±4) followed by absorption (6.93±2.58), respectively.

Table (4):- Frequency distribution of Hoarding Scale (n= 587)

Statement	No	%
1. Difficulty using rooms due to clutter.		
No problem	254	43.3
Mild problem	187	31.9
Moderate	92	15.7
Severe	30	5.1
Extreme	24	4.1
2.Difficulty discarding possession		
No problem	175	29.8
Mild problem	206	35.1
Moderate	129	22.0
Severe	56	9.5
Extreme	21	3.6
2. Excessive acquisition of objects.		
No problem	197	33.6
Mild problem	170	29.0
Moderate	128	21.8
Severe	61	10.4
Extreme	31	5.3
3. Distress due to hoarding behaviours		
No problem	176	30.0
Mild problem	167	28.4
Moderate	118	20.1
Severe	79	13.5
Extreme	47	8.0
4. Functional impairment due to hoarding.		
No problem	162	27.6
Mild problem	153	26.1
Moderate	115	19.6
Severe	70	11.9
Extreme	87	14.8

Table (4): demonstrates that, less than one quarter of the participant students had moderate difficulty discarding possessions, excessive acquisition and distress due to hoarding behaviors.

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Table (5):- Multiple linear regression analysis to assess the effect of saving cognition and distress tolerance on hoarding (n= 587)

	hoarding behavior					
	Univariate			Multivariate		
	Beta	T	Sig	Beta	T	Sig
Emotional Attachment	**0.422**	**11.244**	**<0.001****	**0.255**	**4.191**	**<0.001****
Control	0.322	8.228	<0.001**	0.062	1.207	0.228
Responsibility	**0.412**	**10.925**	**<0.001****	**0.163**	**2.582**	**0.010***
Memory	0.340	8.755	<0.001**	0.010	0.179	0.858
Tolerance	0.133	3.240	0.001**	0.045	0.911	0.363
Absorption	0.086	2.099	0.036*	-0.048	-0.923	0.356
Appraisal	0.069	1.676	0.094	0.033	0.722	0.471
Regulation	0.152	3.730	<0.001**	0.039	0.963	0.336

- Dependent variable is hoarding behavior

*Statistically Significant predictor At P. value <0.05

**Statistically Significant predictor At P. value <0.01

Table (5): demonstrates that, there were statistically significant relation between saving cognition subscale and hoarding scale in, emotional attachment and responsibility (P. value=0.001&0.010). This result suggests that, saving cognition was considered as predictor for hoarding more than distress tolerance subscale.

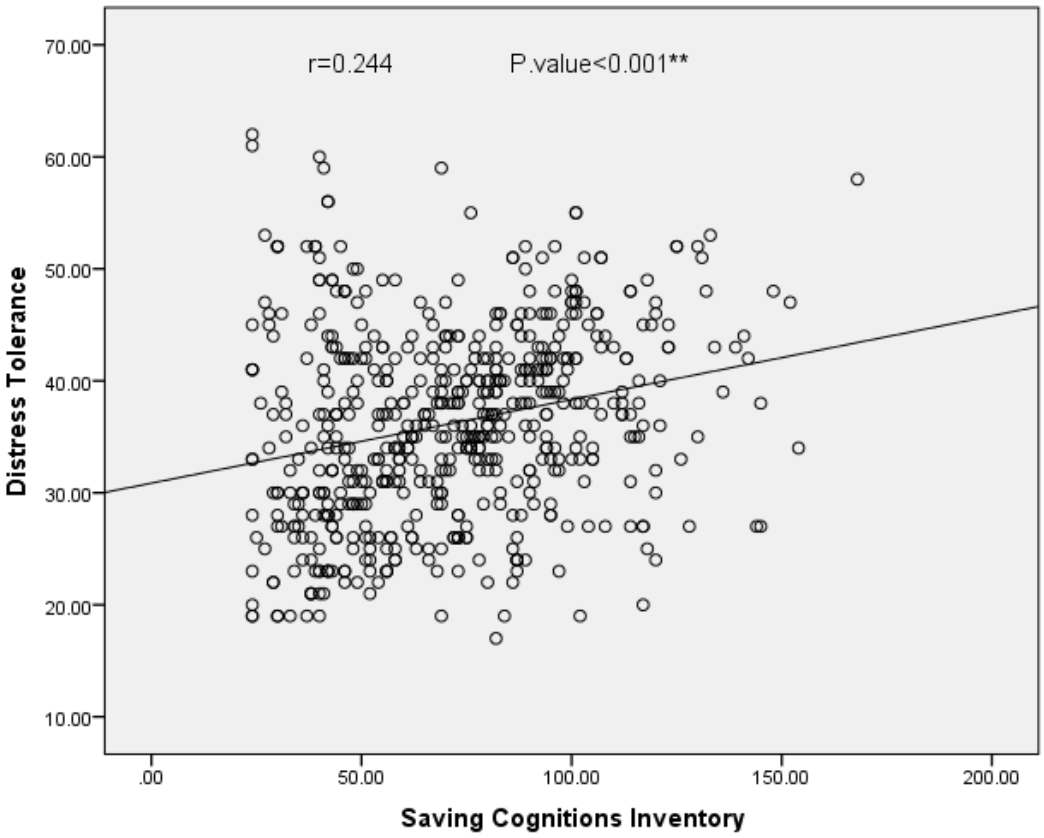

Figure 1: Correlation between saving cognition scale and distress tolerance scale

Figure (1) illustrates that, there were statistically significant correlation between saving cognition scale and distress scale (r= 0.244) with (P. value=0.001) . This result suggests that, the low distress tolerance was associated with more saving cognition.

