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Assessment and impact of symptoms among medicare beneficiaries: Implications for policy makers, managed care organizations, and primary care clinics.

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ASSESSMENT AND IMPACT OF SYMPTOMS AMONG MEDICARE BENEFICIARIES: IMPLICATIONS FOR POLICY MAKERS, MANAGED CARE ORGANIZATIONS, AND PRIMARY CARE CLINICS

by

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A DISSERTATION

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ABSTRACT OF DISSERTATION
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Title Assessment and Impact of Symptoms Among Medicare Beneficiaries: Implications for Policy Makers, Managed Care Organizations, and Primary Care Clinics

Physical symptoms are prevalent in the community and medical clinics, but many patients have no identifiable disease associated with their symptoms. Most symptoms are treated medically with little improvement in cases with no known etiology. Behavioral interventions may be able to improve outcomes. However, behavioral treatments may not be reimbursed. To improve acceptance and reimbursement, psychologists need to identify poorly managed problems and to empirically validate interventions to improve symptoms or functioning. Pain is the most common symptom, and few studies have looked at general pain reports among older adults. The current project characterizes the impact of pain among older adult Medicare beneficiaries in the community and in primary care to show the need for improved treatments. Additionally, this project tests the effectiveness of a laboratory-based written self-disclosure intervention in primary care. Two separate studies were conducted. The first study was a cross-sectional survey of 7,999 community-dwelling Medicare beneficiaries age 65 years and older. Mean age was 73.4 years. Of the participants, 59% were female, 56% were married, and were 84% Caucasian. Data were from the Behavioral Risk Factor Surveillance System, 2000. Pain interfered with function for 26% of participants an average of 15.4 days of the past 30 days. Those with pain interference had poorer physical and mental health status and quality of life. The second study consisted of 105 Medicare beneficiaries age 65 years and older in primary care who were randomly assigned to treatment or comparison writing conditions. Mean age was 73.4 years. Of the participants, 63% were female, 51% were married, and 61% were Caucasian. At baseline, 88% had pain, and 61% had functional impairment from pain. High pain is associated with more depressive symptoms, psychosocial distress, and worse global health status. At 1 month and 6 months after intervention, no treatment effect was seen. Pain is associated with poor health status across multiple domains among our samples. Written self-disclosure does not appear to be an effective stand-alone intervention for this primary care population. This project shows the need for better management of pain symptoms. However, additional research is needed to identify specific effective behavioral interventions.

DEDICATION

This project would not have been completed without the support, understanding, and motivation provided by a number of individuals. Most of all, I dedicate this work to Ann for always being there to encourage me on those days when I just wanted to forget about it completely. She has just been great. Oliver helped to lift my spirits when I was feeling down and got me to go for a run when I was feeling stressed. Josh contributed his continual positive outlook and quick turnaround on review of drafts. Jaimie provided recruiting skills and made a complicated study seem simple. Stacey, Sharina, Scott, and Rudy hung in there and worked with me from afar.

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INTRODUCTION

LIST OF ABBREVIATIONS

APS	American Pain Society
BBA	Balanced Budget Act
BRFSS	Behavioral Risk Factor Surveillance System
CDC	Centers for Disease Control and Prevention
CMS	Centers for Medicare and Medicaid Services
CI	confidence interval
HCFA	Health Care Financing Administration
HIV	Human Immunodeficiency Virus
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
MCO	managed care organization
M+C	Medicare+Choice
NCQA	National Committee for Quality Assurance
PHQ	Patient Health Questionnaire
PRO	peer review organization
SF-12	Medical Outcomes Study Short Form-12
VAS	Visual Analogue Scale

INTRODUCTION

Physical symptoms are highly prevalent in the community and in clinic settings (Kroenke, Arrington, & Mangelsdorff, 1990; Kroenke & Price, 1993), but many patients do not have an identifiable disease associated with their symptoms (Carson et al., 2000; Kerrey & Hofschire, 1993; Kroenke, 1992; Kroenke & Mangelsdorff, 1989; Kroenke & Price). Additionally, physicians are trained to treat diseases rather than symptoms (Kroenke; Kroenke & Harris, 2001), and patients with symptoms from unidentified etiologies often show no improvement from common medical treatments (Kroenke et al., 1990; Kroenke & Mangelsdorff). Hence, a large number of symptomatic patients are left seeking relief, and clinical health psychologists may be able to fill this gap by integrating behavioral interventions into primary care clinics.

