RELIABILITY, VALIDITY AND FACTOR STRUCTURE OF
THE COMPULSIVE ACQUISITION SCALE (CAS)

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Abstract

Objective: Much research and theorizing suggest that compulsive acquisition is a central component of hoarding disease. The Compulsive Acquisition Scale (CAS; Frost et al. 2002) is a self-rating scale measuring the extent to which individuals acquire and feel compelled to acquire possessions. The present study aimed to evaluate the psychometric properties of the CAS, in terms of reliability and construct validity.

Method: The scale was administered to a sample of 491 non-clinical adults along with a battery of selected self-report measures. Participants were randomly divided into two subsamples. Both exploratory and confirmatory factor analyses were performed. Support for construct validity was provided by correlations between CAS and the other administered measures. *Results*: Unlike the originally suggested 2-factor structure, both exploratory and confirmatory factor analyses revealed an underlying 3-factor structure (Emotions, Time and Money, and Free Stuff). Our outcomes showed good subscales homogeneity; support for concurrent validity was provided by significantly positively correlations between CAS scores and the other measures of hoarding severity; convergent validity was gathered examining correlations between CAS and measures of depression, anxiety, and obsessive compulsive disorder.

Conclusions: Overall, empirical results indicated promising psychometric properties of the CAS Italian version in a nonclinical sample. Limitations of the study and the need for further research are discussed.

Key words: Compulsive Acquisition Scale, compulsive acquisition, compulsive hoarding, purchase, free stuff

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Introduction

Hoarding Disorder (HD) has been defined as the "acquisition of, and failure to discard, possessions which appear to be useless or of limited value" (Frost and Gross 1993, p. 367). Frost and Hartl (1996) conceptualized hoarding as consisting of the following three elements: (a) the acquisition of a large number of possessions, (b) a subsequent failure to discard possessions, and (c) a resulting clutter, that precludes the use of living spaces in the manner for which those spaces were designed.

This definition differs from that provided in the new Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association 2013). In the DSM-5 hoarding disorders is characterized by persistent difficulty discarding possessions, regardless of their actual value, resulting in the accumulation of a large number of possessions that fill up and clutter active living spaces. The excessive acquisition is included only as a specifier for the disorder (you must specify whether it is "with excessive acquisition" or not).

Unlike the DSM-5, Frost and coll. (Frost and Hartl 1996, Frost et al. 2009, Frost and Muller 2014, Frost et al. 2014, Mataix-Cols and Fernandez de la Cruz 2014) emphasize the importance of acquisition as an integral part of the hoarding disorder. Although acquisition is not a criterion for the disorder in DSM-5, this behaviour is a central aspect of the clinically relevant hoarding problem; indeed, accumulating evidence suggests that majority of people with HD acquire excessively and that this behaviour is associated with greater severity of symptoms, an earlier onset and *results* in more psychiatric work impairment days (Frost and Muller 2014, Timpano et al. 2016, Tompkins 2016).

For instance, in 14 case studies of hoarding, Frost and Gross (1993) have found an aberrant acquisition behaviour in 59% of the cases. Frost et al. (2009) found that 86% of hoarders had clinically significant acquisition problem and a study of Frost et al. (2002) has found that among hoarders, 61% met criteria for a diagnosis of compulsive buying and approximately 85% reported excessive acquisition.

Also a German study highlighted how more than two-thirds of participants with HD met criteria for the proposed DSM-5 acquisition specifier (Timpano et al. 2011).

Finally, Frost et al. (2013) found that 60% of sample of hoarder met criteria of excessive acquisition, but most (70%) reported having had acquiring problems in the past (overall 88% of the hoarders had current or past excessive acquisition).

In addition, several investigations have examined the frequency of hoarding in compulsive buying sample

and highlights that only about 50% of people with compulsive buying problem have significant hoarding behaviours (Frost et al. 2002, Mueller et al. 2007, Mueller et al. 2009, Steketee and Frost, 2014, Möllenkamp et al. 2014).

In summary, these studies support Frost and colleagues research and suggest that excessive acquisition is a central component of hoarding disease.

