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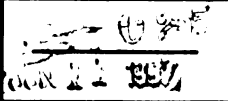
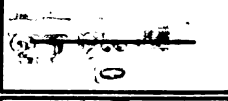
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**SUBJECTIVE MEMORY COMPLAINTS
AND DEPRESSION IN THE
ABLE ELDERLY**

By

Michael W. Collins

A THESIS

**Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of**

MASTER OF ARTS

Department of Psychology

1995

ABSTRACT

SUBJECTIVE MEMORY COMPLAINTS AND DEPRESSION IN THE ABLE ELDERLY

By

Michael William Collins

This study investigated the relationship between subjective memory complaints and depression in the able elderly. Participants ($n = 90$) for this study were community dwelling elderly (Mean age = 70) who were offered periodic assessments of their mood and memory, in addition to, a seven session workshop targeted to teach relaxation or cognitive strategies for the relief of depression and/or memory difficulties. Level of depressive symptoms were assessed with the Beck depression Inventory and the Geriatric Depression Scale while memory complaints were measured with the Memory Assessment Clinic Self-Report Scale. These test scores were then combined to form an affective and somatic factor of depression as well as a sum total of subjective memory complaint. Significant relationships were found between total subjective memory complaint and the affective factor of depression ($r = -.53, p < .01$) and total subjective memory complaint and the somatic factor of depression ($r = -.39, p < .01$). In addition, a profile analysis revealed distinct depression groups as defined through cutoff scores on these measures. One such group delineated was a "masked depressed" subgroup (8.8% of the sample). Suggestions for future research as well as implications of these findings were discussed.

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INTRODUCTION

There is considerable publicity in both the popular and scientific press concerning memory loss in older adults. Alzheimer's disease (AD), the cause of dementia in 50% of today's cases (McDonald & Nemeroff, 1991), has been referred to as the silent epidemic and one of the most pervasive social health problems of our generation (McLean, 1987). With the fear of such insidious diseases as AD and other progressive disorders, the integrity of one's memory looms large for the elderly population. As Becker, Huff, Nebes, Holland, and Boller (1988) stated, memory is usually the initial cognitive function to be altered by AD and other dementing progressive diseases, and is one of the cognitive functions most severely affected. Intuitively, it is therefore expected that great fear surrounds the issue of memory loss in the elderly population. One of the major contributing reasons for this fear of cognitive decline is that older persons do, in fact, complain more about their memory. This is stressful not only to the individuals concerned but also to family members. Consequently, it is important to determine whether the subjective impression of memory function might differentiate between those individuals with and without a progressive dementing illness. The question posed is this: Are subjective complaints about memory congruent with an actual decline in memory functioning?

Subjective Memory Complaint and Cognitive Decline: A Closer Look

This topic has recently received a considerable amount of attention in the scientific press. Taylor, Miller, and Tinklenburg (1992) performed a longitudinal study in this area. Using self-report questionnaires and cognitive tests, these investigators found that at the individual level, memory performance did not significantly correlate with change in subjective self report. Brown, Dodrill, Clark, and Zych (1991) looked at whether reliable relationships could be found between self-report and objective measures of memory in younger patients with suspected or demonstrated neuropsychological dysfunction, and found that memory complaints were not indicative of specific memory dysfunction. Devolder and Pressley (1991) looked at two samples of older subjects and younger subjects using a series of memory tasks and questionnaires. They found that memory performance was usually better in the younger than the older subjects, however, perceptions about memory varied little as a function of age, and the subjective reports were unrelated to objective memory performance. Larrabee and Levin (1986) also studied memory self-ratings and objective test performance in a normal elderly sample. These researchers found no association between memory complaint and objective measures of memory function. They concluded that subjective memory questionnaires should not be used alone in the diagnosis of age related disorders when the presenting complaint is memory loss. Kahn, Zarit, Hilbert, and Niederehe (1975) attempted to clarify the status of memory impairment in the elderly by assessing the relationship between subjective memory complaints and actual cognitive functioning and found a marked discrepancy between complaints and memory performance. They stated that complaints can occur with or without an actual deficit in memory, and that people who complained about

memory sometimes performed better than those who did not. Further evidence of this lack of a relationship between memory complaints and memory decline was given by Williams, Little, Scates, and Blockman (1987). Using a variety of clinical memory tests, they found that memory complaints were not significantly related to objective memory test performance. Chandler and Gerndt (1988) examined this relationship as well, and found no difference in memory testing scores between subjects with and without memory complaints. Derousene, Alperovitch, Arvay, and Migeon (1988) studied the interrelationship between severity of memory complaints, performance in memory tests, and affective status in 367 French 50-80 year olds. No relationship was found between severity of memory complaints and age, sex, educational level, marital status, living alone or in family, or memory test performance.

Given the above research, one might feel comfortable in concluding that subjective memory complaints are not indicative of impaired memory functioning. However, O'Brien, Beats, Hill, and Howard (1992) conducted a three year follow-up of 64 people (aged 50 years) who complained of memory difficulties. These researchers did find that cognitive performance of the nondemented subjects showed a significant but relatively modest decline, which they related to normal aging. They concluded that memory complaints must be taken seriously in the elderly and that it may sometimes indicate early dementia, however, in most cases a finding of normality remained accurate.

Also, one must be careful in interpreting studies that did not control for pre-morbid functioning. Christensen (1991) expanded on this point by examining the relationship between complaint and objective test performance in 20 elderly persons who identified themselves as having memory problems. Upon analysis, "memory performance

proved poor in those memory complainers who: (a) considered their memory impairment to be both worse than their peers; and (b) had a discrepancy between their current level of memory functioning and that expected on the basis of premorbid intelligence" (p. 310). However, with this in mind, analysis of variance did fail to find a relationship between the report of failure of memory and objective test performance. It is possible that the objective memory measures used in the above studies were not successful in delineating those individuals who performed at a much higher cognitive level in their earlier adult years and who experienced memory decline that landed above the cutoff scores for "memory impairment." However, the literature fails to report a significant relationship between memory complaint and poor memory performance. This consensus is not surprising since memory complaints are especially common in the elderly and since the incidence and prevalence of actual progressive memory disorders is relatively low.

At this point a second question can be posed: If complaints about memory do not reflect a cognitive decline than what are the correlates of memory complaints and why do they occur?

The Ubiquitous Role of Depression in Subjective Memory Appraisal

There is a marked incongruity between complaint about memory and actual memory performance. Complaints can occur with or without an actual deficit in memory. However, objective evidence of memory problems in an individual does typically precipitate memory complaints (Thompson & Gallagher, 1990). Perhaps these differences in performance between individuals are a result of other psychological processes, including depression. Although we have seen that the relationship between increased memory complaints and actual memory dysfunction was less than well established (see

also, Lamberty & Bieliauskas, 1993), there was an observed relationship between depression and memory complaints.

In the Larrabee and Levin (1986) study mentioned above, factor analysis indicated that patients' memory self-ratings were primarily related to the affective state rather than to objective memory performance. These researchers measured depression using the Zung Depression scale. In the Kahn et al. (1975) examination, it was found that while performance varied with altered brain function, complaint was related to level of depression, as measured by the Hamilton Rating Scale for Depression. Kahn et al. concluded that complaints were found to be only a manifestation of depression, not of cognitive performance. In the Williams et al. (1987) research, memory complaints had a stronger association with depressed mood, as measured by the Beck Depression Inventory (BDI), than with performance on memory tests. In the Derousene et al. (1988) study, a strong correlation was found between severity of memory complaints and scores on a self-reporting depression questionnaire, even among those with low depression scores.

