Repressive coping, stigmatization, psychological distress, and quality of life among behavioral weight management participants

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ABSTRACT

Repressive coping has been associated with elevated risk of disease and negative health outcomes in past studies. Although a prior study of healthy men found that repression was associated with lower body mass index (BMI), no study has examined repressive coping among obese individuals. This study examined the relationship of repressive coping with BMI and obesity-relevant psychosocial factors among 104 overweight and obese participants in a behavioral weight management program. Participants completed questionnaires assessing repressive coping, stigmatization, psychological distress, and quality of life. BMI was objectively measured. Repressors reported lower stigmatization, anxiety, and depression as well as higher emotional and weight-related quality of life (β = 0.31, p = 0.039), reflecting better physical quality of life among non-repressors with lower stigmatization. Obese individuals who engage in repressive coping may tend to underreport psychological symptoms, social difficulties, and impairments in quality of life. Higher physical quality of life among non-repressors with lower stigmatization may reflect a combined influence of coping and social processes in physical quality of life among obese individuals.

1. Introduction

Repressive coping, characterized by low self-reported trait anxiety and high self-reported defensiveness (Weinberger, Schwartz, & Davidson, 1979), is more common among individuals with chronic medical conditions than in the general population and has been associated with negative health outcomes (see Myers et al., 2008 and Myers, 2010 for reviews). Repressive coping has been associated with increased risk of cancer and hypertension (Mund & Mitte, 2012) and elevated risk of death and myocardial infarction (MI) among patients with coronary artery disease (Denollet, Martens, Nylíček, Conraads, & de Gelder, 2008). Similarly, among post-coronary angioplasty patients without a history of MI, repressive coping style combined with higher levels of cardiac information was associated with increased risk of medical complications (Shaw et al., 1986). Taken together, these results suggest that avoidance of negative affect and information among repressors may be detrimental to long-term health (Myers, 2010). However, the relationship between repressive coping and poor physical health outcomes does not appear to be consistent across medical conditions. In fact, repressive coping was associated with better physiological control in patients with diabetes and better objective lung function in patients with asthma, possibly because repressors may be better able than non-repressors to engage in health behaviors that require self-control (Myers et al., 2005).

Repressive coping also has been associated with poorer quality of life in medical populations. Repression was associated with lower physical quality of life among adults with colorectal cancer, but repression was not associated with mental quality of life or social relations quality of life (Hyphantis, Paika, Almyroudi, Kampletsas, & Pavlidis, 2011). Thus, repressors may tend to minimize deficits in areas of quality of life other than physical quality of life. However, in a second sample of colorectal cancer patients, repression was associated with lower ratings on multiple aspects of quality of life (physical health, mental health, social relationships, environment; Paika et al., 2010). Overall, the data suggest that repressive coping may be associated with poorer quality of life, but not in all patient populations.

Although repressive coping is highly relevant for physical health, mental health, and quality of life among patients with obesity, only one published study has examined repressive coping in relation to body weight. Surprisingly, in a sample of healthy middle-aged and older adult men with BMIs between 17 and 46, repression measured with the repression subscale of the MMPI was associated with lower
body mass index (BMI) and smaller waist-to-hip ratio. In hierarchical multiple regression analyses, repression was a significant predictor of BMI when controlling for waist-to-hip ratio and general maladjustment (Niaura et al., 2003). These data appear consistent with the notion that higher repression may be associated with greater ability to engage in health behaviors that require self-control (Myers, 2010), however this study did not specifically focus on overweight and obese individuals, and it did not examine quality of life or psychological variables that may moderate the influence of repressive coping.

Because repressive coping may not be associated consistently with negative body weight outcomes, it is important to consider obesity-relevant psychosocial factors as moderators of the relationship between repressive coping and body weight. Psychological distress is especially relevant as a moderator because it is associated with lower quality of life in obesity (e.g., Fabricatore, Wadden, Sarwer, & Faith, 2005; Lillis, Levin, & Hayes, 2011; Mannucci et al., 1999). In addition to standard measures of depression and anxiety, stigma is a common source of psychological distress among individuals with obesity (Puhl, Moss-Racusin, Schwartz, & Brownell, 2008), and weight-related stigmatization has been associated with poorer obesity-specific quality of life (Sarwer, Fabricatore, Eisenberg, Sywulak, & Wadden, 2008) and poorer health-related quality of life (Lillis et al., 2011). Stigmatization also is important to consider in the present context because stigmatization may make it more challenging for individuals with higher levels of obesity to engage in repression (i.e., avoidance of negative affect and information).