One common method of acquisition is buying. Prevalence of compulsive buying has been estimated approximately between 6% and 7% of the population (Faber and O'Guinn 1992, Müller et al. 2015) and can lead to severe disruption in the lives of those who are afflicted by it. It may also be associated with other disorders, in particular impulse control disorders (Frost and Muller 2014). An other common method of acquisition is to excessively acquire free things (e.g., free brochures, free newspapers, handouts at lectures, discarded items). Other types of acquisition, such as stealing, are rare.

The excessive acquisition results in negative social, financial and occupational consequences. Understanding the excessive acquisition behaviour and owning an assessment tool can have important implications for treatment of the hoarding disorder (Tolin et al. 2015, Frost et al. 2015).

A number of clinician and self-administered measures exist to assess hoarding features, in particular the severity of aspects such as difficulties discarding, clutter, and distress. To assess the extent to which individuals acquire and feel compelled to acquire possessions, Frost and colleagues have created the Compulsive Acquisition Scale (CAS) (Frost et al. 2002, Grisham and Williams 2014). Compared to the commonly used Compulsive Buying Scale (CBS; Faber and O'Guinn 1992), the CAS emphasizes the role of possession and the acquisition of free things.

In its original version, the CAS seems as a reliable diagnostic instrument for determining the extent to which individuals acquire and feel compelled to acquire possessions (Frost et al. 2002). Also the German version of the CAS suggests that the total score of the scale is a valid measure to assess compulsive acquisition symptoms, although "the originally suggested 2-factor structure did not adequately represent the data in the population-based sample" (Mueller et al. 2010, p. 161).

Hence, in line with many previous studies suggesting the relevance of presenting test adaptations for use in multiple languages and cultures (Craparo et al. 2015, Faraci and Tirrito 2013, Hambleton et al. 2006, Triscari et al. 2011, Schimmenti 2016), the current study was addressed to further examine the psychometric properties of the CAS in an Italian nonclinical sample.

METHODS

Translation of the CAS into Italian

The Italian version of the CAS was developed through a mixed forward- and back-translation procedure (Behling and Law 2000). One bilingual Italian-English person and two of the authors independently translated the English version of the scale into Italian. After a shared translation among of the authors, the bilingual translator, blind to the original version, back translated this version into English

After, the translators discussed the discrepancies in the versions until to reach an agreement on a common translation. The CAS in Italian language was administered to eight people to check the understandability of the items.

Participants and Procedure

A total of 491 participants (33.7% males and 66.3% females) were involved in the present research study. They were from northern Italy (.6%), central Italy (51.4%), and southern Italy (48%), ranging in age from 18 to 79 years (mean age=28.7 years, SD=12.02). They were students (65.3%), full-time employees (17.3%), part-time employees (8.2%), housewives (1%), unemployed (2.7%), retired people (2%), other (3.5%). The most frequent marital status was single (78.8%), followed by married (19.4%), separated (1.6%), and widowed (.2%). Their educational level ranged from 1 to 26 school years (M=15.05, SD=3).

Participants were randomly divided into two subsamples using the "Select Cases" option in SPSS Statistics 17.0. The first random subsample – used to perform exploratory factor analysis – was composed of 244 participants (33.7% males and 66.3% females) from northern Italy (.8%), central Italy (57.2%), and southern Italy (42%), ranging in age from 18 to 79 years (mean age=29.1 years, SD=12.95). They were students (63.6%), full-time employees (17.2%), part-time employees (10.2%), housewives (.4%), unemployed (1.6%), retired people (3.3%), other (3.7%). The most frequent marital status was single (78.2%), followed by married (20.2%), and separated (1.6%). Their educational level ranged from 5 to 26 school years (M=15.07, SD=2.81).