Furthermore, Pettinati, Brown, and Mathisen (1985) showed that in depressed geriatric inpatients, as measured by the Hamilton Depression Scale, memory complaints were correlated with severity of depression and that it was this severity, rather than the frequency of complaints, that may be an important dimension to consider. Additionally, since a clinical lore has developed that emphasizes subjective memory complaints as a diagnostic indicator for depression, it would make sense that subjective memory complaints should decrease as depression lifts. Plotkin, Mintz, and Jarvik (1985) found that improvements on the Hamilton Depression Scale were significantly related to a decrease in subjective memory complaints, regardless of whether tricyclic antidepressant

or psychotherapeutic interventions were used.. Furthermore, Feehan, Knight, and Partridge (1991) assessed cognitive and test performance in elderly patients suffering depression or dementia and concluded that depressed subjects, as measured by the Hamilton Depression Scale, viewed themselves as more cognitively impaired than control subjects and that demented subjects rated their level of cognitive functioning higher than controls. These researchers stated that measurement of subjective complaint can provide an indication of the degree of insight elderly patients have into the nature of their disorder. Molinari (1991) reviewed mental health issues in the elderly and concluded that depressed persons emphasize memory difficulties while those with probable Alzheimer's disease attempt to minimize them.

Overall, researchers are in general agreement that memory complaints are exacerbated by even low levels of depression. Furthermore, although elderly persons' assessments of their own abilities are of considerable importance, they have little validity and should not be used to make even tentative diagnoses of dementia. However, from the evidence above, it would be reasonable to assume that memory complaints are a diagnostic sign for depression and that one may be able to judge the severity and type of depression in the elderly population from the reliable and valid measurement of memory complaints.

Depression in the Elderly

The general assumption in both the popular and scientific press is that aging is associated with an increased risk of depression. For example, as Klerman (1983) stated, "Mental illness, in general, appears to be more prevalent among the elderly than among younger adults; but the incidence of depression is particularly high in persons 65 and

older- not only for depressive disorders, but also for transient symptoms of depression" (p. 3). Others do not fully agree with this view. As Newmann (1989) stated, empirical studies that have investigated the relationship between aging and depression do not show consistent support for this assumption. Epidemiological data about the incidence and prevalence of mood disorders in the elderly do not yield a complete and consistent picture (Blazer, 1983). Newmann's review attributed this inconsistency to diverse measurement approaches and flaws in design and analysis which make it difficult to draw clear conclusions regarding the relationship between depression and aging. Nonetheless, "depression is among the most prevalent health problems of the elderly, occurring for the first time in about 10 to 20 percent of the population 60 years or older" (p. 87) (Ruegg, Swerdlow, & Zisook, 1988). The occurrence of depressive symptoms seems to be high in the elderly ranging from 5 to 40 percent (Lamberty & Bieliauskas, 1993). Although traditional views regard depression as having a good prognosis in the general population, a prospective study of 124 elderly patients showed that only one-third actually had a good outcome (Murphy, 1983). This study suggested that poor outcome is most clearly associated with severity of depression, physical health problems, and strenuous life events such as bereavement and separation. Therefore, as Ruegg et al. (1988) stated, it is critical that clinicians appreciate the importance of depression in the elderly and be fully aware of the diagnostic indicators and the standard course of pathogenesis. Elderly individuals often have much to be sad about, as people around them become sick and die, social and economic limitations often arise, health may be compromised, and commonly prescribed medications are often associated with sadness and fatigue.

As Lamberty and Bieliauskas (1993) pointed out, depression in the elderly is different from the classical depressions which occur in younger individuals. According to the Beck (1974) model of depression, the basic syndrome of depression is classically described by a cluster of five symptoms: (a) A specific alteration in mood, sadness, loneliness, or apathy; (b) a negative self-concept associated with self reproaches and self-blame; (c) regressive and self-punitive wishes; desires to escape, hide, or die; (d) vegetative changes; anorexia, insomnia, loss of libido; and (e) change in activity level; retardation or agitation. Lamberty and Bieliauskas (1993) stated that these symptoms may be inherent in the aging process and that "they are easily confounded by the effects of age and illness states common to the elderly as well as of changes due to physiological aging" (p. 151).

Aging and Masked Depression

Another variation of depression seen most commonly in the elderly is that of masked depression. Masked depression is a disorder with significant subjective and functional disability marked by a cluster of vegetative symptoms but without prominent dysphoria or guilt (Weiss, Nagel, & Aronson, 1986). As Ruegg et al. (1988) stated, the elderly frequently do not complain of sadness or dysphoria but instead mask this affect by "prominent somatic complaints such as gastrointestinal upsets, complaints of memory or concentration disturbances, or decreased energy or drive" (p. 91).

Neskes and Jarvik (1987), in describing masked depression, stated that patients may complain of insomnia, physical problems, pain, and constipation and deny being depressed but yet respond to antidepressant treatment. Goldstein (1979) claimed that these somatic complaints may be an attempt on the part of the depressed elderly patient to

combat feelings of helplessness, to avoid fear of failure, and to restore some measure of control. The exact relationship between physical health and depression is complex. Growing old predisposes oneself to a variety of debilitating illnesses. Physical illness can precipitate depression, and in the face of illness, depression is more common (Neskes & Jarvik, 1987). Therefore, it is important to take these complaints seriously. However, these somatic complaints may be masking an underlying affective disorder and the elderly may not properly attribute true indices of physical distress. Therefore, since the elderly may be more likely to mask their depression than younger individuals (Salzman & Shader, 1978), it is suggested that such somatic complaints are an important variable to consider in the delineation of depression and physical illness in the elderly.

On the other hand, as Rapp and Vrana (1989) pointed out, some somatic signs and symptoms of depression- for example, appetite or weight change, hypo- or hypersomnia, fatigue or loss of energy, and diminished ability to concentrate also can be symptoms of various medical illnesses and/or drug side effects and are correlates of normal aging. These researchers claimed that somatic symptoms currently used to diagnose major depression in the elderly may be the result of normal aging and are highly unspecific in the diagnosis of depression. Rapp and Vrana (1989) suggested that it would be more useful to substitute nonsomatic for somatic symptoms in the diagnosis of depression in the elderly. In a study of 150 elderly male medical inpatients, they examined the sensitivity and specificity of a modified (substituting nonsomatic for somatic symptoms) version of the Research Diagnostic Criteria (RDC) for major, minor, and intermittent depression. These researchers provided empirical support to conclude that it may be easier and more accurate to assess nonsomatic symptoms than to decide when somatic symptoms are

secondary to depression and when they are secondary to the host of other potential causes.

Bourge, Blanchard, and Saulnici (1992) looked at the impact of somatic symptoms in the evaluation of depression among a geriatric population. These researchers found a significant correlation between physical health and the degree of depression, supporting the view of Rapp and Vrana (1989). However, as Bourge et al. (1992) stated, the higher level of depression observed in the elderly with poor physical health is caused by the inflation of somatic items as well as the mood related items on the BDI, which taps both somatic and mood related symptoms of depression. Furthermore, Bolla and Bleecker (1989), in examining the effects of age and sex on the BDI, the Minnesota Multiphasic Personality Inventory (MMPI), and the Geriatric Depression Scale (GDS) found that greater physical malfunctioning was significantly associated with higher scores on all the depression scales addressing somatic symptoms. Stewart, Blashfield, Hale, and Moore (1991), assessing the correlates of BDI scores in an ambulatory elderly population, indicated depression is underdiagnosed in older patients and that multiple somatic symptoms are the best indicators of depression in this population.