This study was designed to examine the relationships of stigma, anxiety, depression, BMI, and quality of life to repressive coping among treatment-seeking overweight and obese adults. Repressors were expected to report minimal anxiety and depression as well as lower levels of stigmatization than non-repressors. It was further hypothesized that repression would not be associated with lower BMI among healthy men in a previous study (Niaura et al., 2003), it was hypothesized that repression would not be associated with BMI among overweight and obese adults, and distress would not function as a moderator.

### 2. Methods

#### 2.1. Participants

One hundred four overweight or obese men and women were recruited from a comprehensive outpatient behavioral weight management program at a large Midwestern university-based medical center. As shown in Table 1, the mean BMI of the sample was in the extreme obesity range, and participants were middle-aged on average. Participants were predominantly Caucasian and female, and most participants had completed at least some college. Participants included individuals preparing for gastric bypass surgery after completion of the comprehensive weight management program (n = 48) as well as individuals not seeking gastric bypass surgery. Prospective participants were recruited during the first or second educational class of the six-month outpatient weight management program. All participants provided written consent at the time of recruitment. Participants completed self-report questionnaires at home. Data were collected as part of a larger longitudinal study, but only baseline data were utilized for this study.

#### 2.2. Measures

Height and weight were measured during the intake assessment for the weight management program. The following self-report questionnaires were completed within the first two weeks of initiation of the weight management program to assess coping style, level of perceived stigma, psychological distress, and quality of life:

##### 2.2.1. Coping style

Marlowe-Crowne Social Desirability Scale-Form C (M-C Form C). The M-C Form C is a 13-item short form of the Marlowe-Crowne Social Desirability Scale (M-C SDS) assessing the extent to which individuals exhibit a bias toward presenting themselves in a positive light. Each item may be marked either true or false and scores range from 0 to 13 (Crowne & Marlowe, 1960; Reynolds, 1982). Cronbach’s alpha for the current sample was 0.70.

Taylor Manifest Anxiety Scale Short Form (TMAS). The TMAS is a 20-item true/false scale assessing trait anxiety with adequate internal consistency reliability (0.76; Taylor, 1953; Bendig, 1956). Scores range from 0 to 20. The TMAS is used in conjunction with the M-C SDS to identify repressors (Shaw, Cohen, Doyle, & Palesky, 1985). Cronbach’s alpha for the current sample was 0.88.

##### 2.2.2. Perceived stigma

Social Impact Scale (SIS). The SIS is a 24-item questionnaire originally developed to examine facets of stigma and assess the impact of perceived stigma among individuals with chronic illnesses. Each item is rated on a 4-point likert scale that includes a “not applicable” response option. In this study, “not applicable” responses were assigned a score of 1, consistent with a “Strongly Disagree” response. The questionnaire includes four subscales representing social rejection, financial insecurity, internalized shame, and social isolation. Each of the subscales has good internal consistency with Cronbach’s alpha of 0.85 or higher. Correlations among the subscales range from 0.28 to 0.66, indicating that each subscale is measuring a different aspect of stigma (Fife & Wright, 2000). For the current study, the word “illness” was replaced with “condition” and participants were instructed to rate stigmatizing experiences in relation to body weight. In this sample, Cronbach’s alpha was 0.95 for the total SIS, and total scores were utilized in all study analyses to reflect perceived stigmatization among participants.