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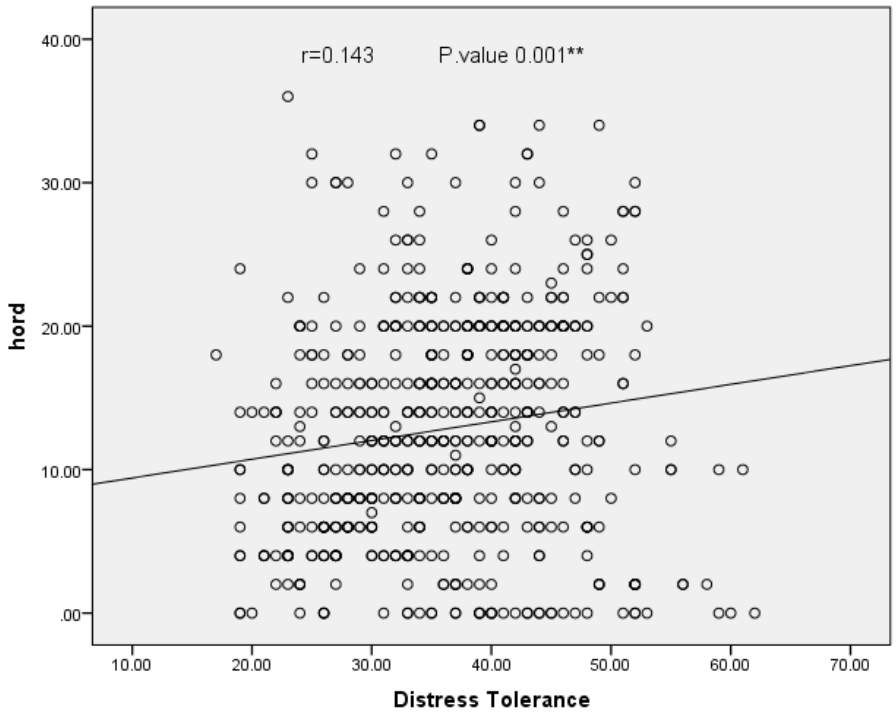

Figure 2: Correlation between hoarding scale and distress tolerance scale

Figure (2) reveals that, there were statistically significant correlation between distress tolerance scale and hoarding (r= 0.143) with(P. value=0.001)

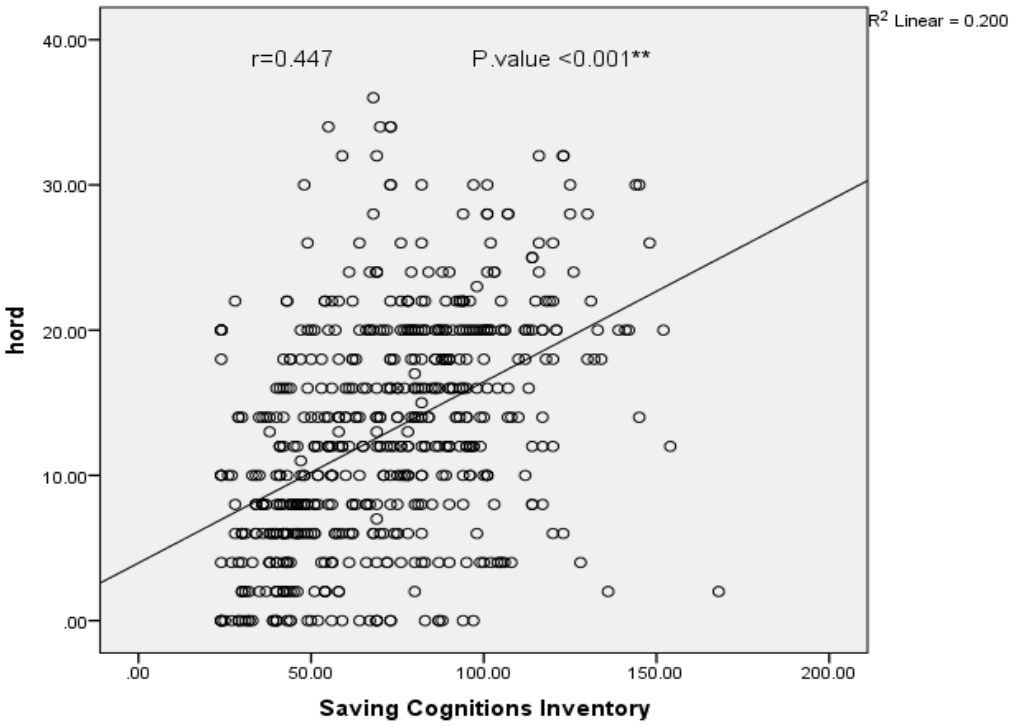

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Figure 3: Correlation between saving cognition scale and hoarding scale (n587)

Figure (3) shows that, there were highly positive correlations between hoarding and saving cognition scale (r= 0.447) with (P. value=**0.001)**. This result indicates that, the more of saving cognition associated with the more of hoarding.