As Waxmen and Carner (1984) suggested, physicians have frequently reported that elderly patients present with a variety of somatic complaints that lack apparent physical bases. After unsuccessful treatment, physicians have concluded that these complaints are a result of the somaticization of an underlying affective disturbance. Thus, the delineation of those complaints which indicated a medical disorder and those that represented an affective disorder is extremely important. Unfortunately, it is generally not known which somatic complaints are most indicative of depression. Therefore, as these

researchers stated, the relationship between chronic mental illness, depression, and somatic complaints is interactive and complex. Their study of 227 community elderly concluded that a wide variety of somatic complaints were associated with depression and that depression scores were potent predictors of somatic complaints. Therefore, the role of somatic complaints in the diagnosis of depression is important to consider. Rapp, Walsh, Parisi, and Wallace (1988) used RDC criteria to assess the base rate of depression in a random sample of 150 elderly medical inpatients and found that prevalence rates for depression indicated that this population is at high risk for major depression. Self-report screening measures were especially sensitive to major depression and that even among the frail elderly, somatic features should be used as a criteria for diagnosing depression. They found that the BDI appears better suited for measuring RDC-defined symptoms of depression than the GDS, which entirely omits the somatic/vegetative domain.

The present study proposes to investigate the relationship between subjective memory complaints and depression in greater detail. The literature suggested that subjective memory complaints are a diagnostic indicator for depression. However, when one takes a closer look at the measurement of depression in the above studies, each scale had somatic complaints as a scoring criterion for the delineation of depression.

According to Weiss, Nagel, and Aronson (1986), the Zung Depression Scale, Hamilton Rating Scale for Depression, and BDI all use somatic complaints as a characteristic in scoring depression. The self-reporting depression questionnaire used by Derousene et al. (1987) also contained somatic complaints as a criterion. It should be noted that no consensus has been reached as to whether subjective memory complaints are equally valid as a diagnostic indicator for somatic/vegetative types of depression and for

affective/mood related types of depression or whether they are more diagnostic for one than the other. To find out, this study will look at whether elderly individuals who have more subjective memory complaints, as measured by the Memory Assessment Clinic Self-Report Scale (MAC-S), will respond differently on a factor of a depression measure which is loaded with somatic/neurovegetative items (BDI-somatic factor only) than on measures that are solely mood related (GDS and BDI-affective factor only).

Several studies have suggested that the BDI measures two constructs, designated somatic complaints and non-somatic, or affective complaints (Volk, Pace, & Parchman, 1993). One study which delineated this factor structure was a study by Cavanaugh, Clark, and Gibbons (1983). These researchers stated that the BDI can be demarcated into a dominant first factor (affective) and a second factor (somatic). Cavanaugh et al. also determined which BDI standard form items discriminated depressive severity in older hospitalized medical patients. The first 14 items were shown to be grouped as affective items and the last seven items as somatic criteria. Therefore, for the purpose of this study, the somatic factor of depression will be defined as the last seven items of the BDI.

According to Yesavage, Brink, and Rose (1983), the GDS is a unifactorial scale, measuring affective aspects of depression. Therefore, according to these researchers, none of the GDS items specifically measure somatic concerns. Therefore, this study will define the affective factor of depression as the first 14 items of the BDI and all 30 items of the GDS.

Previous research (Larrabee, West, & Cook, 1991) assessing the association of memory complaints with computer-stimulated everyday memory performance, determined there was not a high correlation between depression and the MAC-S factors

(correlation's between .06-.26). They suggested that the MAC-S avoids confounding depression with memory self evaluation. However, the relatively small correlations with depression and subjective memory complaint were based only on relationships between the MAC-S and GDS. When one addresses somatic indicators of depression it would appear that a greater relationship should exist between subjective memory complaint and scores of depression. The discrepancies between the above studies may be attributed to how one measures depressive symptoms. Subjective memory complaints are predicted to have a stronger link with somatic aspects of depression rather than mood-only related characteristics of depression.

Furthermore, the relationship between somatic symptoms and memory complaints may signal the presence of hidden or "masked" depression. "Masked," or hidden depression, by the definition used, requires that there be a high number of memory complaints, a high number of somatic complaints, a low number of mood complaints, and little or no objective evidence of physical impairment that could account for the somatic complaints. If individuals score high on memory complaints and have comparable scores on somatic and affective aspects of depression then this could be taken to suggest that memory complaints may be a diagnostic indicator for "regular depression", and that the elderly subjects are giving a fair subjective appraisal of their depressive symptomatology. However, if individuals score high on memory complaints, low on affective complaints, high on somatic complaints, and do have objective evidence of physical impairment of the sort that could account for the somatic complaints, then it would be reasonable to assume that these individuals can be classified as "ill, but not depressed." It is proposed that a complex interaction exists between subjective memory complaints and the nature of the

symptoms of depression. The present study is designed to document whether such an interaction is at work within a normal elderly population and whether one may delineate the presence of hidden or "masked" depression with the criteria used. Since it has been shown that individuals who present with such somatic complaints, and have no objective physical impairment, do in fact respond in a positive manner to antidepressant therapy (Makanjuola & Olaifa, 1987; Neskes & Jarvik, 1987), than it would be quite helpful to propose diagnostic criteria for those who are "masked" depressed.

Hypotheses

In light of the preceding discussion, the purpose of this study is to assess whether subjective memory complaints are a diagnostic indicator of depression and to delineate the role of these complaints as they relate to somatic and mood related aspects of depression.

It is hypothesized that:

1. A significant positive relationship will exist between subjective memory complaint and mood-related depression. Operationally, this will be tested by assessing the relationship between the MAC-S and the 30 items of the GDS plus the first 14 items of the BDI. Together, these 44 items address an affective factor of depression (Cavanaugh et al., 1983, Yesavage et al., 1983).
2. A significant positive relationship will exist between subjective memory complaint and somatic aspects of depression. Operationally, this will be tested by studying the relationship between the MAC-S and the last seven BDI items which address the somatic factor of depression (Cavanaugh et al., 1983).
3. A significantly stronger relationship will exist between subjective memory complaint and somatic aspects of depression than between subjective memory complaint

and mood-only aspects of depression. Operationally, this will be tested by studying the difference in the relationship between the MAC-S and the somatic factor of depression as compared to the MAC-S and the affective factor of depression.

On a descriptive level, I expect to isolate three groups of able elderly. The first two groups will consist of individuals who evidence subjective memory complaint as measured by the MAC-S, but evince vegetative symptoms of depression (somatic factor) rather than mood related aspects (affective factor). Group A will comprise of individuals who have a significant medical history and Group B will comprise of individuals whose physical health is essentially noncontributory. Group A, who will be called "ill, but not depressed," will be those individuals whose memory complaint is a function of genuine physical impairment. Group B will be those considered to have "masked", or hidden depression, since there is a lack of contributing physical impairment. Operationally, physical impairment will be measured by the Memory Assessment Inventory (MAI) and will take account of major exclusion criteria as suggested by Blackford and Larue in delineating Age Associated Memory impairment (Crook et al., 1986). The criteria will include: (a) Any neurologic disorder that could produce cognitive deterioration. Such disorders include AD, Parkinson's Disease, stroke, intracranial hemorrhage, local brain lesions including tumors, and normal pressure hydrocephalus. (b) History of any infective or inflammatory brain disease including those of viral, fungal, or syphilitic etiologies. (c) History of repeated minor head injury or single injury resulting in a period of unconsciousness for one hour or more. (d) Any medical disorder that could produce cognitive deterioration including renal, respiratory, cardiac, and hepatic disease; diabetes

mellitus; endocrine, metabolic, or hematologic disturbances; and malignancy not in remission for more than two years.

Additionally, a third group; Group C, may be isolated as well. Group C, who will be called "regular depressed", will consist of individuals who evince high subjective memory complaints (MAC-S), and also endorse both mood-related aspects of depression (affective factor) and vegetative aspects of depression (somatic factor).

METHOD

Participants

The participants were chosen from an ongoing Michigan State University (MSU) Psychological Clinic Aging Research Project. They were a subset of community dwelling elderly recruited through advertisement. Each individual was offered two assessments of their mood and memory, as well as a seven session workshop targeted to teach relaxation or cognitive strategies for the relief of depression and/or memory difficulties. This pool of 90 participants contained protocols of older individuals ranging from 55 to 91 years old ($M = 70.40$; $SD = 2.97$). Of the 90 participants, 67 were women and 23 were men. The group had a mean education of 14.76 years ($SD = 2.97$).

