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Quality of Life and Psychiatric Work Impairment in Compulsive Buying: Increased
Symptom Severity as a Function of Acquisition Behaviours

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Abstract

The aims of the current study were to determine if compulsive acquisition behaviours are meaningfully related to quality of life and psychiatric work impairment and to determine if compulsive buyers who engage in two forms of acquisition (buying and excessive acquisition of free items) are more impaired than individuals who only engage in one form of acquisition. In a community-recruited sample, analysis of covariance conducted between groups identified as non-compulsive buyers (NCB; $n = 30$), compulsive buyers who did not acquire free items (CBB; $n = 30$), and compulsive buyers who also acquired free items (CBF; $n = 35$) revealed that both acquisition groups reported higher levels of depression and stress, and lower quality of psychological well-being than the NCB group, despite a comparable number of individuals self-reporting a current mental health disorder in each group. The CBF group reported higher levels of anxiety and general distress, as well as greater work inefficiency days compared to the NCB and CBB groups. Furthermore, regression analyses supported the unique contribution of acquisition of free items to the prediction of psychiatric work impairment. Taken together, the findings highlight the serious impact of compulsive buying on work functioning, general quality of life, and psychological well-being and provide avenues for future research to investigate the role of acquisition of free items in symptom severity. Limitations and future directions are discussed.

Keywords: compulsive buying, acquisition, psychiatric disability

1. Introduction

Compulsive buying (CB) is characterized by a preoccupation with buying or impulses to buy that are experienced as irresistible, intrusive, uncontrollable, and is associated with frequent buying of more than can be afforded, of items that are not needed, or shopping for longer periods of time than intended (1). These behaviours do not occur in the context of mania, and result in harmful consequences including marked distress, marital and social conflict, and significant financial debt (1-3). The etiology of CB is not well understood, but models of related disorders such as hoarding have provided guidelines for investigations of CB. Hoarding involves the acquisition of, and inability to discard possessions, to a degree that precludes appropriate use of living spaces (4), creates distress or impairment in functioning, and is associated with a significant social and economic burden (5). Several studies support a relationship between compulsive buying and hoarding severity. Self-identified hoarders report higher levels of compulsive buying than do control participants (6) and severity of hoarding symptoms is significantly correlated with severity of compulsive buying (6-11). In addition, compulsive buyers display elevated levels of hoarding symptoms (12) and report significantly higher levels of hoarding than do community controls (8).

Frost, Tolin, Steketee, Fitch, and Selbo-Bruns (13) recently reported that in a sample of over 800 hoarders, 61% met criteria for compulsive buying. Compulsive buying and the acquisition of free objects were both associated with more severe hoarding symptomatology and increased distress. Specifically, the presence of excessive acquisition was associated with greater psychiatric comorbidity and increased OCD symptoms, depression, anxiety, and stress. Interestingly, compulsive buying was also a unique predictor of disability in the form of psychiatric work impairments days.

The results of this study raise the question of whether compulsive buyers who engage in both forms of acquisition are similarly more impaired than individuals who primarily acquire through purchasing behaviour. Greater impairments may be driven by increased acquisition pathology if compulsive buyers who are motivated to obtain free items also engage in more extreme or frequent buying episodes. As noted by Black (14) no direct studies have investigated the impact of compulsive buying on work impairment or quality of life indices. Indirect evidence for the impact of CB comes from research demonstrating that compulsive buyers report high levels of subjective distress, and report interpersonal difficulties as a result of the buying behaviours (15, 16). Accordingly, the aims of the current study were to 1) determine if compulsive acquisition behaviours are meaningfully related to quality of life and psychiatric work impairment, and 2) to determine if compulsive buyers who engage in both forms of acquisition are more impaired than individuals who primarily engage in purchasing behaviours. It was hypothesized that compulsive acquisition behaviours would correlate with general psychopathology, distress, and quality of life impairments. Further, it was hypothesized that compulsive buyers who endorse clinical levels of both forms of acquisition behaviours (based on cut-scores previously determined by Frost et al. (8)) would report higher levels of CB symptomatology and associated psychopathology (depression, anxiety, stress), report higher levels of distress (K10), evidence reduced quality of life (WHOQOL subscales), and report greater work impairment due to mental health issues compared to compulsive buyers who primarily engage in buying behaviours and those who do not meet criteria for compulsive buying.

2. Method

2.1. Participants

Individuals were recruited from the general community through advertisements placed in local newspapers and on mental health websites seeking individuals who either considered

that they met the advertised criteria for compulsive buying or who reported normal buying behaviours and were interested in participating in a research study. All participants answered screening questions to establish or rule out any self-reported history of Axis I symptoms (including mania), current substance abuse, or prior traumatic brain injury. All participants endorsing excessive buying/acquisition behaviours reported that their primary concern was buying/acquiring rather than hoarding and endorsed the proposed diagnostic criteria of McElroy and colleagues (1).