The second subsample – used to conduct confirmatory factor analysis – was composed of 247 participants (33.6% males and 66.4% females) from northern Italy (.4%), central Italy (47.1%), and southern Italy (52.5%), ranging in age from 18 to 71 years (mean age=28.36 years, SD=11.03). They were students (67.1%), full-time employees (17.5%), part-time employees (6.1%), housewives (1.6%), unemployed (3.7%), retired people (.8%), other (3.2%). The most frequent marital status was single (79.4%), followed by married (18.6%), separated (1.6%), and widowed (.4%). Their educational level ranged from 1 to 25 school years (M=15.03, SD=3.19).

Convergent and discriminant validity was gathered analyzing data from the first subsample. This group of participants, in addition to CAS, completed the Saving Cognitions Inventory (SCI; Steketee et al. 2003), the Hoarding Rating Scale-Interview (HRS-I; Tolin et al. 2010), the Clutter Image Rating (CIR; Frost et al. 2008), the Saving Inventory-Revised (SI-R; Frost et al. 2004), the Beck Depression Inventory II (BDI-II; Beck et al. 1996), the Beck Anxiety Inventory (BAI; Beck et al. 1988), and the Obsessive Compulsive Inventory-Revised (OCI-R; Foa et al. 2002).

Participants in the current study were recruited by advertisements requesting to volunteers for psychological studies in various regions of Italy. Participants had to be 18 years of age or older, possess at least a primary school education, and had not been treated for any psychiatric disorder.

The participants were asked to fill in the questionnaires providing sincere answers. They were informed that their participation in the study was voluntary. They were also assured of the confidentiality of the information obtained from the administered measures.

Materials

Compulsive Acquisition Scale (CAS). The CAS (Frost et al. 2002) is a 18-item self-report scale measuring the extent to which individuals feel compelled to acquire possessions. It contains two subscales: Buy, which assesses compulsive buying behaviour (CAS-Buy:

e.g., "Do you buy things you never use?", "Do you buy things to make yourself feel better?"), and Free, which assesses the excessive acquisition of free objects (CAS-Free: e.g., "Do you pick things up that other people have discarded?", "Do you look through other people's trash (for example, dumpsters) for things to bring home?").

Each item is rated on a 7-point Likert scale ranging from 1 (not at all or rarely) to 7 (very much or very often). The CAS has shown satisfactory internal consistency reliability and convergent validity, supported by correlations with buying-related cognitions, OCD symptoms, perfectionism, and indecisiveness. Besides, CAS distinguishes compulsive buyers from controls. A cutoff score of 47.8 was found to maximize sensitivity and specificity for clinically significant compulsive buying.

In order to gather construct validity, in addition to the CAS, seven self-report measures were administered:

Saving Cognitions Inventory (SCI). The SCI (Steketee et al. 2003) is a 24-item questionnaire aimed to assess the cognitive aspects of compulsive hoarding. Participants are asked to rate the extent to which they had each thought when they were deciding whether to throw something away during the past week using a 7-point Likert scale ranging from 1 (not at all) to 7 (very much). A total SCI score is derived by calculating the sum of all items. The inventory is structured in four subscales: Emotional Attachment, Control, Responsibility, Memory. The SCI showed internal consistency, and known groups, convergent and discriminant validity differentiating between individuals with compulsive hoarding, obsessive compulsive disorder without hoarding, and community controls.

Hoarding Rating Scale-Interview (HRS-I). The HRS-I (Tolin et al. 2010) is a 5-item self-report measure of the following dimensions of hoarding: Clutter, which measures difficulty using living spaces due to chaos; Difficulty Discarding, which measures difficulty discarding (or recycling, selling, giving away) ordinary things that other people would get rid of; Acquisition, which measures excessive acquisition of objects; Distress, which measures emotional discomfort due to hoarding behaviors; Impairment, which measures functional disturbance due to hoarding behaviors. Each item is rated on a 9-point Likert scale from 0 ("None") to 8 ("Extreme"). A total score was derived by calculating the sum of all 5 items. Cutoff scores for item 1 "Clutter", item 4 "Distress" and item 5 "Impairment" was 3, cutoff scores for item 3 "Acquisition" was 2, cutoff score for item 2 "Difficulty Discarding" was 4, and cutoff score for the HRS-I total score (as the sum of all 5 items) was 14. The HRS-I has shown high internal consistency and inter-rater reliability, correlated strongly with other measures of hoarding, and effectively discriminated hoarding from non-hoarding individuals.