Measures

1. Beck Depression Inventory (BDI)

This self-rating instrument addresses depression. It consists of 21 items with four graded statements relating to the severity of the symptom. Recent literature (Karanci, 1988) indicates that the BDI taps affective, motivational, cognitive, and somatic symptomatology of depression. Karanci stated that although the BDI total score has shown good sensitivity and specificity in detecting depression in medical patients, several researchers have raised an objection to the utilization of the total BDI score for medical patients. Karanci noted that the somatic/vegetative symptomatology tapped by the BDI

may be by-products of the physical illness. Karanci's study of patterns of depression in medical patients, found that the somatic/vegetative symptomatology of depression can be partially accounted for by greater age, illness severity, and attributions to nonpsychological causes.

A cutting score between 14 and 15 points is recommended to identify the presence of significantly depressed mood by Beck and Beamesderfer (1974). Results of studies suggest that the BDI has respectable internal consistency and stability for use with the elderly. For example, there was a positive relationship between conventional cut off scores on the BDI and selected diagnostic classifications of the Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978) for detection of major and minor depressive disorders. Only 16.7% were misclassified by customary BDI cutoff scores (Gallagher, Nies, & Thompson, 1983). These results suggested that the BDI can be used as a screening instrument for identification of clinically depressed elders.

2. Geriatric Depression Scale (GDS)

Yesavage, Brink, and Rose's GDS (1983) is composed of 30 true/false self-referent statements and was designed specifically for rating depression in the elderly. According to Bieliauskas (1993), "the GDS appears to be quite sensitive to symptoms of distress in this population but there are some questions as to whether or not it may be overdiagnostic of clinical depression" (p. 123). None of the GDS items specifically measure somatic concerns. Yesavage et al. (1983) suggested that the GDS is a reliable scale. Test-retest reliability was calculated for the GDS by having 20 subjects complete the questionnaire twice, one week apart. A correlation of .85 was obtained ($p < .01$), suggesting that, at least within the time frame considered, scores on the GDS reflected

stable individual differences. Convergent validity was shown to exist between the GDS, the Zung Self-Rating Scale for Depression (SDS), and the Hamilton Rating Scale for Depression (HRS-D). According to Yesavage et al. (1983), the obtained correlation between the GDS and the SDS was found to be .84 while a correlation of .83 was found between the GDS and the HRS-D. Furthermore, the GDS appeared to have respectable internal consistency and stability for use with the elderly. According to Yesavage et al. (1983), a positive relationship between conventional cut-off scores on the GDS and selected diagnostic classification of the Research Diagnostic Criteria was elucidated. T-tests conducted showed that subjects classified as normal scored significantly lower on each of the scales compared to the mildly and severely depressed subjects while the severely depressed group scored higher than each of the other two groups (all $p < .01$). According to Yesavage et al. (1983) this scale is especially suitable for detecting depression in the elderly because it avoids classification errors due to bad physical health.

3. Memory Assessment Clinic Self-Report Scale (MAC-S)

The MAC-S (Larrabee, West, & Crook, 1991) seems to be a promising new scale that assesses the subjective domain of memory complaints. This revised memory questionnaire contains 21 ability items and 24 frequency of occurrence of memory problem items. Factor analysis of this scale demonstrated the usefulness of MAC-S factors based on a sample of 1106 participants. It has a large normative base that covers the adult range of 18-92 years. Data has been provided by the above researchers showing the concurrent validity of this new self-report scale. Data suggested that significant associations can be demonstrated between self-rated and objectively measured memory.

Overall, the percentage of shared variance between MAC-S and computer-simulated objective memory tasks ranged from 27.0% to 29.4% (Larrabee et al., 1991).

Youngjohn, Larrabee, and Crook (1992) examined the test-retest reliabilities and practice effect magnitudes comprising the MAC-S battery and five traditional neuropsychological tests in 115 subjects and reported significant practice effects on reevaluation. The test-retest reliabilities were equal or superior to the other traditional neuropsychological measures but the traditional measures were superior in measures of attention and concentration.

4. Multilevel Assessment Instrument (MAI)

Lawton, Moss, Fulcomer, and Kleban's MAI (1982) measures the well-being of the aged in the areas of behavioral competence (health, cognition, time use, social interaction, etc.), psychological well-being, and perceived environmental quality. Reliability was reported by Lawton, et al, as follows: Summary rating scales in seven domains were completed by using an interviewer and a "reader-rater" for 484 of the 590 respondents and by an interviewer and interview observer for the remaining 106. In the sample of 484, interviews and reader-raters agreed with either a 0 or 1 point discrepancy in 95% of all instances. Intraclass correlations ranged from .88 (activities of daily living) to a low of .58 (social interaction). Reliability of the final MAI scales were all .61 or above except for health behavior (.39). Retest reliability done at a three week interval on 22 cases was acceptable, the majority receiving a perfect score (p. 95). Lawton et al. also determined the validity of this scale by doing summary ratings, multiple correlations, and by constructing a "dummy variable" representing independent versus dependent groups. Except for the social domain category, Lawton et al. concluded that the reliabilities and

validities of the MAI indices and subindices were affirmed by several different approaches. Because analysis had been done separately for each domain, portions of the MAI may be used if desired. Lawton et al. (1982) maintained that physical health, cognition, and activities of daily living were all strong domains.

Procedure

Participants were assessed on both depression measures, the memory assessment scale, and multilevel assessment instrument on two occasions at approximately a three month interval. These tests were administered as part of a larger study designed to assess mood and memory functioning. All testing was carried out by clinicians enrolled in MSU's clinical psychology programs. Examiners had been previously trained in the administration of the questionnaires. Participants were not paid for their participation. However, each individual was told they would be receiving feedback on their mood and memory status, as well as receiving the seven session workshops targeted at improving depression and memory difficulties. The entire assessment required between one-and-one-half and two hours. All tests were initially scored by the trained clinician administering the battery. However, the tests were re-scored by the author to ensure accuracy.

RESULTS

Data analyses were subdivided into four components. First, the psychometric properties of the two depressive indices and resulting somatic and affective factors were assessed. Second, the three hypotheses were evaluated. Third, a profile analysis was conducted to determine if any individuals, with the measures used, could be classified as "masked depressed", "ill, but not depressed", or "regular depressed". Fourth, post-hoc analyses of the overall sample were conducted.

Psychometric Properties

First, an inter-item reliability check, using Cronbach's (1951) alpha, was conducted to determine if adequate reliability existed to justify combining the first 14 items of the BDI (Cavanaugh, 1983) and 30 items of the GDS (Yesavage et al. 1983) to produce a total affective factor of depression. The item total statistics and stability coefficients for this factor (alpha = .91) and resulting 44 items can be found in Appendix A. In summary, it appears that there was adequate reliability to support combining these items to produce a *unifactoral* affective factor. The only items in question were four BDI items (#'s 6, 10, 11, & 14). However, these items were included in the factor since deleting the items would only minimally increase the reliability of the factor. Furthermore, the items in *question* were retained to provide comparability for past and future studies done in this

subject area. The individual raw data totals for the BDI, GDS, and MAC-S can be found in Appendix C.

Second, an inter-item reliability check was conducted using Cronbach's (1951) alpha, to justify the use of the last seven items on the BDI to form a somatic factor of depression (Cavanaugh, 1983). The item-total statistics and stability coefficients for these seven items can be found in Appendix B. Again, in summary, it appears that adequate reliability ($\alpha = .44$) was achieved to support previous research in delineating the last seven items of the BDI as a separate somatic factor of depression. One item (BDI item 19) was somewhat doubtful for inclusion in the factor. Since deleting the item would only minimally increase the reliability of the factor and retaining the item would assure comparability for future and past studies, this item was included in the factor. Again, the individual raw score totals on the BDI, GDS, and MAC-S can be found in Appendix C.