2.2 Measures

2.2.1 *The Compulsive Acquisition Scale (CAS; (8))* is a self-report scale comprised of a 12-item CAS-Buy subscale containing items that refer to frequency, reasons for buying, and the interference caused by these behaviours and a 6-item CAS-Free subscale measuring the excessive acquisition of free objects. Cut-off scores established by Frost et al. (2002) were 48 for the CAS Total, 41 for the CAS Buy, and 23 for the CAS Free. Both subscales demonstrate good psychometric properties (8, 17). Cronbach's alpha for the full scale was .95 in the current sample.

2.2.2. *The Compulsive Buying Scale (CBS; (18))* is a validated 7-item screening instrument developed to measure compulsive buying behaviour. An algorithm is used to score the CBS based on weights from the β s estimated from logistic regression during the development of the CBS (21). Lower scores on this scale indicate greater level of compulsive buying. A score less than or equal to -1.34 classifies a respondent as a compulsive buyer. Cronbach's alpha was .84 in the current sample.

2.2.3. *Depression Anxiety Stress Scales (DASS; (19))*. The DASS is a validated and widely-used 21-item self-report measure of depression, anxiety and stress symptoms. Depression scores 13 and lower, anxiety scores 9 and lower, and stress scores 18 and lower indicate

symptoms in the mild to normal range (22). The DASS demonstrates good reliability and internal consistency (20). Cronbach's alpha for the total score was .94 in the current sample.

2.2.4. *Saving Inventory-Revised (SIR; (21))*. The SI-R is a 23 item self-report measure that assesses difficulty discarding, clutter and compulsive acquisition. It has shown good internal consistency and reliability (23). Previous studies have reported an overall mean of 60 for individuals with hoarding (22, 23). Cronbach's alpha was .96 in the current sample.

2.2.5. *The World Health Organization Quality of Life-BREF(24)*. The WHOQOL-BREF is a 26-item brief measure of quality of life that assess four domains; psychological well-being, physical health, social relationships, and environment. The WHOQOL-BREF has been validated cross-culturally and demonstrates good psychometric properties (27). Higher scores reflect better quality of life. Cronbach's alpha was .89 in the current sample.

2.2.6. *Kessler Psychological Distress Scale (K10;(25))*. The K10 is a global measure of distress based on questions about anxiety and depressive symptoms that a person has experienced in the past 4 weeks. Scoring criteria based on Andrews and Slade (26) are as follows: normal range = ≤ 19 ; mild range = 20-24; moderate range = 25-29; severe = ≥ 30 . Cronbach's alpha was .92 in the current sample.

2.2.7. *Work Impairment Indices*. Following Tolin et al. (27) participants were asked about psychiatric work loss days (number of days in the past four weeks that the participant could not work or carry out usual activities due to mental health issues) and psychiatric work cutback days (number of days in the past four weeks that the participant was less effective at work or usual activities due to mental health issues). Total psychiatric work impairment was calculated as the number of psychiatric work loss days plus 50% of the number of psychiatric work cutback days based on Kessler and Frank's (28) scoring formula.

2.3. Procedure

Eligible respondents were emailed a unique link to a secure website sponsored by The University of New South Wales who granted ethical approval and hosted the battery of electronic questionnaires. Informed consent was obtained for all participants prior to commencement of the online questionnaires. Respondents received a payment of \$10 Australian dollars in exchange for their participation.

2.4. Statistical Analyses

Zero-order correlations (adjusted for multiple comparisons, $p < .01$) were conducted to examine the relationship amongst variables. Separate one-way analysis of variance (ANOVA) and Pearson Chi-Square were conducted to examine group differences in demographic variables. To determine whether groups differed in terms of psychopathology, general distress, quality of life indices, and psychiatric work impairment, General Linear Model (GLM) procedures and planned comparisons were conducted with current mental health status included as a covariate. A Bonferroni adjustment ($p < .016$) was applied for follow-up contrasts.

3. Results

One hundred and twenty-four respondents initially volunteered to participate in the study. Eight participants were excluded due to either endorsement of current substance dependency ($n = 5$), current diagnosis of mania ($n = 3$), or severe head trauma ($n = 1$). Data from twenty-one participants who were not in full-time employment were excluded from data analyses given the focus on work impairment. The final sample included 72 females and 23 males with a mean age of 28.00 ($SD = 9.25$).

Zero-order correlations conducted in the full sample are reported in Table 1. As expected, both measures of acquisition behaviours (CBS and CAS) correlated with measures of general psychopathology, distress, and most domains of quality of life. Only correlations at $p < .01$ or $p < .001$ are considered significant.

