

Title

Shoplifting and eating disorders: an anonymous self-administered survey

Authors

Maya Yanase, Genichi Sugihara, Toshiya Murai, Shun'ichi Noma

Department of Psychiatry, Kyoto University Graduate School of Medicine, Kyoto, Japan

Physical address for all authors:

54 Shogoin-Kawaharacho, Sakyo-ku, Kyoto, 606-8507, Japan

Corresponding author:

Shun'ichi Noma, MD, PhD

Tel: +81 75 751 3386

e-mail address: noma@kuhp.kyoto-u.ac.jp

Acknowledgement: This research was supported in part by Kyoto University Research Development Program MIGAKI.

Abstract

Purpose To explore the characteristics of eating disorders related to shoplifting behavior and identify the risk and protective factors related to shoplifting among patients with eating disorders.

Methods Eighty females with eating disorders were recruited from an eating disorders clinic. They were asked to complete anonymous self-report questionnaires on demographic characteristics, shoplifting behavior, psychological characteristics and eating disorder symptomology. We investigated differences in clinical characteristics between those with and without shoplifting history or a current drive to shoplift.

Results The response rate was 92.5%. Of the respondents, 37.8% reported a history of shoplifting and 16.2% a current drive for shoplifting. The patients with shoplifting history had lower socioeconomic status (SES), higher impulsivity and higher symptom severity of eating disorders compared with those without this history. The patients with a current drive for shoplifting had more depressive symptoms, more severe anxiety, more obsessional traits, and higher symptom severity of eating disorders.

Conclusions Severity of illness and socioeconomic status seem to have a serious impact on shoplifting behavior among eating disordered patients. These findings may suggest risk and protective factors related to shoplifting among eating disordered patients.

Keywords Eating disorder, Shoplifting, Risk factor, Protective factor

Introduction

Shoplifting is common among patients with eating disorders. One study reported that shoplifting behavior was more common in individuals with eating disorders than in either a control group or a psychiatric control group (i.e., individuals with mood disorders and anxiety disorders) [1]. Similar results have been reported from a study that estimated the rate of shoplifting at 67% for individuals with bulimia nervosa and 14% for controls [2]. Although shoplifting is more prevalent in eating disorder (ED) patients with bulimic symptoms than in those with restrictive symptoms [3–5], it also occurs in the latter type [6,7]. Shoplifting behaviors in eating disorders can be an issue of forensic concern: A survey conducted in Japan reported that among 4240 female inmates, 2.7% ($n = 116$) were diagnosed with eating disorders, and 72% of the inmates with eating disorders had been sentenced for shoplifting [8].

Several studies have identified clinical characteristics and patterns of eating disturbances in ED patients with shoplifting: Patients who shoplift have symptoms of high impulsivity [7]; severe depression [1,7]; dissociation [6]; (state) anxiety [7]; obsession [4]; low self-esteem [1]; purging behaviors [1]; and interpersonal sensitivity, hostility, and higher severity of eating behaviors in general [4]. With regard to eating disturbances, patients who shoplifted were reported to show a more chronic course with a later onset of illness [7].

However, these assessments may not be comprehensive, because other temperamental or environmental variables such as anxiety traits / obsessional traits or socioeconomic status, any of which may affect shoplifting behavior, have not been tested. In addition, no studies have distinguished between past shoplifting behavior and a current drive to shoplift.

Generally, forensic risk assessment refers to the attempt to predict the likelihood of future offending to identify individuals in need of intervention [9]. This assessment involves the structured examination of a number of risk factors and protective factors that may be either static (historical or unchanging), acutely dynamic (modifiable and likely to change), or stably dynamic (modifiable but unlikely to change) [9]. Therefore, thorough investigation of potential psychosocial correlates of shoplifting in ED patients is warranted.

In this study, we conducted a survey on demographic background; details of shoplifting; mental problems including impulsivity, depression, dissociation, anxiety, and obsession; and eating disturbances. The aim of our study is to explore the characteristics of eating disorders related to shoplifting behavior and to identify the risk and protective factors related to shoplifting among patients with eating disorders. We adopted an anonymous postal questionnaire survey, because the social unacceptability of shoplifting may make patients reluctant to report shoplifting honestly. Anonymous postal surveys have been deemed suitable for exploring sensitive areas such as mental health problems or criminal matters [10].