Hypotheses

Hypothesis I. It was predicted that a significant relationship would exist between subjective memory complaints, as measured by the total MAC-S score, and the affective factor of depression, as measured by the 30 items of the GDS and first 14 items of the BDI. Hypothesis I was supported. A Pearson product-moment correlation revealed a significant relationship between these measures, $r(90) = -.53, p < .01$. That is, people who scored lower on the MAC-S, indicating a higher number of subjective memory complaints, scored significantly higher on the affective factor of depression.

Hypothesis II. The second hypothesis predicted that a significant relationship would exist between subjective memory complaint, as measured by total MAC-S score, and the

somatic factor of depression, as measured by the last seven items of the BDI. Hypothesis II was supported. A Pearson product-moment correlation revealed a significant relationship between these measures, $r(90) = -.39, p < .01$. That is, people who scored lower on the MAC-S, indicating subjective difficulties with their memory, scored significantly higher on the somatic factor of depression.

Hypothesis III. The third hypothesis predicted that a significantly stronger relationship would exist between subjective memory complaint and the somatic factor of depression than between subjective memory complaint and the affective factor of depression. Specifically, it was predicted that the total score on the MAC-S would have a significantly stronger relationship with the last seven items on the BDI (somatic factor) than with the 30 items on the GDS combined with the first 14 items on the BDI (affective factor). This hypothesis must be rejected. Pearson product-moment correlations did reveal significant relationships in both instances, supporting hypotheses I and II. However, results were in a direction opposite to that of the hypothesis. The strength of correlation was greater between the MAC-S and affective factor of depression ($r(90) = -.53, p < .01$) than between the MAC-S and somatic factor of depression ($r(90) = -.39, p < .01$). An r to z conversion revealed that the difference between these correlations was not significant (r to $z = 1.64$).

Profile Analysis to Delineate Depression Types

A profile analysis was designed to reveal distinct depression groups as defined through cutoff scores on the affective factor of depression, somatic factor of depression, and MAC-S. As suggested by Crook and Larrabee (1992), individuals were defined as

having considerable subjective memory complaints if they scored one standard deviation below the mean on the Total Ability scale summed with the Frequency of Occurrence (Tot-Foc-Ab) scale on the MAC-S. Therefore, considerable subjective problems with memory was defined as a total score of 119 or below on these two scales of the MAC-S (Crook & Larrabee, 1992). Out of a total sample of 90 participants, 38 were defined as having considerable subjective memory difficulties, falling at or below this cutoff.

These 38 individuals who had considerable subjective difficulties with their memory were then placed into depression types using cutoff scores on the somatic and affective factors of depression. To keep the cutoffs uniform across scales, participants were defined as scoring high on the somatic aspects of depression if they scored one standard deviation above the mean for total somatic factor (TotSoma) score ($M=3.77$; $SD=2.88$). Similarly, participants were defined as scoring high on affective aspects of depression if they scored one standard deviation above the mean for total affective factor (TotAff) score ($M=10.49$; $SD=8.87$). Cut-off scores delineated four distinct depression groups. The groups were labeled as follows: (a) Masked depressed, (b) regular depressed, (c) nondepressed memory complainers, and (d) affectively depressed. The means and standard deviations of memory complaints score, somatic factor score, and affective factor score for the 38 individuals, and resulting four depression groups, can be found in Table 1.

In addition, there was a search for individuals whose physical symptoms might account for their memory difficulties. Physical impairment symptomatology was measured by the MAI and took into account major exclusion criteria as suggested by Blackford and Larue (Crook et al., 1986). None of the 38 individuals in the subjective memory

Table 1: Descriptive Statistics for Memory Complaints Score, Somatic Factor Score, and Total Affective Score for the Four Depression Groups in the Sample

Group	N	TOT-FOC-AB		TOT-SOMA		TOT-AFF	
		Mean	SD	Mean	SD	Mean	SD
Masked Depressed	8	98.63	17.59	7.38	2.45	12.13	3.56
Regular Depressed	11	99.45	11.64	7.00	2.14	25.73	7.40
Non-Depressed Memory Complainers	15	109.00	8.71	2.80	1.37	8.40	3.22
Affectively Depressed	4	111.25	9.64	2.50	1.29	22.75	2.50

complaint group revealed such physical symptomatology. Therefore, no participants in this study were found who met the "ill, but not depressed" classification.

Group A, "Masked Depressed"

A total of eight individuals were labeled as "masked depressed" (8.8% of the total sample) with the use of the diagnostic criteria proposed. As Table 1 shows, each individual in this group was found to evince considerable subjective difficulties with their memory, a high number of somatic depression complaints, and a low number of mood or affective complaints. Table 2 shows the descriptive statistics for age, education, and total health complaints for this group and the other three subgroups in the sample. Total health complaints were measured by the MAI. Each health complaint was equally weighted and total health complaints were tabulated. Additionally, Table 3 shows the frequency percentage of men and women found in the four depression groups as well as the frequency percentage of those living with someone or living alone. The "masked depressed" group contained more women (five) than men (three) and five of the eight individuals lived with someone else.

Group B, "Regular Depressed"

A total of 11 individuals (12.2% of the total sample) were labeled as "regular depressed." As Table 1 shows, each individual was found to score high on subjective memory complaints and endorsed increased levels of somatic as well as affective aspects of depression. Table 2 shows that this was the oldest subgroup of the four subgroups in the sample. Also, members of this group endorsed more health complaints when compared to the other three depressed groups. Table 3 describes that more women

Table 2: Descriptive Statistics for Age, Education, and Health Complaints for the Four Depression Groups in the Sample

Group	N	Age		Educ		Health	
		Mean	SD	Mean	SD	Mean	SD
Masked Depressed	8	75.38	11.62	14.50	2.14	3.25	2.60
Regular Depressed	11	76.64	10.67	13.36	4.18	3.36	1.57
Non-Depressed Memory Complainers	15	66.60	7.77	14.67	2.92	2.00	1.51
Affectively Depressed	4	69.75	13.60	16.00	4.69	2.75	1.26

Table 3: Frequency Percentage of Gender and Living Arrangements for the Four Depression Groups in the Sample

Group	N	Gender		Living Arrangements	
		Male	Female	Alone	W/Someone
Masked Depressed	8	37.5%	62.5%	37.5%	62.5%
Regular Depressed	11	36.4%	63.6%	72.7%	27.3%
Non-Depressed Memory Complainers	15	20.0%	80.0%	26.7%	73.3%
Affectively Depressed	4	25.0%	75.0%	0.00%	100.0%

(seven) than men (four) made up the subgroup and more of the individuals lived alone (eight) than with someone else (three).

Additional Depressed Groups

Two additional subgroups of individuals who endorsed high subjective memory complaints were isolated.

The first additional subgroup, group C, accounted for 15 of the 38 individuals (16.7% of the total sample) and was labeled "nondepressed memory complainers." As Table 1 shows, participants in this subgroup scored high on subjective memory complaint but did not endorse high levels of either affective or somatic aspects of depression. As Table 2 shows, this subgroup was the youngest of the four groups and endorsed the fewest health complaints. Table 3 shows that more women (12) than men (three) made up the subgroup and the majority of the 15 individuals lived with someone else (11).

The final subgroup of individuals delineated, group D, was labeled "affectively depressed." As Table 1 shows, these participants scored high on subjective memory complaints, high on the affective factor of depression, and low on somatic aspects of depression. Four individuals comprise this group (3.8% of the total sample). Table 2 shows that this group was the most educated of the four depression groups. Table 3 shows that three of the four individuals in this group were women and all four individuals lived with someone else.