##### 2.2.3. Psychological distress

Hospital Anxiety and Depression Scale (HADS). The HADS is a 14-item measure of anxious and depressive symptoms in medical populations. Each item is rated on a 4-point likert scale. Scores on each subscale range from 0 to 21. Scores from 0 to 7 are considered normal, scores from 8 to 10 are considered borderline abnormal, and scores from 11 to 21 are considered abnormal. Patient ratings on anxiety and depression subscales are significantly correlated with interview ratings of anxiety and depression (Zigmond & Snaith, 1983). In this sample,
Cronbach’s alpha was 0.86 for the entire HADS, 0.82 for the anxiety subscale, and 0.74 for the depression subscale.

2.2.4. Quality of life
Medical Outcomes Survey, Short Form-36 (SF-36). The SF-36 is a 36-item measure of quality of life in eight domains: physical functioning, social functioning, limitations caused by physical problems, limitations caused by emotional problems, pain, mental health, vitality, and perceptions of general health. Two composite scores also can be generated: mental component score (MCS) and physical component score (PCS; Ware & Sherbourne, 1992). Scores on the SF-36 are “norm-based” such that the mean is 50 for the general U.S. population for all domains and summary measures. In the current sample, Cronbach’s alpha ranged from 0.66 to 0.92 for the subscales. For the current study, only MCS and PCS were utilized as summary indicators of emotional and physical quality of life.

Impact of Weight on Quality of Life Questionnaire- Lite Version (IWQOL-Lite). The IWQOL-Lite is a 31-item measure assessing the influence of body weight on quality of life with good reliability, validity, and sensitivity to weight change. Each item is rated on a 5-point likert scale. Total scores range from 31 to 155. The measure covers five domain subscales: physical function, self-esteem, sexual life, public distress, and work (Kolotkin, Crosby, Kosloski, & Williams, 2001). Cronbach’s alpha for the total score was 0.96 in the current sample. The current study utilized the summary score as the indicator of weight-related quality of life.

2.3. Data analyses
Repressive coping was identified as per Weinberger (1990) using data from the M-C Form C and the TMAS Short Form. This is the most widely used approach in the research literature for identification of repressive coping. Median scores on each measure were used to identify individuals who scored relatively high on the M-C SDS and relatively low on the TMAS. Those individuals were most likely to avoid acknowledging negative emotions and were designated as repressors. The remaining individuals were classified as non-repressors.

Chi-square tests were used to determine differences between repressors and non-repressors in gender, race, education, and surgery status. Analysis of variance was used to evaluate the relationship of repression status with age, BMI, quality of life, depression, anxiety, and perceived weight-related stigma. Hierarchical regression analyses were used to evaluate the degree to which perceived stigmatization and distress variables (depression and anxiety) moderated the influence of repressive coping on quality of life and BMI. Repression was entered in the first step of each regression, the distress or stigma variable was entered in the second step, and the interaction of repression and the distress/stigma variable was entered in the third step. Separate regressions were conducted for each distress and perceived stigmatization variable with each of the three quality of life measures (MCS, PCS, and IWQOL-Lite) and BMI. Significant interactions were probed using the Johnson-Neyman technique. Statistical Analysis Software (SAS) version 9.2 and the PROCESS macro for SAS were used for data analysis.

3. Results
Repressors (n = 32) were identified as those scoring above the median (7.50) on the M-C Form C and at or below the median (9.00) on the TMAS Short Form (Weinberger, 1990; Weinberger et al., 1979). There were no repressor group differences in BMI, age, race, gender, surgery status, or education, as shown in Table 1. As shown in Table 2, repressors reported significantly higher emotional quality of life than non-repressors on the MCS (F(1, 87) = 25.93, p < 0.001), but repressors did not differ from non-repressors on the PCS. Repressors also reported lower impact of weight on quality of life (F(1, 86) = 14.98, p < 0.001), lower anxiety (F(1, 94) = 24.60, p < 0.001), less depression (F(1, 94) = 14.70, p < 0.001), and less perceived weight-related stigmatization (F(1, 95) = 19.95, p < 0.001) than non-repressors.