Materials and Methods

Subjects

A total of 80 consecutive females aged over 18 years and fulfilling DSM-5 [11] criteria for eating disorders were recruited from the Eating Disorders Clinic at the Department of Psychiatry, Kyoto University Hospital, from February 2014 to May 2014. Both written and oral informed consent was obtained from all participants. Exclusion criteria were schizophrenia spectrum and other psychotic disorders, bipolar and related disorders, neurocognitive disorders, and neurodevelopmental disorders. The subtypes were anorexia nervosa, restricting type ($n = 29$); anorexia nervosa, binge-eating/purging type ($n = 19$); bulimia nervosa ($n = 17$); binge eating disorder ($n = 1$); and other specified eating disorders ($n = 14$).

Procedures and Measures

The participants were asked to complete a series of self-report questionnaires and to return them by mail. Because shoplifting is socially undesirable, to help prevent subjects hesitating to report or underreporting actual behaviors, the survey was done anonymously. The questionnaires reminded the subjects that the survey was anonymous and completed privately, meaning that there was no way for researchers to link an individual with any personally identifying information, including DSM-5 subtypes. The questionnaire packet comprised a basic information sheet, a questionnaire on shoplifting and other self-report measures including impulsivity, depression, dissociation, anxiety, obsession and eating disorder symptomology, as described below.

Basic Information Sheet. This sheet asked subjects to provide basic demographic information including age, duration of illness, untreated period, height, body weight, years of education, prescription history, marital status, and socioeconomic status (SES) [12].

Shoplifting Questionnaire. In the questionnaire, shoplifting behavior was defined as “intentionally and surreptitiously taking an item being sold in a store without payment and without permission of store staff or management.” This original questionnaire comprises 15 questions on shoplifting that assess whether the subject has ever shoplifted, the age of first shoplifting, the type of items shoplifted, the number of

times shoplifting has occurred, and the presence/details of the urge to shoplift.

Measures of Psychological Characteristics and Eating Behavior

On the basis of previous studies, we used the following questionnaires to assess psychological characteristics including impulsivity, depression, dissociation, anxiety, obsession, and eating behaviors. To measure impulsivity, the Barratt Impulsiveness Scale 11 (BIS-11) was used. The BIS-11 includes 30 items that are scored to yield six first-order impulsiveness factors (attention, motor, self-control, cognitive complexity, perseverance, and cognitive instability) and three second-order factors (attentional, motor, and non-planning) [13]. Depressive symptoms were assessed using the Beck Depression Inventory Second Edition (BDI-II) [14]. Dissociative experiences were measured with the Dissociative Experiences Scale-II (DES-II) [15]. State and trait anxiety and obsessional traits were measured using the State-Trait Anxiety Inventory (STAI) [16] and the Leyton Obsessional Inventory (LOI) [17], respectively.

The Eating Disorder Inventory (EDI) [18] was used to assess the severity of eating disorders. To increase the response rate, we employed the shorter version of the EDI, which comprises 64 questions, divided into eight subscales. Each question is on a 6-point scale (ranging from “always” to “never”). The 8 subscales on the EDI are: drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears.

Data Analysis

All data were analyzed by researchers who were not involved in the treatment. We tested for variable differences between: (1) those with shoplifting history and those without, as well as (2) those with a current drive for shoplifting and those without. The variables included demographic data, SES, scores on the Shoplifting Questionnaire on the BIS-11, BDI-II, DES-II, STAI, LOI, and EDI. Chi-squared and t tests were used where appropriate. To determine the relative contribution of each of the explanatory variables to an outcome (shoplifting behavior and current drive for shoplifting), logistic and multiple linear regression analyses (Wald’s hierarchical backward elimination method [19]) were conducted. In the backward elimination method, all variables are entered, and then one variable is removed if warranted at each step. Removal is based on the probability of the Wald statistic. Analyses were performed using

SPSS version 22 (IBM, Tokyo). The level of significance was set at 0.05.

Ethical Considerations

This study was approved by the Kyoto University Graduate School and the Faculty of Medicine Ethics Committee. Participation in the study was voluntary, and written and verbal consent was obtained at the time of recruitment.