However, before behavioral interventions will be accepted more widely in medical settings, they must be empirically validated (Friedman, Sobel, Myers, Caudill, & Benson, 1995). Additionally, it would be helpful to show that a demand or need for the services is present among patients and that the behavioral interventions can be effectively integrated into medical clinics. Third-party payers (government, managed care organizations [MCO], and insurance companies) must also recognize the need for services and the ability of clinical health psychologists to provide them most efficiently before reimbursement becomes commonplace. Government systems like Medicare and Medicaid are good models to test health psychology services because if integration occurs, the private sector generally follows in practice (DeLeon, Frank, & Wedding, 1995).

The present study focuses primarily on the most commonly reported symptom, pain (American Pain Society [APS], 2000), among Medicare beneficiaries to achieve the following broad goals: (a) Demonstrate the need for additional pain management strategies at the population level by describing the rate of generic pain symptoms among older adult Medicare beneficiaries and the association between pain and physical health, mental health, and functional status; (b) evaluate the integration and effectiveness of a behavioral intervention in the primary care clinic. Although the present study does not directly attempt to influence policy change, it proposes an extensive research program that extends from the patient level in primary care to large community samples across the country to include several levels where policy change is possible (federal government, Centers for Medicare and Medicaid Services [CMS], peer review organizations [PROs], MCOs, etc.).

Figure 1 shows a model developed to help guide this research with the ultimate goal of gaining policy change to provide better support for behavioral interventions for symptoms management. It developed on the basis of a concept proposed by the World Health Organization (2002) for the management of chronic conditions. Policy changes can take effect at multiple levels including "government, organizations, and communities" (Kaplan, 1995, p. 491), and health psychologists can make changes at all levels (Kaplan). It may be useful for psychologists to become more active in policy issues for future practice, and federal policy is extremely important as the government is a major payer of health care (DeLeon et al., 1995). At the broadest level (Macro), psychologists can advocate for policy change directly through the federal government or indirectly through organizations such as CMS, the National Committee for Quality Assurance (NCQA), or the Joint Commission on Accreditation of Healthcare Organizations