Hierarchical regression analysis revealed that stigmatization did not moderate the influence of repression on emotional quality of life, weight-related quality of life, or BMI. However, stigmatization moderated the influence of repression on PCS as shown in Table 3 and Fig. 1. PCS was low among repressors regardless of level of perceived stigma, but among non-repressors lower levels of perceived stigma were associated with more normal levels of PCS. Probing the interaction with the Johnson-Neyman technique revealed that the conditional effect of repression on PCS was statistically significant when perceived stigma was relatively low (at the 42nd percentile and below). Thus, although PCS scores reflected similar impairment among repressors and non-repressors as shown in Table 2, the relationship of perceived stigma with PCS differed across the two groups. Repressors reported impaired PCS regardless of level of perceived stigma as shown in Fig. 1, but PCS scores of non-repressors differed depending on reported levels of perceived stigma. Among the 42% of the sample with relatively low levels of perceived stigma, quality of life was higher among non-repressors. Anxiety and depression did not moderate the influence of repression on MCS, PCS, IWQOL-Lite, or BMI.

4. Discussion
Results of the current study extend previous research by evaluating the influence of repressive coping among individuals with obesity. Repressors were similar to non-repressors on all demographic variables. Obese repressors tended to report fewer symptoms of distress than obese non-repressors, consistent with repressor data from other patient samples (e.g. Myers, 2010). In this sample, repressors reported lower levels of depression and anxiety, as was found among patients with coronary artery disease (Denollet et al., 2008).

Repressors also reported lower levels of perceived stigmatization, suggesting that the positive response style of repressors may extend into social domains as well as emotional domains. It is possible that repressors reported lower levels of stigma, anxiety, and depression in this sample due to lower perceptions of distress. However, prior research using the same definition of repression indicates that repressors tend to report low levels of distress despite high levels of physiological reactivity (Myers, 2010). Thus, it is likely that the relatively lower levels of reported distress in this sample are a reflection of relatively higher levels of social desirability or defensiveness.

Table 2
Comparison of repressors and non-repressors on measures of distress and quality of life.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Full sample, M (SD) (n = 104)</th>
<th>Repressors, M (SD) (n = 32)</th>
<th>Non-repressors, M (SD) (n = 64)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF-36 mental component score</td>
<td>45.24 (11.83)</td>
<td>53.66 (6.99)</td>
<td>41.48 (11.70)***</td>
</tr>
<tr>
<td>SF-36 physical component score</td>
<td>38.90 (10.14)</td>
<td>38.00 (9.47)</td>
<td>39.33 (10.58)</td>
</tr>
<tr>
<td>Impact of weight on quality of life</td>
<td>88.83 (28.28)</td>
<td>73.50 (23.28)</td>
<td>96.37 (27.59)***</td>
</tr>
<tr>
<td>Depression</td>
<td>6.70 (3.63)</td>
<td>4.81 (2.61)</td>
<td>7.65 (3.75)***</td>
</tr>
<tr>
<td>Anxiety</td>
<td>7.79 (4.07)</td>
<td>5.22 (2.68)</td>
<td>9.14 (4.04)***</td>
</tr>
<tr>
<td>Stigmatization</td>
<td>51.59 (15.54)</td>
<td>42.54 (14.53)</td>
<td>56.30 (14.07)***</td>
</tr>
</tbody>
</table>

Note: SF-36 = Medical Outcomes Survey, Short Form-36.
*** p < 0.001.
Consistent with previous studies in obese populations (Kolotkin, Meter, & Williams, 2001), non-repressors reported impairment across all areas of quality of life. Repressors reported no impairment in emotional quality of life and only limited impairment in weight-specific quality of life. The absence of impairment in emotional quality of life has been observed in other patient groups (e.g., colorectal cancer patients) high in repression (Hyphantis et al., 2011). However, in contrast to studies of colorectal cancer patients documenting an association of repression with worse physical quality of life (Hyphantis et al., 2011; Paika et al., 2010), physical quality of life was impaired to a similar degree in both repressors and non-repressors in this sample. To further evaluate the relationship of stigma and distress to quality of life in the context of repression, post hoc correlational analyses were conducted of quality of life with distress and stigma within each of the two repression groups (repressors versus non-repressors). Despite repressors endorsing lower levels of distress and stigma, and higher ratings of quality of life, the magnitude of correlations was similar across the two groups. MCS was associated with anxiety (repressors: $r = -0.40$, $p = 0.03$; non-repressors: $r = -0.66$, $p < 0.001$), depression (repressors: $r = -0.49$, $p = 0.009$; non-repressors: $r = -0.53$, $p < 0.001$), and stigma (repressors: $r = -0.53$, $p = 0.004$; non-repressors: $r = -0.40$, $p = 0.002$). Similarly, IWQOL was associated with anxiety, depression, and stigma in both groups. Interestingly, PCS was not associated with anxiety in either group, and was associated with depression ($r = -0.53$, $p < 0.001$) and stigma ($r = -0.56$, $p < 0.001$) among non-repressors, but not among repressors. Because physical quality of life does not appear to be associated with stigma or distress among treatment-seeking obese repressors, it may be less susceptible to defensive under-reporting among those who have a repressive coping style.