Results

The response rate to the survey was 92.5% ($n = 74$). Demographic characteristics of the respondents are summarized in Table 1. Regarding shoplifting behaviors, 37.8% ($n = 28$) of the patients admitted a history of shoplifting. Among the 28 individuals, 6 admitted to current shoplifting (i.e., within the past 6 months). Of the total sample, 12 (16.2%) reported a current drive for shoplifting. Among those 12, 5 reported current shoplifting, 5 reported a history of shoplifting without current shoplifting, and 2 reported no past or current shoplifting. Over half (55.4%, $n = 41$) declared neither shoplifting behavior nor a current drive for shoplifting. Stolen items were coded according to the following three categories: food items, appearance-oriented items, and other items (multiple answers allowed). The stolen items were mainly food (60.7%, $n = 17$), but 42.9% ($n = 12$) stole appearance-oriented items, and 35.7% ($n = 10$) stole other items. Notably, 42.9% ($n = 12$) began shoplifting before they developed eating disorders. Details about shoplifting behaviors are summarized in Table 2.

Although the questionnaire did not differentiate habitual shoplifting from one-time occurrence, we asked for the total number of shoplifting episodes. Only 2 of the 28 participants who had ever shoplifted categorized themselves as one-time shoplifters; therefore, we did not analyze this group independently (Table 3). We found no relationship between shoplifting and impulsivity or between shoplifting and socio-economic status.

Between-Group Comparisons

Demographic characteristics are summarized in Table 1. Education levels were lower in patients with shoplifting history than in those without (12.4 ± 1.6 years vs. 13.1 ± 2.9 years, $p = 0.031$). Shoplifting history was also associated with lower SES ($p = 0.011$). There were no significant group differences in age, duration of illness, untreated period, BMI, history of medication, or marital status. There was a significant difference between subjects with and without current shoplifting drives in the untreated period (0.3 ± 0.9 vs. 3.0 ± 5.5 , $p = 0.0005$), but not for any other demographic characteristics.

Questionnaire results are summarized in Tables 4 and 5. Participants with a shoplifting history had higher impulsivity ($p = 0.001$). A current shoplifting drive was unrelated to BIS-11 total scores or subscales,

except that “Cognitive instability” was positively associated with this drive ($p = 0.002$).

Shoplifting history was unrelated to levels of depression, anxiety, and obsessional traits; however, a current drive to shoplift was associated with higher levels of all of these conditions (depression $p = 0.008$; state anxiety $p = 0.030$; trait anxiety $p = 0.029$; obsessional traits $p = 0.013$).

Neither shoplifting history nor a current drive for shoplifting was significantly linked to the level of dissociation. However, participants with a shoplifting history had more severe eating disturbances ($p = 0.010$). Among the subscales, shoplifting history was associated with higher subscale scores for “Ineffectiveness,” “Interpersonal distrust,” and “Interoceptive awareness” ($p = 0.010$, 0.001 , and 0.007 , respectively).

Having a current shoplifting drive was linked to more severe eating disturbances ($p = 0.0002$). There were significant differences in all the EDI subscales except “Maturity fears” (Drive for thinness, $p = 0.002$; Bulimia, $p = 0.002$; Body dissatisfaction, $p = 0.013$; Ineffectiveness, $p = 0.006$; Perfectionism, $p = 0.013$; Interpersonal distrust, $p = 0.026$; Interoceptive awareness, $p = 0.009$).

Effects of demographic/psychological factors on shoplifting

Logistic regression analyses showed that shoplifting history was associated with lower socioeconomic status (SES) ($p = 0.008$) and higher impulsivity ($p = 0.002$), whereas current shoplifting drive was related to more severe eating disturbances ($p = 0.003$).

Discussion

In the present study, we conducted an anonymous self-report questionnaire survey in ED patients to investigate relationships between shoplifting and clinical psychosocial characteristics. Complete anonymity was achieved through use of a mail-in survey, which has not been employed in previous studies. In our sample, the rate of shoplifting history was 37.8%; in 42.9% of these individuals, shoplifting preceded development of eating disorders. Shoplifters had higher levels of impulsivity, greater severity of eating disturbances, fewer years of education, and lower SES than did non-shoplifters. In addition, patients who admitted to a current drive for shoplifting (16.2%) had higher levels of depression, anxiety, and obsessional traits and more severe eating disturbances than did patients who denied having such a drive. Logistic regression analyses showed that lower SES and higher impulsivity were associated with shoplifting history and that more severe eating disturbances were associated with a current shoplifting drive.