Post-Hoc Analyses of the Whole Sample

First, an analysis of the whole sample ($n = 90$) was conducted to delineate the relationship between chronological age and memory complaints, as measured by the MAC-S. A Pearson product-moment correlation matrix revealed a significant relationship

between these two variables, $r(90) = -.23$, $p < .03$. That is, as the able elderly increase in age they endorse more subjective memory complaints. Next, analyses for the whole sample were conducted to determine the relationships between chronological age and somatic aspects of depression (somatic factor) and chronological age and affective aspects of depression (affective factor). A Pearson product-moment correlation revealed a significant relationship between chronological age and the somatic factor of depression, $r(90) = .28$, $p < .01$. That is, as the able elderly increase in age they endorse higher levels of somatic aspects of depression. However, a post-hoc analysis revealed that when age was controlled for, a significant relationship still existed between subjective memory complaints and somatic aspects of depression, $r(90) = -.33$, $p < .01$. Additionally, no significant relationship was found between chronological age and the affective factor of depression. Therefore, according to the findings, there is a true significant relationship between subjective memory complaint and both affective and somatic aspects of depression

Third, analyses were conducted looking at the relationships between gender and subjective memory complaints. A point by serial correlation revealed a statistically nonsignificant relationship between gender and memory complaints ($r = -.1$). That is, males were slightly more likely to endorse subjective problems with their memory.

Finally, analyses were conducted to determine the degree of relationship between gender and affective aspects of depression and gender and somatic aspects of depression. Again, a point by serial correlation revealed a very slight difference in favor of males endorsing somatic aspects of depression ($r = .02$). Additionally, almost no relationship was found between gender and affective aspects of depression. A very small difference in

favor of females endorsing affective aspects of depression was found ($r = -.01$). None of these differences were statistically significant.

DISCUSSION

The analyses for this study were subdivided into four components. First, the psychometric properties of the two depressive indices and resulting somatic and affective factors were assessed. Second, the three hypotheses were evaluated. Third, a profile analysis was conducted to delineate four depression groups in our sample: (a) masked depressed, (b) regular depressed, (c) just memory complainers, and (d) affectively depressed. Fourth, post-hoc analyses were conducted. This same format will be used to discuss the findings of these analyses.

Psychometric Properties

Results indicated that there was reasonable evidence of inter-item reliability to support combining the 44 items of the GDS and first 14 items of the BDI to form an affective factor of depression. Additionally, adequate reliability existed to support the use of the last seven items of the BDI as a somatic factor of depression. These results support previous research (Cavanaugh, 1983) which demarcated the BDI into a dominant first factor (affective) and second factor (somatic). In addition, the results supported Yesavage's (1983) research which found the GDS to be a unifactoral affective scale.

One possibility for the low internal consistency coefficient on the somatic factor of depression as compared to the affective factor of depression is the inclusion of only seven items in the factor. The affective factor, which had a higher reliability coefficient,

contained 44 items. However, the most likely result of reduced reliability in the somatic factor may be the measurement of the construct itself. It is apparent that the somatic factor is defined less clearly. The high frequency of physical illness among the elderly makes the differentiation between true illness and somatic symptoms both difficult and challenging. The alpha coefficient certainly gives credibility to the association between depression and somatic complaints, but it also raises a question about the extent to which somaticizers' complaints may result from physical illness and/or physical illness interacting with depression. Somatic signs and symptoms of depression, including insomnia, weight change, appetite change, and reduced concentration, also can be symptoms of certain medical ailments. It is also true that the elderly are more frequently medicated (Shultz, 1991) and these somatic symptoms may partially be attributed to medication side-effects. Therefore, these symptoms are correlates of normal aging and measurement of these symptoms in terms of depression may be very difficult. In this regard the measurement of somatic symptoms becomes less specific than the measurement of affective symptoms of depression.

Hypotheses

In this study we attempted to investigate the relationship between subjective memory complaint and depression in greater detail. Previous literature suggested that a link between subjective memory complaint and depression existed. However, some studies found a much stronger relationship between the two variables than others. In reviewing the literature, it became apparent that those studies which included somatic complaints as a scoring criterion for the delineation of depression (Larrabee & Levin (1986), Kahn et al. (1975), Williams et al. (1987), Derousene (1988), Pettinati et al.

(1985), Feehan et al. (1991), and Molinari (1991)) found a greater link between subjective memory complaint and depression. On the other hand, a study (Larrabee et al., 1991) assessing the relationship between subjective memory complaint and depression with the use of an affective measure of depression found low correlations (correlation between .06 and .26) between the two variables.

Therefore, in this study, we attempted to measure depression in a novel way, separating the construct into an affective factor and somatic factor. It was predicted that separate analyses of these factors would elucidate the relationship between depression and subjective memory complaint.

The first analysis revealed a significant correlation between the affective factor of depression and total subjective memory complaint score. This finding contradicts previous research (Larrabee et al., 1991) which determined there was not a high correlation between affective aspects of depression (GDS) and the MAC-S factors. According to Larrabee et al. (1991) several factors may contribute to the variability in observed associations between memory self-report and depression. Such factors include differences related to the subject group, or patients being investigated, and factors related to the design of the questionnaires used. These two factors may help explain the differences in the correlation currently found. The Larrabee et al. investigation looked at this relationship in younger adults (Age; $\bar{M} = 48.83$, $SD = 14.66$). The present study investigated the relationship in older adults (Age; $\bar{M} = 70.40$, $SD = 2.97$). Furthermore, although the MAC-S was used in both studies, the present study used the additional 14 affective items from the BDI plus the 30 items from the GDS to form an affective factor of

depression. These additional 14 items may have accounted in part for the higher correlations found in the present study.

The second analysis revealed a significant correlation between the somatic factor of depression and total subjective memory complaints score. This result parallels previous research findings which found relationships between depression, measured with somatic complaints as a scoring criterion, and subjective memory complaint. This finding provides further support to the notion that self-rating of memory disturbance by older adults is related to depressed mood.

The present study suggests that subjective memory complaints may be a diagnostic indicator for depression. Furthermore, separating depression into two separate factors does not change the clinical picture. Both affective and somatic aspects of depression were found to be significantly related to subjective memory complaint. In fact, the first surprising finding was that affective aspects of depression correlated more strongly with subjective memory complaint than did somatic aspects of depression.. As discussed above, one possible reason for this finding may be the measurement of the somatic factor of depression. Not only did the factor consist of only seven items, but the construct is less defined and may be confounded by correlates of normal aging. If the somatic construct were measured with a greater number of more specific items then somatic aspects of depression may have correlated more strongly with subjective memory complaint.

However, the possibility does exist that the findings are accurate of the relationship between subjective memory complaint and somatic and affective aspects of depression. It may be that the link between the variables does not depend on how one measures depression. Subjective memory complaint may be equally related to affective and somatic

aspects of depression. It could be that illness, including both depressive symptomatology and physical distress, is best measured along a continuum. Thus, it may be difficult, if not impossible, to separate physical illness, affective aspects of depression, and somatic aspects of depression into separate categories.

Profile Analysis to Delineate Depression Types

This study was undertaken, in part, to take a closer look at the measurement of depression in the elderly. By distinguishing between the affective and somatic factors of depression, it was hypothesized that the presence of masked depression might be identified. By definition, masked depression is a condition in which the affective aspects of depression are concealed by somatic symptoms. Therefore, such individuals who are masked depressed evince increased somatic concerns such as memory complaints, endorse an increased amount of somatic or vegetative depressive symptomatology, and endorse fewer affective items of depression. Thus, with the measures used in this study (GDS, BDI, and MAC-S) we hypothesized that a profile of masked depressed individuals, by definition, could be delineated. Furthermore, additional distinct profiles of depressive symptomatology could be defined. In this study, four distinct depression subgroups were identified. Analyses of age, education, health, gender, and social support provided additional demographic information.