This is the first study documenting a moderating influence of stigma in the relationship between dispositional style (repression) and quality of life. As defined by Weinberger (1990), non-repressors are either relatively low in defensiveness or relatively high in both defensiveness and anxiety. Fifty percent of the current sample was categorized as low in social desirability (defensiveness) and an additional 16.7 percent was high in social desirability (defensiveness) and manifest anxiety. Because non-repression and lower perceived stigma were associated with higher levels of physical quality of life, the data suggest that obese individuals reporting less concern with societal approval and indicating lower weight-related stigmatization may be more likely to perceive better physical quality of life. Thus, interventions targeting coping style (specifically repression) in conjunction with perceptions of stigma may be useful in addressing quality of life among individuals with obesity, as has been suggested by Lillis et al. (2011).

Prior research examining repression among individuals with chronic medical conditions has been complicated by the use of differing characterization and measures of repression across studies. Unfortunately, these differences in conceptualization of repression (e.g. Life Style Index (Hyphantis et al., 2011; Paika et al., 2010); MMPI repression scale (Niaura et al., 2003)) prevent making direct comparisons across previous studies of health outcomes in medical populations (e.g. Myers et al., 2005). To date, a variety of operational definitions of repression have been elucidated in the research literature, but comparisons of different measures within the same study are rare (Garssen, 2007). For example, while Weinberger et al. (1979) describe repressors as “[preoccupied] with mastering negative emotion and rigorously controlling their behavior,” the MMPI-2 conceptualization of repression describes repressors as “introverted, internalizing individuals who have adopted careful and cautious lifestyles” (Graham, 2006) and the Life Style Index describes repression as an ego defense mechanism (Conte & Apter, 1995). This study identified repressors with the most widely used approach in the research literature, identifying repressors as those who endorse beliefs consistent with higher social desirability and lower trait anxiety. However, due to the range of measures of repression in the research literature, it is important to consider measurement differences when interpreting inconsistencies in results across studies of repression.

There are several limitations of this study that may have influenced the results. Limited sample size and missing data may have decreased the ability to detect true effects due to reduced statistical power. The cross-sectional, correlational design of this research precludes drawing conclusions regarding causality. Utilization of a convenience sample of individuals enrolled in a comprehensive weight management program may limit generalizability of results to non-treatment seeking individuals with overweight and obesity.

Overall, the data suggest that repressive coping among obese adults may be associated with minimized distress, as seen among other patient populations (e.g. Myers et al., 2008). Repressors may tend to underreport psychological symptoms, deficits in quality of life, and difficulties
in social functioning. If underreporting of symptoms extends across many life domains, patients higher in repression may risk misperceptions of current functioning. In addition, because repressors reported lower physical quality of life regardless of level of perceived stigma, interventions aimed at reducing perceptions of stigmatization may have the greatest impact among non-repressors.

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Contributors
All the authors materially participated in the research and manuscript preparation. Erin Truong and Charles Emery designed the study. Erin Truong conducted analyses. Erin Truong, Kayloni Olson, and Charles Emery were involved in drafting and editing the manuscript. All the authors approved the final version of the manuscript.

Conflict of interest
No authors have any conflicts of interest to report.

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