Although a recent report from another Japanese group (Asami et al., 2014; ref. 8) shows an opposite finding (shoplifting was associated with less impulsive behavior), that study assessed severity in comparison with individuals with drug addiction whose impulsivity was higher than that of the general population. Therefore, the two results are not comparable.

The prevalence of stealing among Japanese ED patients was reported to be 28.3% [20]. In previous studies with ED patients, the percentage who had ever shoplifted varied from 14% to 54.8% [6,7]. Similarly, the percentage of shoplifters with onset prior to the development of eating disorders varied according to the studies (i.e., 55% [6], 67% [21] and 72.8% [20]). It is difficult to compare our findings on the percentage of shoplifting history (37.8%) and early shoplifting onset (42.9%) with the findings of previous studies because the definitions of “shoplifting” in these previous surveys are inconsistent. Nevertheless, our results at least support the assumption that shoplifting is common among ED patients and that shoplifting and eating disorders exhibit overlapping psychopathologies.

Some studies have reported no differences in social class background with regard to shoplifting in ED patients [6,7]. However, we confirmed the association between lower SES and shoplifting in our sample,

and this result aligns with a previous finding of lower SES in shoplifters in the general population [22]. This suggests that financial problems may play an important role in shoplifting behavior in eating disorder populations.

There has been an ongoing discussion concerning whether psychological factors including impulsivity [3, 21], depression [23, 24], dissociation [6], anxiety [7], and obsession [8] in ED patients contribute to their shoplifting behavior. Our comprehensive survey at least confirmed the contribution of impulsivity. A previous study implicated the role of impulsivity in patients with bulimia nervosa [21]. In our study, we found a significant contribution of impulsivity in patients with shoplifting history, but not in those with a current shoplifting drive.

Previous studies [3, 4, 6, 8] have assumed a relationship between shoplifting and severe eating disorder symptoms. In our study, more severe eating disorder symptoms were found in patients who had a current shoplifting drive, not in patients who simply had a shoplifting history. This result suggests that eating disorder pathology has a stronger impact on generating a shoplifting drive than do the major comorbidities of eating disorders, such as depression, anxiety, and obsession.

This is the first study that focuses not only on shoplifting history, but also on a current drive for shoplifting. A current drive reflects the at-risk state for shoplifting among ED patients. In contrast, characteristics of ED patients with a history of shoplifting but no current drive may suggest protective factors for shoplifting. A current drive for shoplifting has been related to the severity of the eating disorder. The results of our study suggest that the general treatment of eating disorders itself may restrain patients from committing antisocial behaviors like shoplifting.

This study has clarified the demographic/psychological characteristics of ED patients in relation to shoplifting history and the current drive for shoplifting. Actuarial predictions of future shoplifting based on risk factors such as lower SES may achieve greater accuracy than purely clinical methods, but the former approach does not provide any information on clinical needs for intervention. We have identified dynamic actuarial risk factors (i.e., correlates of more severe eating disorder symptoms) by examining the

current drive for shoplifting in ED patients. Although studies on behavioral interventions for preventing shoplifting in eating disorders have been conducted (Birmingham et al., 2005; ref. 25), to date, no such intervention, nor any substantive model, has been established. Our findings may provide insights for development of such interventions [25].

Limitations

There are some limitations in our study. First, without correcting for multiple comparisons, we cannot rule out the possibility that these results are false positives. Therefore, this study should be regarded as preliminary, and the results should be re-examined using a larger sample. Second, since we investigated only female patients, and recruited patients only from the University Hospital Clinic, there might be bias in severity or demographic background. Caution should be exercised in generalizing the present findings to all patients with eating disorders. Third, since we assessed the severity of eating disorders (and other symptoms) only by self-report questionnaire (e.g., EDI), this may also introduce bias. Fourth, some studies reported that the prevalence of shoplifting behavior among ED patients varied between diagnostic subgroups [3–7]. In our study, however, the survey was anonymous and thus, there was no way for us to link an individual with any personally identifying information including diagnostic subgroups, we did not explore such issue. Finally, since the measures of shoplifting relied upon retrospective self-report, we have to take into account the biases of social desirability and memory. The former may influence a subject to deny undesirable traits and profess desirable ones [26], and the latter may be a source of either random or systematic error. In addition, since self-report was anonymous, this could be viewed as a limitation with respect to the amount of data that researchers could access. However, anonymity is also an advantage, as it encourages honest and accurate answers by protecting the privacy of participants.