Clutter Image Rating (CIR). The CIR (Frost et al. 2008) is a pictorial measure of clutter severity. This scale contains three cards, each containing 9 equidistant, standardized pictures of severity of clutter, with one card for each of three people homes' main rooms: living room, kitchen, and bedroom. Respondents are asked to select the picture that most closely resemble the level of clutter in each room of their home. It showed good internal consistency, test-retest reliability, and inter-rater reliability, and convergent validity, supported by stronger associations with measures of clutter than with other hoarding and psychopathology scales.

Saving Inventory-Revised (SI-R). The SI-R (Frost et al. 2004) is a 23-item questionnaire consisting of three subscales designed to measure Clutter, Difficulty Discarding, and Acquisition. Participants are asked to rate the extent to which each statement describes them on a 5-point Likert scale ranging from 0 (strongly disagree) to 4 (strongly agree). It showed good internal consistency and adequate test-retest reliability for the total score and subscales. Convergent and discriminant validity was supported by correlations with hoarding and non-hoarding indices. SI-R distinguishes individuals with hoarding from OCD participants without hoarding as well as from nonclinical samples.

Beck Depression Inventory II (BDI-II). The BDI-II (Beck et al. 1996) is a 21-item self-report inventory, that measure affective, cognitive, motivational, psychomotor, and vegetative components of depression. Each item consists of four statements, which are scored from 0 to 3. Sum score consisting of the individual scores to the 21 items is used to estimate the overall severity of depression. Raw scores ranging from 0 to 13 indicates minimal depression, 14-19 indicates mild depression, 20-28 indicates moderate depression, 29-63 indicates severe depression. It has been widely used in psychological research, which has demonstrated the scale's good reliability and validity.

Beck Anxiety Inventory (BAI). The BAI (Beck et al. 1988) is a 21-item questionnaire assessing the severity of self-reported anxiety. Items refers to common symptoms of anxiety. Participants are asked to indicate how much they have been bothered by that symptom during the past month on a 4-point Likert scale ranging from 0 (not at all) to 4 (Severely – it bothered me a lot). The total score is achieved by the sum of the 21 item scores. A grand sum between 0-21 indicates very low anxiety; a grand sum between 22-35 indicates moderate anxiety; a grand sum that exceeds 36 is a potential cause for concern. The BAI showed high internal consistency and good one-week test-retest reliability.

Obsessive Compulsive Inventory-Revised (OCI-R). The OCI-R (Foa et al. 2002) is a 18-item self-report questionnaire of Obsessive Compulsive Disorder (OCD) symptoms containing 6 subscales: Hoarding, Checking, Neutralizing, Obsessing, Ordering, and Washing. Each statement refers to experiences that many people have in their everyday lives. People are asked to circle the number that best describes the extent to which that experience has distressed or bothered them during the past month. Items are rated on a 5-point Likert scale ranging from 0 (not at all) to 4 (extremely). Scores are calculated by adding the item scores. The possible range of scores is 0-72. Mean score for persons with OCD is 28.0 (*SD*=13.53). Recommended cutoff score is 21, with scores at or above this level indicating the likely presence of OCD. The OCI-R showed excellent psychometric properties, in terms of internal consistency, test-retest reliability, and convergent and discriminant validity, with other measures of OCD symptoms. The OCI-R and its subscales effectively differentiates between patients with OCD and other groups, further supporting the clinical utility of the scale.

Results

Exploratory factor analysis

The underlying factor structure of the CAS was examined by analyzing the data from the first random subsample (n=244), using principal axis factoring as extraction method and promax rotation. The KMO Measure of Sampling Adequacy is .84, indicating the possibility of common factors. Bartlett's Test of Sphericity is statistically significant, χ^2=1679.17 (153),

p=.000, indicating significant correlations among the variables.