Insert Table 1 about here

Following Frost et al. (13), cut-scores on the CAS were used to define participants who did not meet criteria for CB (NCB; $n = 30$), participants who met criteria for CB without acquisition of free items (CBB; $n = 30$), and participants who met criteria for CB and the acquisition of free items (CBF; $n = 35$). In addition, each participant defined as a compulsive buyer was required to score below the clinical cut-off of -1.34 on the CBS.

No group differences existed in age, $F(2, 92) = 1.31, p > .05$, gender $\chi^2(2) = .15, p > .05$, education $\chi^2(10) = 16.43, p > .05$, employment status $\chi^2(8) = 7.82, p > .05$, or income level $\chi^2(14) = 10.43, p > .05$. The groups also did not differ in terms of treatment sought for any lifetime mental health complaint $\chi^2(2) = 1.20, p > .05$. The percentage of participants that reported seeking treatment for any disorder at some point during their lives was 40% for the NCB group, 53% for the CBB group, and 43% for the CBF group. Twenty-three percent of participants in the NCB group reported a current diagnosis (mood disorder, $n = 3$; anxiety disorder, $n = 2$; mixed anxiety/depression, $n = 2$), 27% of participants reported a current diagnosis in the CBB group (mood disorder, $n = 4$; anxiety disorder, $n = 2$; mixed anxiety/depression, $n = 1$; trichotillomania, $n = 1$), and 17% of participants reported a current diagnosis in the CBF group (mood disorder, $n = 4$; anxiety disorder, $n = 2$).

Table 2 reports the means, standard deviations, degrees of freedom and F values along with the estimated marginal means for all GLM comparisons.

Insert Table 2 about here

All main effects were significant (see Table 2), therefore planned comparison across groups are summarized below. As expected, on the CBS the NCB group scored significantly higher (reflecting lower compulsive buying severity) than the CBB and CBF groups. Mean CBS scores did not differ between the two acquisition groups. On the K10 the NCB group scored within normal limits with mean scores significantly lower than both the CBB and the CBF groups. Scores in the CBB group were in the moderate severity range and were significantly lower than the CBF group whose scores approached the severe range. On the SIR, the NCB group scored significantly lower than the CBB and CBF groups on all three subscales. The CBF group scored significantly higher on all three subscales compared to the CBB group. On the DASS-21 subscales, the CBB and CBF groups reported higher levels of depression (moderate severity range), anxiety (moderate to severe range), and stress (moderate severity range) as well as global distress (K10), and lower quality of psychological well-being (WHOQOL) than the NCB group (normal range), despite a comparable number of individuals self-reporting a current mental health disorder in each group. There were no group differences between any of the groups on WHOQOL Social. There was a trend ($p = .03$) for lower quality of environmental well-being in the CBF group compared to both other groups. The CBF group reported more severe buying pathology (CAS Buy), greater anxiety (DASS-21; severe range), greater distress (K10), and lower quality of physical wellbeing (WHOQOL) in comparison to the CBB group. Lastly, although the groups did not differ in the absolute number of work days lost due to mental health reasons, they did differ in terms of work inefficiency, and there was a trend for greater overall work impairment in the CBF group ($p = .02$). The NCB group reported significantly fewer work inefficiency days than the CBF group, who reported significantly more work inefficiency days than the CBB group. The difference between the NCB and CBB group was not significant.

Following Frost et al. (2009) regression analyses in the full sample were then used to determine if acquisition behaviours predicted unique variance in psychiatric work impairment after controlling for current mental health status (dummy-coded), general psychopathology, and hoarding symptomatology. A hoarding severity score was calculated by combining the SIR Difficulty Discarding and SIR Clutter subscale (in line with Frost et al., 2009). For both regression equations mental health status, DASS Total, and SIR (without acquisition) scores were entered in the first step followed by CAS Buy and CAS free. Indices of multicollinearity were within acceptable ranges for all analyses (VIF's < 3, Tolerance > .10). The first equation predicting overall psychiatric work impairment was not significant, $F(5, 89) = 1.59, p > .05$, however, when work inefficiency was entered as the dependent variable the equation was significant, $F(5, 89) = 3.38, p < .01, \Delta R^2 = .11$. Mental health status ($\beta = -.24, t = -2.28, p < .05$) and CAS Free ($\beta = .36, t = 2.48, p < .05$) predicted unique variance.

4. Discussion

The primary aim of the current study was to determine if compulsive acquisition behaviours were meaningfully related to quality of life and psychiatric work impairment in a sample of compulsive buyers. As predicted, acquisition behaviours in the form of direct purchasing (CAS Buy) and non-monetary means (CAS Free) were both associated with general psychopathology (depression, anxiety, and stress), high distress, and lower quality of physical wellbeing. In addition, compulsive buying (CAS Buy) was associated with lower quality of psychological wellbeing and environmental standard of living.