Compliance with ethical standards

Funding The authors declare that no funding source was involved in this study.

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed consent Informed consent was obtained from all individual participants included in the study.

References

1. Goldner EM, Geller J, Birmingham CL, Remick RA. Comparison of shoplifting behaviours in patients with eating disorders, psychiatric control subjects, and undergraduate control subjects. *Can J Psychiatry*. 2000;45(5):471-475.
2. Weiss SR, Ebert MH. Psychological and behavioral characteristics of normal-weight bulimics and normal-weight controls. *Psychosom Med*. 1983;45(4):293-303.
3. Baum A, Goldner EM. The relationship between stealing and eating disorders: a review. *Harv Rev Psychiatry*. 1995;3(4):210-221. doi: 10.3109/10673229509017187
4. Krahn DD, Nairn K, Gosnell BA, Drewnowski A. Stealing in eating disordered patients. *J Clin Psychiatry*. 1991;52(3):112-115.
5. Casper RC, Eckert ED, Halmi KA, Goldberg SC, Davis JM. Bulimia. Its incidence and clinical importance in patients with anorexia nervosa. *Arch Gen Psychiatry*. 1980;37(9):1030-1035. doi:10.1001/archpsyc.1980.01780220068007
6. Vandereycken W, van Houdenhove VD. Stealing behavior in eating disorders: characteristics and associated psychopathology. *Compr Psychiatry*. 1996;37(5):316-321. doi: 10.1016/S0010-440X(96)90012-7
7. Crisp AH, Hsu LK, Harding B. The starving hoarder and voracious spender: stealing in anorexia nervosa. *J Psychosom Res*. 1980;24(5):225-231. doi: [http://dx.doi.org/10.1016/0022-3999\(80\)90012-4](http://dx.doi.org/10.1016/0022-3999(80)90012-4)
8. Asami T, Okubo Y, Sekine M, Nomura T. Eating disorders among patients incarcerated only for repeated shoplifting: a retrospective quasi-case-control study in a medical prison in Japan. *BMC Psychiatry*. 2014;14:169. doi: 10.1186/1471-244X-14-169
9. Jerrod Brown, Jay P. Singh (2014) Forensic Risk Assessment: A Beginner's Guide. Archives of Forensic Psychology. 1(1), 49-59.
10. AB H. Four factor index of social status. *Department of Sociology, Yale University, New Haven, CT*. 1975.
11. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fifth*

- Edition*; 2013. doi.org/10.1176/appi.books.9780890425596
12. Hollingshead AB. Two Factor Index of Social Position. *Yale University*. 1957.
 13. Patton JH, Stanford MS, Barratt ES. Factor structure of the Barratt impulsiveness scale. *J Clin Psychol*. 1995;51(6):768-774. doi: 10.1002/1097-4679(199511)51:6<768::AID-JCLP2270510607>3.0.CO;2-1
 14. Beck AT, Steer RA, Ball R, Ranieri W. Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. *J Pers Assess*. 1996;67(3):588-597.
 15. Bernstein EM, Putnam FW. Development, reliability, and validity of a dissociation scale. *J Nerv Ment Dis*. 1986;174(12):727-735. doi: 10.1097/00005053-198612000-00004
 16. Spielberger CD. *Manual for the State-Trait Anxiety Inventory*; 1983.
 17. Cooper J. The Leyton obsessional inventory. *Psychol Med*. 1970;1(1):48-64.
 18. Garner., M. D. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*. 2009;2(2):15-34. doi: 10.1002/1098-108X(198321)2:23.0.CO;2-6
 19. RF. Engle. WALD, LIKLIHOOD RATIO, AND LAGRANGE MULTIPLIER TESTS IN ECONOMETRICS. *Handbook of Econometrics*. 1984;2:775-826.
 20. Okamoto. H. Stealing Behavior in Patients with Eating Disorders. *Medical Journal of Osaka City University*. 2013;62:7-14.
 21. Pyle RL, Mitchell JE, Eckert ED. Bulimia: a report of 34 cases. *J Clin Psychiatry*. 1981;42(2):60-64.
 22. Krasnovsky. T, Lane. RC. Shoplifting: a review of the literature. *Aggression and Violent Behavior*. 1998;3(3):219-235. doi: 10.1016/S1359-1789(97)00022-0
 23. Norton KR, Crisp AH, Bhat AV. Why do some anorexics steal? Personal, social and illness factors. *J Psychiatr Res*. 1985;19(2-3):385-390. doi: 10.1016/0022-3956(85)90045-7
 24. Rowston WM, Lacey JH. Stealing in bulimia nervosa. *Int J Soc Psychiatry*. 1992;38(4):309-313.
 25. Birmingham C.L., Hlynsky J., Russell B., Gritzner S. Pilot treatment program for shoplifting in eating disorders. *Eating Weight Disord*. 2005; 10:105-108.
 26. Tourangeau R, Yan T. Sensitive questions in surveys. *Psychol Bull*. 2007;133(5):859-883. doi: 10.1037/0033-2909.133.5.859