Parallel analysis determined that ten factors had to be extracted. The resulting number of factors is evidently over-defined, with five factors comprising two indicators and four factors comprising only one item, with two items loading simultaneously on two factors without a difference of at least .30 and one item with no loadings above .30. To determine the number of factors to be extracted, the scree plot and eigenvalues were also examined. They both suggested extracting three factors, accounting for 44.81% of the total variance. Item 12 and item 17 were removed caused by triple (F1=.315, F2=.530, F3=.393) and double (F1=.310, F2=.076, F3=.319) loadings, respectively.

Factor 1, which is responsible for 32.06% of the total variance of the questionnaire with an eigenvalue of 5.63, includes 8 items loading above .32. Factor 2, with 5 items loading above .36, has an eigenvalue of 1.61 and accounts for 6.89% of the total variance explained. Factor 3, with 3 items loading above .40, has an eigenvalue of 1.40 and accounts for 5.86% of the total variance. The factor loadings for each item are reported in **table 1**.

items are substantially and linearly correlated with the underlying construct it is intended to measure (i.e., corrected item-scale correlation is .30 or more), indicating good subscales homogeneity. The corrected item-total correlations for the three subscales are presented in **table 2**.

Subscales' intercorrelations

Table 3 shows the correlation coefficients between the three CAS subscales. As expected, subscales correlated significantly (*p*<.01, two-tailed tests) but moderately with each other (.39 ≤ *r* ≤ .56, *p*<.01), indicating that the scale dimensions measured several aspects of the hoarding that are relatively distinct from one another. Pearson's correlations are presented in **table 3**.

Confirmatory factor analysis

The three-factor structure obtained by exploratory factor analysis was replicated by confirmatory factor analysis with the second random subsample (n=247),

Table 1. *Factor loadings of the CAS items (Pattern Matrix)*

Item	F1	F2	F3
5. Do you feel anxious or depressed when you don't buy something really wanted?	**.780**	-.033	.006
7. Do you feel like you absolutely have to have something you see while shopping?	**.707**	.234	-.063
6. Do you buy things to make yourself feel better?	**.655**	.127	-.034
16. Do you buy extras of things just in case you might need them?	**.606**	-.168	.109
1. Do you buy things you never use?	**.568**	.059	.005
4. Do you feel compelled to buy something (for example, a good bargain) even though you could do without it?	**.515**	.158	.038
18. Do you regret not taking something you could have gotten for free?	**.369**	-.160	.280
8. Do you feel distressed or upset because you have bought things you don't need?	**.317**	-.106	.202
11. Has excessive shopping interfered with your social life or your job?	-.289	**.897**	.174
13. Do you spend a longer time shopping than you intended?	-.005	**.779**	-.091
9. Do you think you spend too much time shopping?	.187	**.639**	-.124
2. Do you buy things you don't have the money for?	.197	**.467**	.118
10. Has excessive shopping resulted in financial difficulties for you?	.204	**.363**	.067
15. Do you feel compelled to take free copies of magazines or newspapers when they are available?	.028	.032	**.824**
14. Do you feel compelled to take flyers or handouts from lectures or talks?	.071	.012	**.629**
3. Do you pick things up that other people have discarded?	.048	.095	**.401**
% explained variance	32.06	6.89	5.86
F1	–		
F2	.570	–	
F3	.415	.362	–

Note. F1=*Emotions*; F2=*Time & Money*; F3=*Free Stuff*.

Internal consistency reliability

Based on the emerged 3-factor structure, CAS data from the first random subsample (n=244) were analyzed to assess the internal consistency of the scale. Cronbach's alpha coefficients are as follows: Emotions (Cronbach's α=.81, corrected item-total correlations range: from .31 to .69); Time & Money (Cronbach's α=.79, corrected item-total correlations range: from .50 to .62); Free Stuff (Cronbach's α=.68, corrected item-total correlations range: from .37 to .61). All the

using maximum likelihood robust estimation. Based on subscales' intercorrelations, factors were allowed to correlate. The chi-square statistic for the proposed model is SBS χ^2 (98)=148.45, *p*<.001. Although the chi-square test indicates that the model does not provide a good fit to the data, other goodness-of-fit indices suggest an acceptable model fit (CFI=.93; NNFI=.91; RMSEA=.046; SRMR=.075).