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4. DISCUSSION

Hoarding behavior is a mental illness associated with a range of serious risks to the

health and safety of those who are affected, their families and their surrounding communities **b.Tolin, et al., (2008)**. The current study demonstrated that, the highest mean score of saving cognition dimensions were emotional attachment followed by responsibility among participant students**.** In this context **Clarissa.(2016)** conducted a study on hoarding among outpatients seeking treatment at a psychiatric hospital in Singapore and found that, hoarding participants had significantly higher scores on the saving cognition inventory (total and dimensions, indicating higher levels of hoarding severity. **Also**This finding was supported by, ***Ashley , (2013)*** who found that, common hoarding beliefs that are closely tied to saving behaviors include feelings of emotional attachment, and an excessive sense of responsibility for belongings. In addition, **Nick, et al., (2019**) found that, hoarding behavior is driven by a strong emotional connection with objects. But the new experimental findings show that, for people who hoard this connection may be in part attributable to the vivid, positive memories associated with those objects.

The present study represented that, the highest mean score of distress tolerance dimensions were appraisal followed by absorption. This result also was consistent with the result of ***Schmidt, et al., (2007),*** who found that**,** Distress tolerance (DT) may be one additional individual difference variable that acts as a vulnerability factor for hoarding behaviors. In the same line ***Kiara , et al., (2009)***, found that, is, greater levels of hoarding behavior was associated with greater degrees of distress intolerance**.** Moreover, **Coles*, et al.,(2003),*** found that, low DT providing partial evidence that these factors may serve as risk factors for hoarding behaviors. In this respect, ***Marshall, et al.,(2011),***and ***Vujanovic, et al,(2011)*** found that, individuals who are unable to tolerate emotional distress (i.e., low distress tolerance) are more likely to experience symptoms of hoarding.

The present study demonstrated that, less than one quarter of the participant students had moderate difficulty discarding possessions, excessive acquisition and distress due to hoarding behaviors. This finding supported by ***Tolin, et al.,(2011)***, who conducted a study about hoarding among patients seeking treatment for anxiety disorders who found that, more than one quarter of the sample demonstrated significant difficulty discarding, had significant clutter and more than half had excessive acquisition.

Also **Clarissa , (2016)**, found that, more than one third of the participant had a higher rate of significant difficulty discarding, showed greater frequency of clutter and were more likely to have significant hoarding. In addition, the hoarding group reported significantly worse functioning and quality of life. This result was supported by a study carried by, ***Kajitani, et al.,((2019),***who found that, there was a 3.4% prevalence rate for hoarding behavior among university students.

The current study also proved that, there were highly statistically significant positive correlations between hoarding and saving cognition scale. Also there were statistically significant relation between distress tolerance scale and hoarding. This result was in agreement with **Kiara , *et al.,* (2009)** conducted a study about the exploration of anxiety sensitivity and distress tolerance as vulnerability factors for hoarding behaviors among undergraduate students, found that, DTS scores were significantly and negatively correlated with hoarding symptoms .Also there were association between DT and hoarding, and found that greater saving cognition scores were significantly associated with lower DTS scores. That is, greater levels of hoarding behavior were associated with greater degrees of distress intolerance (low DT).

In addition, ***Michael ,et al .,(2011),*** found that, saving cognitions was highly predictive of hoarding symptoms, and difficulty discarding may be better accounted for by the other predictor variables; most likely saving cognitions, which were particularly strongly associated with difficulty discarding. Similarly, **Coles *et al,. (2003);*** and ***Steketee et al., (2003)***, found that, cognitive-behavioral conceptualization of hoarding which implicates specific cognitive distortions about possessions. Also, ***Simons and Gaher (2005)***.stated that, distress tolerance (DT) may be one additional individual difference variable that acts as a vulnerability factor for hoarding behaviors. Distress intolerance, is associated with perceiving distress as unbearable, unacceptable, and uncontrollable.

This result might be due to, hoarding clients; they have a specific connection to possessions. For example, people who hoard often believe they must maintain clear and absolute control over their possessions.

5. CONCLUSION

Based on the current study findings, it can be concluded that:-

The majority of the participant students had severe hoarding. There was statistically significant difference between distress tolerance scale and hoarding scale.

There were highly statistically significant positive correlations were found between horading and saving cognition scale. Saving cognition and Distress tolerance is a predictor factors for hoarding behavior.

6. RECOMMENDATIONS

Based on the study results, it was recommended to:-

Future researches are needed to replicate the results in samples with clinically significant levels of hoarding.

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