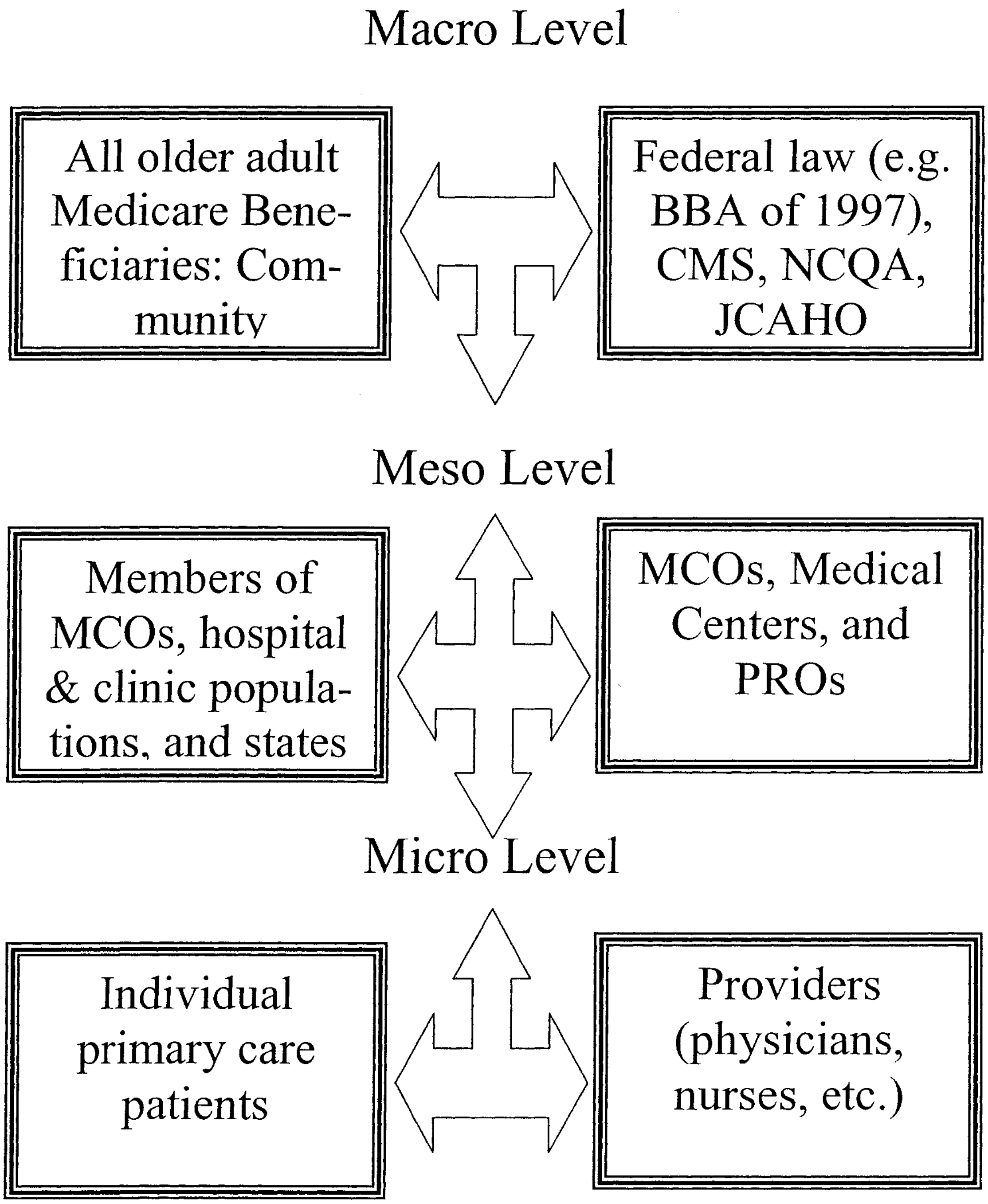

Figure 1. Three levels for policy change toward a better integration of behavioral interventions for symptom management in primary care. BBA = Balanced Budget Act; CMS = Centers for Medicare and Medicaid Services; NCQA = National Committee for Quality Assurance; JCAHO = Joint Commission on Accreditation of Healthcare Organizations; MCO = managed care organization; PRO = peer review organization.

(JCAHO). The narrowest level (Micro) deals with direct patient care; for the purposes of the present research it deals with patient care in primary care clinics. Psychologists can play an important role in primary care through disease prevention, assessment, and collaborative care of patients, including behavioral interventions for somatic symptoms (see Siegel, as cited in Johnstone et al., 1995). In attempting to make changes in the primary care setting, psychologists will find it helpful to find ways to adapt to the existing health care system (see Siegel, as cited in Johnstone et al.). In the middle level (Meso), changes can be made directly within MCOs or medical centers and indirectly through PROs.

A better understanding of the importance of the present project requires an understanding of several areas covered in the proposed project. These areas include (a) the importance of symptom characterization among older adult Medicare beneficiaries; (b) the Medicare system and associated regulatory agencies; (c) the common symptoms and psychological distress seen in the community; (d) the common symptoms seen in medical settings and how they are associated with psychological distress, impairment, and health care costs; (e) the impact of common outpatient treatment for symptoms; (f) the impact of pain symptoms; (g) the assessment and conceptual understanding of pain as a symptom; (h) the impact of pain and other symptoms among older adults; (i) the use of health care services associated with pain; (j) the current policies for pain management; and (k) the role of health psychologists in pain management.