The results for this measurement model are presented in **table 4**. **Figure 1** reports the standardized factor loadings for the verified model. Examination of

Table 2. *Internal consistency reliability and corrected item-total correlations for the three subscales*

Item No.	F1	F2	F3
Item 5	.66		
Item 7	.69		
Item 6	.64		
Item 16	.49		
Item 1	.52		
Item 4	.56		
Item 18	.37		
Item 8	.31		
Item 11		.62	
Item 13		.60	
Item 9		.62	
Item 2		.56	
Item 10		.50	
Item 15			.61
Item 14			.52
Item 3			.37
Cronbach's alpha	.81	.79	.68

Note. F1=*Emotions*; F2=*Time & Money*; F3=*Free Stuff*.

Table 3. *CAS subscales' intercorrelations*

	F1	F2	F3
Emotions	–		
Time & Money	.556**	–	
Free Stuff	.465**	.387**	–

Note. **p<.01; F1=*Emotions*; F2=*Time & Money*; F3=*Free Stuff*.

figure 1 shows that all the items loaded significantly (p<.05) on their respective factors, yielding coefficients of .35 or higher. Subsequent tests for convergent and discriminant validity would be based on the revealed three-factor structure.

Concurrent validity

Support for concurrent validity was provided by significantly positively correlations between CAS scores and the other measures of hoarding severity (Clutter Image Rating, CIR; Saving Inventory-Revised, SI-R; Saving Cognitions Inventory, SCI; Hoarding Rating Scale, HRS-I) (see **table 5**). Both CAS subscales and total score correlated significantly and positively with each of the other administered hoarding measures: from r = .30 to r = .39 (p<.01) with the CIR; from r = .32 to r = .70 (p<.01) with the SI-R; from r = .25 to r = .61 (p<.01) with the SCI; from r = .16 (p<.05) to r = .47 (p<.01) with the HRS-I.

Convergent validity

Convergent validity was gathered examining correlations between CAS and: (1) depression, as measured by Beck Depression Inventory-II (BDI-II), (2) anxiety, as measured by Beck Anxiety Inventory (BAI), and (3) obsessive compulsive disorder, as measured by Obsessive Compulsive Inventory-Revised (OCI-R). As depicted in table 6, CAS scores did correlate significantly with all of the OCI-R subscales and total score (from r = .27 to r = .64, p<.01). The CAS subscales correlated positively also with depression and anxiety. The relationships were significant and in the expected direction: from r = .30 to r = .47 (p<.01) and from r = .37 to r = .46 (p<.01), respectively.

Discussion

The purpose of the present study was to psychometrically evaluate the CAS, in terms of both

Table 4. *Fit indices for the three-factor model*

SBS χ^2	*df*	*p*	χ^2/*df*	NNFI	CFI	SRMR	RMSEA	90% CI
148.45	98	.000	1.51	.91	.93	.075	.046	.030–.060