Table 1. Characteristics of participants

	All respondents (n = 74)	Shoplifting history (+) (n = 28)	Shoplifting history (-) (n = 46)	Shoplifting drive (+) (n = 12)	Shoplifting drive (-) (n = 62)
Age (years)	32.9 ± 9.6	32.3 ± 8.4	33.2 ± 10.4	30.0 ± 7.9	33.4 ± 9.9
Mean ± SD (range)	(19-57)	(19-57)	(19-53)	(19-45)	(19-57)
Duration of illness (years)	13.1 ± 8.6 (0-35)	13.0 ± 7.9 (0-34)	13.1 ± 9.1 (0-35)	11.7 ± 7.7 (1-27)	13.3 ± 8.8 (0-35)
Untreated period (years)	2.6 ± 5.2 (0-35)	2.0 ± 3.1 (0-13)	2.8 ± 6.1 (0-35)	0.3 ± 0.9 ** (0-3)	3.0 ± 5.5 ** (0-35)
Body Mass Index (kg/m ²)	16.9 ± 3.9 (9.3-28.7)	16.6 ± 5.2 (9.3--26.2)	16.3 ± 4.6 (10.8-28.7)	17.7 ± 4.3 (9.3--22.8)	16.2 ± 4.9 (11.0-28.7)
Education (years)	13.0 ± 2.0 (9.0-18.0)	12.4 ± 1.6* (9.0-16.0)	13.4 ± 2.1* (9.0-18.0)	12.9 ± 2.8 (9.0-16.0)	13.0 ± 1.8 (9.0-18.0)
History of medication (%)	71.6 (n = 53)	71.4 (n = 20)	71.7 (n = 33)	66.7 (n = 8)	72.6 (n = 45)
Presence of spouse (%)	20.3 (n = 15)	21.4 (n = 6)	19.6 (n = 9)	16.7 (n = 2)	21.0 (n = 13)
SES		29.4 ± 10.9*	37.3 ± 13.8*	35.7 ± 14.6	34.1 ± 13.1

*: p < 0.05; ** p < 0.005. Notations represent differences within rows.

Table 2. Characteristics of shoplifting

		Shoplifting history (+) (n = 28)
Last shoplifting	Within 6 months	6 (21.4%)
	More than 6 months	22 (78.6%)
Onset of shoplifting	Before eating disorder	12 (42.9%)
	After eating disorder	8 (28.6%)
	Unknown	8 (28.6%)
Total number of times	Once	2 (7.1%)
	2 to 5 times	9 (32.1%)
	6 to 10 times	6 (21.4%)
	>11 times	11 (39.3%)
Items stolen	Food	17 (60.7%)
	Appearance-oriented items	12 (42.9%)
	Other	10 (35.7%)

Table 3. Extent of shoplifting

Number of shoplifting episodes (times)	Number of shoplifters (n = 28)
1	2 (7.1%)
2-5	9 (32.1%)
6-10	6 (21.4%)
<11	11 (39.3%)