Older Adult Medicare Beneficiaries

In 1991, the older adult (65 years and older) population was growing faster than any other age group in the United States was growing (Herr & Mobily, 1991). During the

1990s, although still increasing in number, they did not grow at the same pace as other age groups grew (U.S. Census Bureau, 2001a). In 1990, older adults made up 12.6% of the population, and they had decreased to 12.4% of the total population in 2000 (U.S. Census Bureau, 2001b, 2001c). However, the older population is expected to increase in growth rate again. Besides predicted increases in the number of older adults related to the aging baby boomers, life expectancy continues to rise. Persons reaching age 65 today are expected to live to an average of 83 years old (Administration on Aging, 2000; Federal Interagency Forum on Aging-Related Statistics, 2000). Older adults currently account for approximately one eighth of the people in the United States and are estimated to increase to 20% over the next 30 years (Administration on Aging).

Even though they are currently only 12% of the population, older adults make up the largest patient population in the health care system (Herr & Mobily, 1991), and they use the most health care services in the United States (Balkrishnan & Anderson, 2001; Stoller & Forster, 1994). Additionally, adults age 65 years and older constitute the majority of Medicare beneficiaries (Health Care Financing Administration [HCFA], 1997). In 1996 three times as many people age 65 and older reported their health as fair or poor as compared to younger people (Administration on Aging, 2000), and noninstitutionalized older adult Medicare beneficiaries averaged over $6,000 in medical costs for this same year (Federal Interagency Forum on Aging-Related Statistics, 2000). Furthermore, older adults had more than twice as many physician visits as younger people had in 1997 (Administration on Aging), and pain was the primary complaint leading to the majority of physician visits. With the large number of expected medical problems and the increasing percentage of the population, understanding how we are providing care for older adults and developing new ways to improve care are becoming more important.

Health Care Delivery Among Older Adults

The CMS is responsible for administering the Medicare system. Centers for Medicare and Medicaid Services was established to combine the management of Medicare and Medicaid in 1977 (HCFA, 1997) and was originally called the HCFA until 2001. In 1997, the State Children's Health Insurance Program was created as another part of CMS (Balanced Budget Act [BBA], 1997). The Medicare program covers three types of beneficiaries: people 65 years old and older, younger disabled persons, and people with kidney failure (HCFA, 1997). Of these individuals, the largest covered group consists of those age 65 years and older, who account for approximately 86% of Medicare beneficiaries (HCFA, 1997). Medicare started as a fee-for-service payment system; however, when the BBA of 1997 was passed, major modifications to the Medicare program were implemented (HCFA, 2000a).

The BBA (1997) allows Medicare members to choose to use the traditional fee-for-service plan or to select coverage under a Medicare+Choice (M+C) plan. Medicare+Choice plans include managed care, medical savings accounts, or private fee-for-service plans. As of 2000, 16% of Medicare beneficiaries belonged to M+C managed care plans (HCFA, 2000b). For M+C plans to participate in this program, they must provide at a minimum the same services covered under the traditional Medicare program. Additionally, these plans may provide supplemental coverage for additional services. Medicare+Choice plans must accept all Medicare eligible beneficiaries who apply without discrimination and charge them all the same fees. To avoid punishing organizations for treating a sicker population, beginning in 2000, the monthly payment varied on the basis of the health of the population being served by a particular MCO. This plan is designed to ensure that sicker patients will have equal access to care because the sicker patient population will garnish higher monthly payments (HCFA, 1999).

Another requirement for M+C organizations is that they establish quality assurance programs within their system and participate in programs established through PROs. Accreditation from an organization such as the NCQA will satisfy the internal quality assurance requirement (BBA, 1997). The NCQA (2001) is a nonprofit organization that provides accreditation for MCOs. The NCQA accreditation is not mandatory; however, their accreditation satisfies the requirements set forth in the BBA for Medicare M+C plans' quality assurance programs. The NCQA (2001) collects data related to the performance of MCOs. The NCQA uses the Health Plan Employer Data and Information Set to evaluate MCOs. The Health Plan Employer Data and Information Set provides a standard set of measures for all MCOs to use, which allows NCQA to make direct comparisons between organizations (NCQA). Furthermore, the Health Plan Employer Data and Information Set measures allow MCOs to identify areas where they need improvement and to evaluate performance improvement projects.