Note. SBS χ^2=*Satorra-Bentler Scaled chi-square test*; NNFI=*Non-Normed Fit Index*; CFI=*Comparative Fit Index*; SRMR=*Standardized Root Mean Square Residual*; RMSEA=*Root Mean Square Error of Approximation*; CI=*Confidence Interval*.
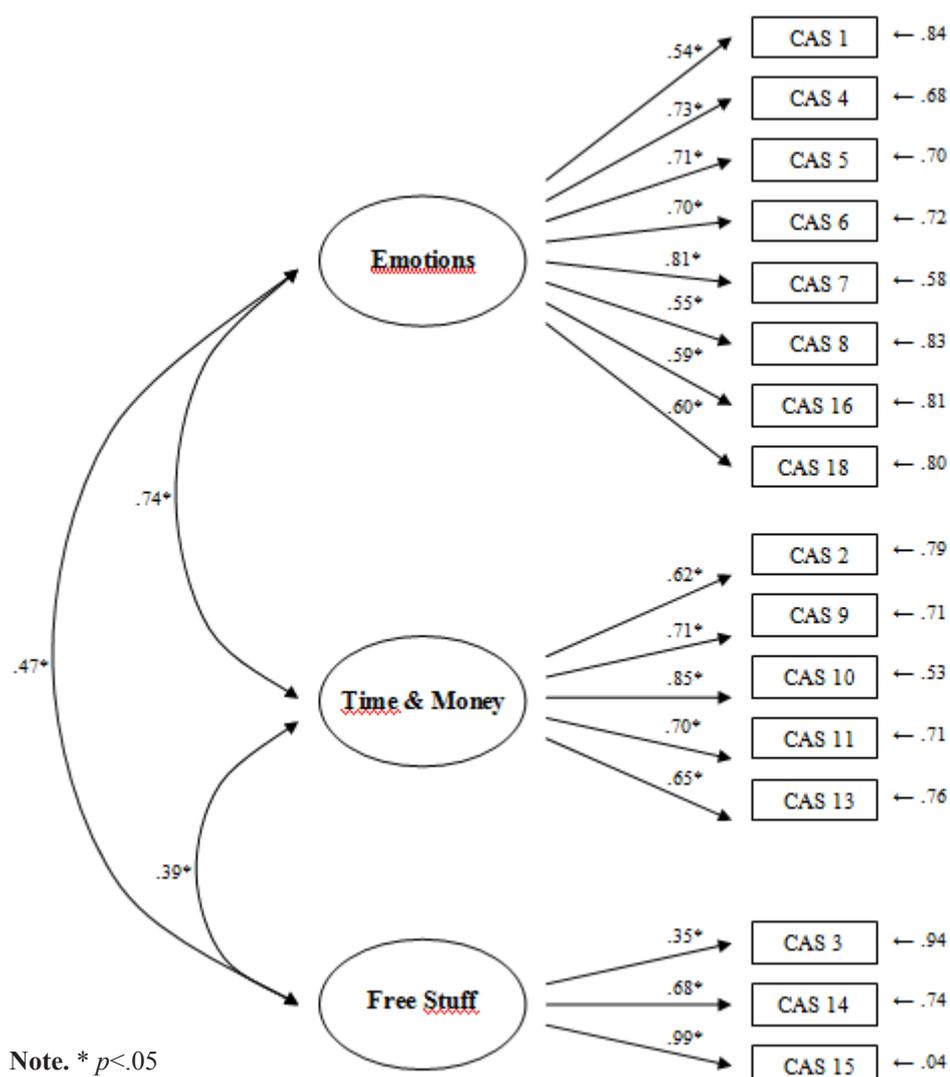
Figure 1. *Empirical model (standardized solution)*

Note. * *p*<.05

Table 5. *Correlations between CAS subscales and other measures of hoarding*

Measures	CAS Emotions	CAS Time & Money	CAS Free Stuff	CAS Total Score
CIR	.30**	.38**	.30**	.39**
SI-R – Clutter	.33**	.39**	.42**	.44**
SI-R – Difficulty Discarding	.39**	.32**	.46**	.46**
SI-R – Acquisition	.65**	.61**	.38**	.70**
SI-R – Total score	.52**	.49**	.50**	.61**
SCI – Affective Attachment	.44**	.42**	.50**	.53**
SCI – Control	.41**	.25**	.30**	.42**
SCI – Responsibility	.48**	.48**	.49**	.59**
SCI – Memory	.44**	.43**	.46**	.52**
SCI – Total score	.51**	.45**	.52**	.61**
HRS-I – Clutter	.27**	.42**	.34**	.39**
HRS-I – Difficulty Discarding	.25**	.16*	.28**	.28**
HRS-I – Acquisition	.38**	.39**	.37**	.46**
HRS-I – Distress	.34**	.34**	.32**	.40**
HRS-I – Impairment	.17**	.37**	.27**	.29**
HRS-I – Total score	.37**	.42**	.41**	.47**