Comparisons between groups identified as non-compulsive buyers (NCB), compulsive buyers who did not acquire free items (CBB), and compulsive buyers who also acquired free items (CBF) revealed expected key differences. The CBB and CBF groups reported higher levels of general psychopathology and distress, and lower quality of

psychological well-being than the NCB group, despite a comparable number of individuals self-reporting a current mental health disorder in each group. Furthermore, the CBF group reported more severe buying pathology, anxiety, distress, and lower quality of physical wellbeing in comparison to the CBB group. These findings may have assessment and treatment implications for compulsive buyers. With the exception of the CAS, the majority of assessment measures of CB produce a total score that reflects items tapping a range of dimensions proposed to be relevant to CB. The finding of greater impairment in individuals who not only report difficulties with buying behaviours, but who also report excessive acquisition of free items suggests that assessment measures should index both behaviours separately. Although evidence of the effectiveness of cognitive behavioural treatments for CB has only recently begun to accrue (29, 30), research is also needed to investigate whether or not such individuals would respond differentially to treatment.

It is probable that the CBF group reported significantly lower quality of life on the physical domain and reported a trend for lower quality of life on the environmental domain compared to both other groups due to greater hoarding symptomatology. Excessive clutter, a defining feature of hoarding (4) is a logical consequence of acquisition behaviours. Clutter within the home can not only impact upon the quality of one's living environment, but can create mobility and health issues as well (31). Approximately 39% of compulsive buyers also meet criteria for hoarding (32) and proposed criteria for Hoarding Disorder to be included in the DSM-V include a specifier of excessive acquisition (33). This raises the question of where the boundary between CB and hoarding exists. The overlap with hoarding, which is characterized by poor insight (34), also raises the question of whether or not compulsive buyers have varying levels of insight depending on the severity of their symptoms. Although existing research suggests that compulsive buyers acknowledge their behaviour is excessive

and distressing (15), this question has not been addressed directly. Future research is clearly needed to help answer some of these questions.

The CBF group also reported greater work inefficiency days compared to the NCB and CBB groups. Data from the 1997 Australian National Survey provides information on work inefficiency based on DSM-IV disorders. Work inefficiency days due to mental health reasons range from half a day to over five days (35). The average number of work inefficiency days in the CBF group was close to three. Although not directly comparable given the marked differences in sample recruitment and symptom measurement, these data provide a useful guideline against which to gauge the level of disability reported in the current sample. The finding of greater work inefficiency in the CBF group may be partially attributable to the higher levels of anxiety (in the severe range) in this group. Anxiety can impact upon work performance in several indirect ways as well as through absenteeism (35). It is, however, important to note that CAS Free still accounted for unique variance in psychiatric work impairment after controlling for current mental health status, general psychopathology, and hoarding symptoms, indicating specificity in the relationship between acquisition behaviours and work impairment that warrants further consideration. Ideally, investigations are needed that compare individuals with compulsive buying who do not report significant comorbidity in order to establish the relative contribution of acquisition behaviours to overall functioning. However, given that significant comorbidity with mood and anxiety disorders is characteristic of this population (1, 36-39) the generalizability of findings is likely to be compromised by such investigations. Future research would benefit from a greater understanding of underlying neurobiological correlates linked to reward circuitry, impulsivity, and poor emotion-regulation in this population (40).

The current findings must be considered in light of a number of limitations. Although individuals identified as compulsive buyers scored within the recommended clinical range on

two separate measures of compulsive buying, they did not undergo a diagnostic clinical interview. This was partially due to the fact that validated diagnostic interviews do not currently exist. A draft version of the Structured Clinical Interview for DSM-IV-TR (SCID) for impulse-control disorders not elsewhere classified does include a module for impulsive-compulsive buying disorder (41), but remains to be validated and published for clinical and research use. The Yale Brown Obsessive Compulsive Scale – Shopping Version (YBOCS-SV; (42) has shown promise as an index of severity, but is not a stand-alone diagnostic tool. Additionally, although mean scores were below the clinical range for hoarding, in the absence of additional diagnostic measures it is not possible to rule out comorbid hoarding. The cross-sectional nature of the data also precludes inferences about causality. It is possible that some unmeasured variable (such as impulsivity) impacts upon work performance and therefore better accounts for the relationship between psychiatric work impairment and compulsive buying symptomatology. Notwithstanding these limitations, the findings of the current study highlight the serious impact of compulsive buying on work functioning, general quality of life, and psychological well-being and provide avenues for future research to investigate the role of acquisition of free items in symptom severity.

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