The masked depressed group represented 8.8% of our total sample ($n = 90$). In a rural primary care practice using RDC defined diagnostic criteria, Barret et al. (1988) found the estimated prevalence of masked depression to be 7.9% in individuals aged 65 and over. Barret et al. (1988) applied a two-step case identification process, a screening inventory, and a structured clinical interview to estimate the prevalence of masked

depression. He defined masked depressed individuals as those who evidenced depressive symptomatology (somatic signs) but denied experiencing depressed mood. Barret et al. (1988) and Waxman et al. (1985) also stated that masked depression is more likely to occur in older women than older men. No other demographic data was available on masked depression from these researchers.

This data is quantitatively similar to our findings and may suggest that our cutoff criteria was reasonably successful in identifying masked depressed individuals. However, without conducting a treatment study for this subgroup, we cannot be certain these individuals are actually presenting as masked depressed. Future research needs to assess how these individuals respond to psychotherapy and/or antidepressant medication before determining if the masked depression profile used in this study is valid.

As Fisch (1987) stated, masked depression is a major problem within the health care system. Most often, the disorder proceeds without being diagnosed. In fact, as Katon (1982) stated, at least half of somaticized depressions go unrecognized or misdiagnosed and not properly treated by primary care physicians. In addition, Lesse (1983) found that the duration of illness prior to diagnosis of masked depression is more than one year in nearly 80% of patients, and more than five years in 30% of patients.

The potential reasons for this diagnostic neglect are many. First, the disorder has received little attention in the popular and scientific press and has not been well taught in the medical fields. Second, the primary care physician and patient may both choose to focus on the somatic symptoms of illness rather than affective symptoms. As Fisch (1987) stated, many physicians may be "somaticizers" who would rather focus on physical ailments than psychological ones. Third, the syndrome remains elusive. Not only are

primary care workers unfamiliar with the syndrome but there are no specific diagnostic criteria or screening measures available to tap the construct. Such a screening measure could prove useful in medical, psychiatric, and psychological settings. Research shows that masked depression is quite prevalent in the geriatric population (Barret et al., 1988) and may fester for quite some time before being diagnosed (Lesse, 1983). Furthermore, untreated depression has been shown to increase mortality and morbidity in the geriatric population (Waxman et al., 1985).

This study attempted to delineate a group of masked depressed individuals with the use of self-report neuropsychological questionnaires. Although this study did not confirm the presence of masked depression in the group, it would appear that eight of the 90 individuals in the sample, by definition, presented with masked depression. If this were the case, and treatment studies proved effective, then a screening measure of similar form could begin to be refined. Such an instrument could prove invaluable in sorting through the difficult and challenging constructs of masked depression and genuine physical illness. Such a screening measure could lead to quick and effective testing, treatment, and proper care. Treating depression early would reduce cost of care, and more importantly, the morbidity and mortality of prolonged depression. Furthermore, the early recognition of a true physical disorder might also reduce cost and curb the dangers associated with an untreated somatic ailment. It is noted that in the use of the above language there is no attempt to denigrate psychological symptomatology. It is neither suggested nor implied that being depressed is not a "true" or "genuine" concern. The issue is whether there are objectively determined physical causes of the distress, thus suggesting somatic concerns secondary to physical ailment rather than somatic concerns secondary to depression.

The Relationship Between Age and Symptomatology Within the Groups

Although the primary purpose of this portion of the study was to delineate a masked depressed profile, other interesting profiles did emerge. Additionally, within these profiles, descriptive statistics for age and health complaints revealed an interesting trend in the data. The largest group of individuals found were those who endorsed high numbers of memory complaint but failed to endorse high levels of either somatic or affective aspects of depression. This group ("non-depressed memory complainers") was found to be the youngest and healthiest relative to the other depression subgroups. In general, the possibility exists that concerns about memory precede health problems and depressive symptomatology seen more commonly at a later age. These memory complaints may be the first reflection of the patients' awareness of real decline or they could be stereotyped expectations of intellectual deterioration in the elderly (Plotkin et al., 1985). Perceived memory complaints may potentially start the spiraling process of increased health complaints and depression.

The second to the youngest defined group were those who endorsed memory complaints and affective aspects of depression. These "affectively depressed" individuals endorsed more health complaints than the "non-depressed memory complainers" but fewer health complaints than the "regular depressed" and the "masked depressed." Although only four members comprise this affectively depressed group, the data indicate that affective aspects of depression may follow memory complaints. Additionally, within the "affectively depressed" group one sees an increased amount of health complaint.

The data indicate that the next stage in the process may be endorsing affective and/or somatic aspects of depression, as well as increased memory complaint. In the

"regular depressed" and "masked depressed" groups we also find the most health complaints relative to the other groups.

It may be that aging progresses in a step-wise fashion. As Scogin, Storandt, and Lott (1987) stated, people seeking treatment for memory problems may have special attitudes and expectations about their cognitive ability. It is possible that these individuals may have preconceived notions about the aging process and are more sensitive to age related changes within themselves. When changes in memory do occur, this may eventually lead to feelings of sadness and hopelessness, which ultimately progress to somatic concerns and then the overall package of depression and health complaints. Post-hoc analyses revealed that a significant relationship did exist between chronological age and memory complaints as well as chronological age and somatic aspects of depression. This provides evidence to suggest that as the elderly increase in age they worry more about their cognitive functioning and experience a greater number of somatic complaints.

On the contrary, low memory complainers may be more accepting of age related changes in their own abilities and beliefs, leading to a healthier mental and somatic outlook. These hypotheses should be tested to give us a better perspective on individual adaptation to the aging process. As Scogin et al. (1985) stated, research that looks at individual adaptation to aging may guide the development of appropriate treatment procedures. From the present study, it appears a trend between age and symptomatology does exist. However larger group sizes are needed and a more specific evaluation of the process is warranted.

Effects of Sociodemographic Variables on the Depression Groups

For every depression subgroup examined we obtained higher rates for women when compared to men. This difference is consistent with virtually every epidemiologic study in the literature (Barret et al., 1988). Furthermore, this finding is not surprising since the majority of our sample was composed of women. An interesting note is that the group with the highest percentage of men was the masked depressed group. Barret et al. (1988) found a much higher percentage of women than men in their masked depressed group. However, only eight members comprise our masked depressed group, which may explain the difference in findings. Furthermore, we still found nearly a two to one ratio of women to men in our masked depressed group.

In terms of social support, the only group consisting of more individuals living alone than living with someone else was the "regular depressed" group. This may help explain the severity of symptomatology seen within the group, since individuals who live alone are more likely to lack a close confiding relationship and live in an environment that lacks needed stimulation (Henderson, Scott, & Kay, 1986). The 11 individuals in the "regular depressed" group endorsed considerable amounts of memory difficulties, affective aspects of depression, and somatic symptoms of depression. Additionally, this group was found to have more health complaints than any other subgroup. These results are consistent with previous research that found more physical and psychological symptomatology in elderly that live alone (Henderson et al. 1986, Weissman & Klerman, 1977). Furthermore, the "non-depressed memory complainers" and "affectively depressed" subgroups had the greatest frequency of people living with them and also the fewest health complaints, providing further support for the previous findings. From our

study, it does appear social support acts a potential buffer against worsened health and increased depression within the elderly.

Previous literature on the relationship between overall years of education and degree of depression showed that fewer years of formal education was independently related to a greater degree of depressive symptomatology and greater cognitive decline (Fuhrer, et al. 1992). Carpiniello, Carta, and Rudas (1989) also found that lower levels of education in both men and women were related to increased levels of depression. In our study, the "regular depressed" group had the fewest years of formal education, providing support for these findings. This relationship may be true since individuals who are less educated tend to have less prestigious and less satisfying jobs and may have more difficulty with finances. This may ultimately lead to individual dissatisfaction which is highly correlated with depression (Carpiniello et al., 1989).