Table 4. Results of psychological measures¹

	Shoplifting history (+) (n = 28)	Shoplifting history (-) (n = 46)	Shoplifting drive (+) (n = 12)	Shoplifting drive (-) (n = 62)
BIS-II				
Total	69.0 ± 11.7**	59.7 ± 10.1**	67.8 ± 9.1	62.3 ± 11.9
Attention	11.3 ± 3.4**	9.1 ± 2.6**	11.1 ± 3.1	9.7 ± 3.1
Motor	14.6 ± 4.7*	12.3 ± 3.6*	14.9 ± 4.3	12.9 ± 4.1
Self-control	13.3 ± 3.3*	11.6 ± 3.5*	11.6 ± 2.4	12.4 ± 3.7
Cognitive complexity	13.5 ± 2.3*	12.0 ± 3.0*	13.1 ± 1.7	12.5 ± 3.0
Perseverance	9.0 ± 2.1*	7.7 ± 1.8*	8.7 ± 1.8	8.1 ± 2.0
Cognitive instability	7.3 ± 1.6	7.0 ± 2.1	8.4 ± 1.2**	6.9 ± 2.0**
Impulsiveness				
BDI-II				
Total	32.0 ± 13.0	26.3 ± 12.0	37.3 ± 10.3*	26.8 ± 12.4*
DES-II				
Total	16.4 ± 18.7	11.4 ± 14.2	22.4 ± 24.5	11.6 ± 13.6
Amnesia	10.5 ± 15.3	6.4 ± 14.0	16.4 ± 23.9	6.3 ± 11.6
Depersonalization / Derealization	13.7 ± 21.9	12.5 ± 18.3	22.1 ± 30.3	11.2 ± 16.6
Absorption	24.9 ± 26.0	15.6 ± 15.8	27.2 ± 25.5	17.6 ± 19.3
STAI				
State total	56.3 ± 12.9	53.8 ± 13.7	62.3 ± 10.4*	53.2 ± 13.5*
Trait total	64.1 ± 10.4	60.1 ± 14.5	69.2 ± 8.3*	60.2 ± 13.5*
LOI				
Symptom total	25.4 ± 8.8	24.8 ± 10.0	27.4 ± 11.2	24.5 ± 9.2
Trait total	10.3 ± 4.3	11.1 ± 4.6	12.9 ± 2.6*	10.4 ± 4.6*

Resistance total	9.7 ± 8.7	8.7 ± 5.8	10.1 ± 10.7	8.9 ± 6.1
Interference total	7.2 ± 6.1	8.5 ± 6.0	7.1 ± 6.3	8.1 ± 6.0

¹ BIS-11: Barratt Impulsiveness Scale 11, BDI-II: Beck Depression Inventory Second Edition, DES-II: Dissociative Experiences Scale-II, STAI: State-Trait Anxiety Inventory, LOI: Leyton Obsessional Inventory.

*: $p < 0.05$; **: $p < 0.005$. Notations represent differences within rows.

Table 5. Characteristics of eating behavior

	Shoplifting history (+) (n = 28)	Shoplifting history (-) (n = 46)	Shoplifting drive (+) (n = 12)	Shoplifting drive (-) (n = 62)
EDI¹				
Total	99.6 ± 33.9*	77.1 ± 36.7*	120.7 ± 29.0**	78.8 ± 34.7**
Drive for thinness	11.9 ± 5.6	10.3 ± 6.2	15.8 ± 4.3**	10.0 ± 5.8**
Bulimia	9.6 ± 7.0	7.5 ± 7.9	14.4 ± 7.8**	7.1 ± 7.0**
Body dissatisfaction	15.4 ± 7.5	13.7 ± 7.1	19.0 ± 7.3*	13.4 ± 7.0*
Ineffectiveness	18.2 ± 5.5*	14.2 ± 6.7*	20.4 ± 5.5	14.8 ± 6.3
Perfectionism	7.1 ± 4.4	5.7 ± 3.8	8.9 ± 2.6*	5.8 ± 4.1*
Interpersonal distrust	11.0 ± 4.4**	7.2 ± 4.8**	11.6 ± 3.5*	8.1 ± 5.1*
Interceptive awareness	16.6 ± 9.3*	11.0 ± 7.8*	19.1 ± 8.3*	12.0 ± 8.4*
Maturity fears	9.8 ± 5.5	7.4 ± 5.7	11.5 ± 7.5	7.7 ± 5.1

¹EDI: Eating Disorder Inventory

*: $p < 0.05$; **: $p < 0.005$. Notations represent differences within rows.

This is a post - peer - review, pre - copyedit version of an article published in "Eating and Weight Disorders". The final authenticated version is available online at

<https://www.springer.com/journal/40519>

Eat Weight Disord. 2018 Dec;23(6):753-759. doi: 10.1007/s40519-017-0394-9. Epub 2017 Apr 28.