Peer review organizations were established by CMS to "monitor and improve utilization and quality of care of Medicare beneficiaries" (HCFA, 2001). Each state has a PRO that monitors the Medicare system within that state, and each PRO consists of professionals from health care, data and statistics, public relations, and support staff (HCFA, 2001). These individuals work directly with health care providers and organizations to meet the goals established by CMS. Managed care organizations, other health care organizations, and providers work with their local PRO to identify areas to address with performance improvement projects and then develop programs of intervention. The ultimate goal is to improve care and reduce costs for patients, whether they choose traditional Medicare or a M+C plan.

For those patients choosing the standard Medicare fee-for-service plan, the government continues to bear the risk for their coverage. For patients electing coverage under an M+C plan, the government no longer bears the burden of risk for their coverage because each M+C organization is paid a fixed monthly fee for each patient (HCFA, 1999). The best place to direct policy change efforts may be toward the third-party payer who bears the brunt of the risk of coverage. Therefore, among Medicare beneficiaries, changes could be made at the level of the federal Medicare system and at the level of MCOs individually. Furthermore, policy changes may indirectly be influenced through NCQA or performance improvement projects conducted through PROs. One area of major concern involves the management of symptoms.

Symptoms in the Community

In a community-based study, Kroenke and Price (1993) found that 37% of symptoms were thought to be of unknown origin or psychiatric. Additionally, women, older adults, and people with low socioeconomic status reported more physical symptoms. Kroenke and Price also found that the presence of symptoms was highly predictive of psychiatric disorders. Finally, they found that symptoms involving pain constituted 7 of the 10 most commonly reported symptoms that caused significant problems for individuals (Kroenke & Price). In a sample of older adults, participants averaged over four different symptoms in a 3-week period, and approximately 89% of this sample reported that some of their symptoms were unrelated to medical disease state (Stoller & Forster, 1994). Furthermore, Stoller and Forster found that people with more symptoms also rated their symptoms as more severe. In addition, as self-rated global health status declined, self-rated symptom seriousness increased (Stoller, 1993). Although some studies have shown a link between psychological distress and increased physical symptom reporting, most cannot be used to infer causality in either direction as the data are cross sectional.

One longitudinal study was found that evaluated the link between symptoms and psychological distress in a community sample in the United Kingdom (Hotopf, Mayou, Wadsworth, & Wessely, 1998). Hotopf and colleagues assessed a cohort at 36 years old and again at age 43 years old. They found that a preexisting psychiatric disorder predicted an increase in new symptoms 7 years later. Even in the absence of a psychiatric diagnosis, psychological distress played a significant role in symptom presentation. In the other direction, participants with pain symptoms at the first evaluation were more likely to have a new psychiatric disorder 7 years later. Furthermore, both psychological and physical symptoms were independent predictors of disability (Hotopf et al.). This study helps confirm that a bidirectional relationship exists between symptoms and psychological distress.

Symptoms in Medical Clinics

As might be expected on the basis of community research, symptoms are also common in primary care clinics. Over 80% of patients going to primary care have at least one symptom that is a major problem for them, and approximately 66% have two or more symptoms that are major problems (Kroenke et al., 1990). Having a psychiatric diagnosis and being a woman were found to be significant predictors of physical and somatoform (medically unexplained) symptoms in one study (Kroenke & Spitzer, 1998). Female primary care patients have also been found to be more likely to have a psychiatric disorder and to have more functional impairment than men do. Even though, there were no differences between men and women on identifiable physical disorders (Linzer et al., 1996). Kroenke and Spitzer found that participants with less education were likely to report more physical symptoms, as well. Somewhat contradictory to the belief that increased chronic illnesses leads to increased distress is the finding by Klapow and associates (2002) that psychological distress and somatic symptom reports were less common among older adults despite the fact that this group had more chronic conditions than younger adults had.