Legenda. *CAS = Compulsive Acquisition Scale; CIR = Clutter Image Rating; SI-R = Saving Inventory-Revised; SCI = Saving Cognitions Inventory; HRS-I = Hoarding Rating Scale-Interview.*
*p<.05 (2-tailed); **p<.01 (2-tailed)

Table 6. *Correlations between CAS subscales and BDI-II, BAI, and OCI-R*

Measures	CAS Emotions	CAS Time & Money	CAS Free Stuff	CAS Total Score
BDI-II	.43**	.30**	.37**	.47**
BAI	.37**	.42**	.40**	.46**
OCI-R – Hoarding	.47**	.43**	.53**	.57**
OCI-R – Checking	.43**	.42**	.38**	.51**
OCI-R – Neutralizing	.37**	.55**	.39**	.51**
OCI-R – Obsessing	.46**	.37**	.41**	.51**
OCI-R – Ordering	.39**	.35**	.27**	.43**
OCI-R – Washing	.44**	.54**	.32**	.52**
OCI-R – Total score	.54**	.56**	.48**	.64**

Legenda. *CAS = Compulsive Acquisition Scale; BDI-II = Beck Depression Inventory-II; BAI = Beck Anxiety Inventory; OCI-R = Obsessive Compulsive Inventory-Revised.*
**p<.01 (2-tailed)

reliability and construct validity.

Our results suggested the Italian version of the CAS is an adequate measure to assess compulsive acquisition symptoms. Specifically, with respect to factor structure, it emerged an important difference from the English version. Indeed, the factor analyses revealed a tree-factor structure. The factor 1, which we have named "Emotions" (including items as "Do you feel anxious or depressed when you don't buy something really wanted?" or "Do you feel anxious or depressed when you don't buy something really wanted?"), seems to assess how the shopping or the acquisition of free items is motivated from the research of positive emotions or avoidance of discomfort.

The factor 2, named "Time and Money" (including items as "Has excessive shopping interfered with your social life or your job?" or "Has excessive shopping resulted in financial difficulties for you?"), seems relate to how the acquisition interferes with life, specially on the excessive spending of time e money.

Lastly, the factor 3, named "Free Stuff" (including items as "Do you feel compelled to take flyers or handouts from lectures or talks?" or "Do you pick things up that other people have discarded?"), seems to assess the need to take an object if it's free.

With respect to internal consistency reliability and corrected item-total correlations, for the three subscales emerges acceptable subscale homogeneity. Finally, the subscales inter-correlations indicate that the scale dimensions measure several aspects of the hoarding that are relatively distinct from one another.

Evidence for both concurrent and convergent validity was provided by significant correlations between the CAS and the other measures of the hoarding severity and selected measures of anxiety, depression, and obsessive compulsive disorder symptoms. In line with the findings of the original study (Frost et al. 2002), the general pattern of results was of a stronger association for like subscales than for unlike subscales.

It is important to note that the current study has an important limitation since we used only a nonclinical sample, which limits the generalizations that can be drawn from the reported findings.

Moreover, given the results of present study, it would be useful to make further investigations to confirm the factorial structure of the CAS. Indeed, even the study of Mueller et al. (2010), although confirming that the CAS is a valid measure for assessing the acquisition compulsive symptoms, shows that the originally suggested 2-factor structure does not

adequately represent the data in a German population-based sample.

In conclusion, despite these limitations, this investigation provides evidence that the Italian version of the CAS can be confidently administered. A replication study using a clinical samples and providing Italian norms would be hopefully useful. Additional research could be focused on examining possible relationships with boredom proneness (Craparo et al. 2013, Craparo et al. 2017), decision making tendency, in terms of maximizing, satisficing, and minimizing (Misuraca et al. 2015), guilt sensitivity (Perdighe et al. 2015), and self-actualization (Faraci and Cannistraci 2015). The validated scale could be lastly useful to compare the effectiveness of different treatment methods in a randomized controlled trial (Steketee et al. 2010, Triscari et al. 2015).

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