Suggestion for Future Research

While this study is a preliminary investigation, it has provided us with many suggestions for future research.

First, if possible, it is recommended that a better measure of somatic aspects of depression in the elderly be constructed. As mentioned previously, this may be difficult since many somatic symptoms of depression are correlates of normal aging. The issue of how well somatic items measure depression in the elderly and how well they discriminate the depressed from nondepressed is an issue which requires further research.

Furthermore, one potential reason for this study failing to add specific information to the relationship between subjective memory complaint and depression was the use of a seven-item scale that had relatively low inter-item reliability. If future research could

devise a somatic scale with more items that were more specific, than the association between subjective memory complaint and type of depression could be better elucidated.

This study was able to add credence to the belief that subjective memory complaints are a diagnostic indicator for depression. However, much more research needs to be done in the area. This is true since subjective memory complaint may also be an early symptom of a degenerative disorder such as Alzheimer's disease. Information relating to the accuracy of these complaints and how they specifically involve different aspects of depression could aid health care workers in formulating more accurate diagnoses. Future studies should carefully assess this relationship to help clear up the diagnostic picture. If this was accomplished people's self-reports of memory could actually help serve in describing the nature of the disorder and help with future treatment planning.

Another interesting question evolving from this study involves the independent appraisal of one's memory difficulties and how memory complaints appear to precede depressive and health related symptomatology. Elderly who experience subjective difficulties with their memory may have special attitudes and expectations about their cognitive abilities. This may help raise into consciousness the fears associated with "losing one's mind." These individuals may be more concerned about the aging process and may be more sensitive to age-related changes. This may ultimately lead to worry and a decrease in self-esteem which may lead to depression and other health related symptomatology. However, people who feel fine with their memory may interpret age-related changes differently, resulting in a more positive outlook and more healthy aging experience. Individual adaptation to the aging process is an area that could lead to

more effective treatment strategies. Furthermore, therapy in a cognitive-behavioral framework could help facilitate changes in attitudes, thoughts, and expectations about the aging process. This study was only able to touch on some of these issues. Future studies would need much larger group sizes and a design specific to the topic.

The most logical extension of this study would be focusing on the issue of masked depression and devising a masked depressed neuropsychological questionnaire. The first step might be conducting a treatment study on the eight individuals who fit the profile of "masked depressed." If these individuals showed improvement secondary to antidepressant and/or psychotherapy treatment then a questionnaire of similar form could be devised. One possible change in the questionnaire would be including more somatic items that were more specific to the somatic aspects of depression. Next, similar cutoff points on the measures could be defined. However, much more validity and reliability research would need to be done on the scale. The clinical utility of such a scale would be great. Masked depression is a prevalent syndrome that often goes undiagnosed. The development of a masked depressed neuropsychological questionnaire could be the first step of many in gaining a better understanding of this elusive syndrome.

APPENDIX A

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APPENDIX A

Table A-1: Item-total Statistics for Affective Factor of Depression

Reliability Coefficients: 44 items

Alpha=.9051

Mean=10.49

Variance=78.72

Std Dev=8.87

Affective Factor Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Alpha if Item Deleted
B1	10.3	75.2	0.46	0.9025
B2	10.26	74.1	0.51	0.9016
B3	10.37	75.38	0.47	0.9024
B4	10.1	73.17	0.6	0.9003
B5	10.32	74.96	0.48	0.9022
B6	10.31	75.07	0.29	0.9055
B7	10.22	74.58	0.46	0.9024
B8	10.17	74.23	0.48	0.9021
B9	10.46	77.64	0.33	0.9044
B10	10.19	73.75	0.32	0.9062
B11	9.96	73.82	0.31	0.9068
B12	10.32	75.32	0.43	0.9028
B13	9.98	70.54	0.62	0.8998
B14	10.09	76.76	0.11	0.9097
G1	10.4	76.65	0.4	0.9035
G2	10.27	74.18	0.61	0.9008
G3	10.39	76.62	0.38	0.9036
G4	10.27	75.84	0.37	0.9034
G5	10.33	76.16	0.38	0.9034
G6	10.23	74.9	0.48	0.9022
G7	10.41	77.23	0.3	0.9043

G8	10.4	77.61	0.2	0.905
G9	10.36	74.73	0.66	0.9009
G10	10.37	76.77	0.32	0.904
G11	10.23	74.83	0.49	0.9021
G12	10.23	76.88	0.22	0.9053
G13	10.2	74.16	0.55	0.9012
G14	10.06	75.27	0.37	0.9035
G15	10.4	76.42	0.44	0.9031
G16	10.31	74.15	0.67	0.9003
G17	10.39	76.04	0.49	0.9026
G18	10.39	75.95	0.51	0.9025
G19	10.18	75.56	0.36	0.9036
G20	10	74.18	0.5	0.9018
G21	10.07	74.36	0.48	0.902
G22	10.42	77.06	0.36	0.9039
G23	10.43	77.69	0.24	0.9047
G24	10.18	74.55	0.49	0.9019
G25	10.38	76.53	0.38	0.9035
G26	10.01	74.33	0.48	0.9021
G27	10.36	75.15	0.58	0.9016
G28	10.37	76.77	0.321	0.904
G29	10.13	74.7	0.46	0.9024
G30	9.83	75.74	0.33	0.904

APPENDIX B

Table B-1: Item-total Statistics for Somatic Factor of Depression

Reliability Coefficients: 7 items

Alpha=.4351

Mean= 3.77

Variance=8.32

Std Dev=2.89

Somatic Factor Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Alpha if Item Deleted
B15	3.09	6.94	.33	.359
B16	2.93	5.03	.24	.391
B17	2.89	7.13	.36	.364
B18	3.69	7.71	.30	.402
B19	3.32	5.71	.15	.453
B20	3.56	7.61	.22	.407
B21	3.12	6.71	.17	.415

APPENDIX C

1

APPENDIX C

Table C-1: Total Scores on the BDI, GDS, and MAC-S (TOT-FOC-AB) for Each Individual in the Sample

Subject Number	Total BDI Score	Total GDS Score	TOT-FOC-AB
1	2	1	162
2	2	2	138
3	4	4	142
4	5	3	141
5	15	17	93
6	18	13	105
7	3	2	146
8	1	2	134
9	13	8	88
10	10	17	114
11	4	1	159
12	7	18	128
13	12	17	116
14	10	14	116
15	1	1	142
16	4	1	140
17	10	16	97
18	27	16	100
19	6	18	118
20	9	6	105
21	2	1	136
22	7	3	117
23	4	6	119
24	9	1	138
25	1	1	132
26	2	2	145
27	0	0	174
28	7	5	100
29	6	7	118
30	9	20	187
31	3	2	133
32	13	5	121
33	10	6	146
34	1	0	141

35	1	0	146
36	10	8	115
37	10	12	121
38	3	4	133
39	18	8	102
40	4	1	128
41	7	13	63
42	6	2	132
43	11	8	100
44	14	13	95
45	7	4	143
46	13	11	98
47	18	8	116
48	5	6	121
49	2	2	162
50	4	1	167
51	13	19	73
52	2	1	142
53	5	2	100
54	2	2	123
55	15	20	99
56	7	2	113
57	13	10	93
58	7	8	109
59	32	23	97
60	0	3	114
61	1	5	113
62	7	6	124
63	5	3	154
64	6	3	129
65	17	9	116
66	7	4	141
67	5	6	120
68	3	0	129
69	7	9	100
70	4	4	121
71	5	6	126
72	24	7	142
73	5	5	97
74	5	4	126
75	8	8	93
76	8	4	109
77	12	14	135
78	11	11	107
79	0	2	127

80	2	2	139
81	9	8	120
82	14	5	126
83	4	8	127
84	11	7	126
85	8	10	120
86	2	8	118
87	2	1	142
88	6	5	117
89	14	13	122
90	4	2	151

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