Other primary care studies have consistently reported a link between symptoms and psychological distress. One study found that nearly 30% of patients with physical symptoms were depressed or anxious, and they had twice as many bothersome symptoms as other patients had and reported symptoms as more severe than other patients did (Kroenke, Jackson, & Chamberlin, 1997). In another study of patients seeking medical care in primary care clinics, 26% met criteria for a psychiatric diagnosis, and an additional 13% had significant symptoms of distress in the absence of a diagnosis (Linzer et al., 1996). Symptom count and severity, recent stress, and general self-rated health were predictors of psychiatric distress (depression or anxiety) in primary care (Kroenke et al., 1997). Furthermore, those with psychological distress also reported more functional impairment

(Kroenke et al., 1997). Using the current medical model of disease treatment in primary care may not be the most efficient way to manage multiple unexplained symptoms and psychological distress.

Medical tests to evaluate unexplained symptoms can be very expensive, and often, neither psychiatric disorder nor disease can be identified (Kroenke, 1992). Kroenke and Mangelsdorff (1989) reported that 74% of patient symptoms had unknown etiology. Without an identifiable disease, it is more difficult to determine the most appropriate treatment option. Although most people report their symptoms to their physician, treatment often does not help (Kroenke et al., 1990). This is particularly true among patients with anxiety or depression, who seem to receive the least benefit from common primary care treatments (Kroenke et al., 1990). Another complicating factor found by Kroenke and colleagues (1990) is that depressed or anxious patients were perceived as difficult by physicians. Over 70% of patients with pain symptoms indicated treatment helped somewhat; however, approximately 30% of patients with pain symptoms reported no improvement with medical treatment (Kroenke). Patients who do not benefit from traditional medical treatments for pain or show only limited symptom reduction may benefit from behavioral interventions.

Symptom Treatment

The most common treatment for symptoms, regardless of etiology, is medication (Kroenke & Mangelsdorff, 1989). However, Kroenke and Mangelsdorff reported that treatment only helped those patients who had symptoms with a known organic etiology, and patients with unknown or psychological etiologies showed no difference in outcomes whether or not they received treatment. Having symptoms of a known organic cause, having symptoms for a shorter duration, and having fewer total symptoms were all associated with patients having increased likelihood of improvement from traditional primary care treatments (Kroenke & Mangelsdorff). Therefore, patients reporting symptoms of unknown etiology may be better served with behavioral interventions in conjunction with traditional medical treatment.

When the current medical model of treatment is used, symptom reduction for many patients may not occur, and these patients may be more likely to seek additional medical services. In a sample of community-dwelling older adults, approximately 20% consulted a physician in a 3-week period, and 79% consulted a physician over a 6-month period for symptom complaints (Stoller & Forster, 1994). Neither symptoms that were new to the patient nor previously experienced symptoms were predictors of physician visits. However, Stoller and Forster did find that "uncertainty regarding seriousness, level of pain or interference, and causal attribution were the most consistently significant predictors of physician contact" (p. 527). This type of information may be useful in making future policy changes in treatment protocols.

Symptom of Pain

The APS (2000) reported that the symptom of pain is the most common reason for an individual to go to a physician, and Latham and Davis (1994) reported that pain is responsible for approximately 80% of physician visits. Kroenke and colleagues (1997) reported that 65% of patients going to primary care with a symptom complaint had pain, which is slightly lower than the estimate by Latham and Davis but still very high. Kroenke and Mangelsdorff (1989) found that, among patients reporting pain symptoms, an organic cause could be found in less than 12% of the cases, and the remaining cases reporting pain were attributed to psychological or unknown causes. Stoller (1993) also found that those with depression reported higher levels of pain. Carson and associates (2000) showed that patients having symptoms with no physical explanation had poorer mental health status and more bodily pain, as well. Furthermore, the three most expensive acute symptoms to work up with laboratory tests for diagnosis involved pain (Kroenke & Mangelsdorff).

Few studies have examined the actual costs of health care utilization related to pain problems. Loeser (1999) estimated disability caused primarily by pain at 75% of the disabled population. Latham and Davis (1994) estimated the annual costs related to back pain in the United States at approximately $50 billion per year. Besides standard medical costs, other economic losses result from pain. Sternbach (1986) found that, among full-time workers, losses of productivity due to missed workdays from pain were $55 billion in 1985; as this estimate does not include part-time employees or those permanently disabled from pain, actual losses are likely much higher. Additionally, symptoms involving pain or disability are less likely to be dismissed as unimportant (Stoller, 1993) and may therefore lead to increased use of medical services.

Assessment of Pain

Pain is a subjective experience; even when pain experiences are described with identical language, pain can have vastly different meanings among the people experiencing pain and among clinicians (Turk & Okifuji, 2001). Chapman and Turner (2001) described pain as the subjective experience of "a complex aversive experience normally associated with tissue trauma, inflammation, or a disease process" (p. 180). In their definition of pain, Coda and Bonica (2001) also included psychological factors in the experience of pain, including cognitions, behaviors, and emotions. The International Association for the Study of Pain (1986) defines pain as

> an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.
>
> Note: Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life. Biologists recognize that those stimuli that cause pain are liable to damage tissue. Accordingly, pain is that experience which we associate with actual or potential tissue damage. It is unquestionably a sensation in a part or parts of the body, but it is also always unpleasant and therefore also an emotional experience. Experiences that resemble pain, e.g., pricking, but are not unpleasant should not be called pain. Unpleasant abnormal experiences (dysaesthesiae) may also be pain but are not necessarily so because, subjectively they may not have the usual sensory qualities of pain.
>
> Many people report pain in the absence of tissue damage or any likely pathophysiological cause; usually this happens for psychological reasons. There is usually no way to distinguish their experience from that due to tissue damage if we take the subjective report. If they regard their experience as pain and if they report it in the same ways as pain caused by tissue damage, it should be accepted as pain. This definition avoids tying pain to the stimulus. Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus is not pain, which is always a psychological state, even though we may well appreciate that pain most often has a proximate physical cause. (p. S217)

Due to this complex nature of pain, scientists and researchers have developed many terms to help consistently describe and classify pain to improve research (Turk & Okifuji).

Even among experts, debate has continued about the appropriate way to differentiate acute pain and chronic pain. The primary distinguishing factor has generally been the duration of pain with pain for either 3 or 6 months as the standard for chronic pain (Jacobson & Mariano, 2001; Turk & Okifuji, 2001). The International Association for the Study of Pain (1986) has adopted a 3-month duration. The other criterion often cited for chronic pain is that the pain continues after the injury has healed (Jacobson & Mariano;

Turk & Okifuji). Acute pain has often been considered to be pain from tissue damage that can be caused by disease or injury, and this pain goes away when the tissue damage is repaired or when the disease is resolved (Chapman & Turner, 2001; Turk & Okifuji). Turk and Okifuji recently proposed a variation of the chronic pain definition. They indicated that chronic pain typically results from tissue damage but extends for a long time, and the disease process cannot explain the severity and length of the pain.

Pain often persists without observable pathology, and it is believed that this is exacerbated through learning procedures (Turk & Flor, 1999). Behaviorally, pain often manifests itself into overt actions referred to as pain behaviors (Klapow, Fillingim, & Doleys, 1998; Turk & Flor). Klapow and colleagues described pain behaviors as overt actions that allow others in the patient's environment to know that they are in pain. Through interactions with others in the environment and avoidance of painful activities, pain behaviors or avoidance of activities gets reinforced, which then maintains the behaviors in the absence of observable pathology (Turk & Flor). Turk and Flor go on to say that unseen mental processes can also act as stimuli to maintain these behaviors. Through the use of behavioral therapy techniques, pain patients can develop more adaptive behaviors, ways of thinking, and beliefs about pain to replace their maladaptive pain behaviors, which reduces the overall experience of pain (Klapow et al., 1998).

Impact of Pain Among Older Adults

Older adults are more likely than younger people are to have pain (Mobily, Herr, Clark, & Wallace, 1994). However, few studies have actually examined the prevalence of pain complaints in the community at large or among older adults in the community, and those available have generally had small samples (Elliott, Smith, Penny, Smith, & Chambers, 1999). Most existing studies have looked at patients with a diagnosis of a particular disorder that involves the symptom of pain (Elliott et al.) or at those reporting pain in specific health care settings, neither of which is descriptive of the community prevalence (Mobily et al.). Therefore, it is not possible to precisely estimate how common pain is among older adults in the community (Mobily et al.). Among the few available community studies, estimates of general pain complaints ranged from 70% to 86% for noninstitutionalized older adults (Mobily et al.; Roy & Thomas, 1987; Sternbach, 1986). Surprisingly, a more recent study of community-dwelling and institutionalized older adults in Canada reported pain prevalence at 53% (Scudds & Ostbye, 2001). Furthermore, the majority of older adults have reported multiple pain problems (Mobily et al.; Sternbach).

Most older adults have at least one chronic illness (Administration on Aging, 2000); chronic illnesses have often been associated with higher rates of pain (Mobily et al., 1994). The most common chronic conditions among older adults are diabetes, arthritis, hypertension, chronic obstructive pulmonary disease, heart disease, and cancer (Balkrishnan & Anderson, 2001; Federal Interagency Forum on Aging-Related Statistics, 2000). Chronic conditions often lead to functional limitations and to disability, and over 50% of older adults have a disability (Administration on Aging).

Pain reduces functional status by restricting mobility, activity, self-care, and independence (Herr & Mobily, 1991). A Swedish study found that adults 75 years old and older with pain were more likely to report poor health status, including functional impairments and depression (Jakobsson, Klevsgard, Westergren, & Hallberg, 2003). Researchers have found that, as pain severity increases, the ability to perform daily activities decreases (Mobily et al., 1994). The longer and more severe the pain process is, the greater the negative impact will be on these outcomes, such as in the case of chronic pain. Besides worse physical and social outcomes as a result of chronic pain, chronic pain can also lead to higher rates of health care utilization (Leland, 1999). Although only a few studies have been conducted, chronic pain appears to be a major problem among older adults. As people live longer, the prevalence of chronic pain will likely increase (APS, 2000). One recent large-scale community study in Scotland estimated that 39% to 61% of the general population had chronic pain and that 50% to 69% of those ages 65 years and older had chronic pain (Elliott et al., 1999). A study in England found that approximately 11% of the general population had chronic widespread pain, and this rate was nearly doubled among older adults (Croft, Rigby, Boswell, Schollum, & Silman, 1993). In a Canadian telephone survey, Crook, Rideout, and Browne (1984) estimated the community chronic pain rate at 35%. Because of such high rates of pain, which are likely associated with poor health status and potentially increased health care costs, more effective pain management strategies could be useful.

Pain and Use of Services

Few studies have looked at the relationship between health status and utilization among Medicare MCO beneficiaries (Balkrishnan & Anderson, 2001). Balkrishnan and Anderson found that, among Medicare MCO members, self-reported health status predicted future utilization. They also found that self-reported utilization predicted future health outcomes despite the fact that the self-reported utilization was under reported. By identifying patients with problems early, interventions may be able to reduce future utilization (Balkrishnan & Anderson). As pain is a major cause of poor health status, it would be an ideal target for early interventions.

Few studies have examined pain's association with health care utilization more directly. Cook and Thomas (1994) studied a small sample of community-dwelling older adults from Canada. Participants who reported daily chronic pain had poorer general health status, but pain did not provide a unique significant contribution to the prediction of utilization outcomes (Cook & Thomas). However, their sample was very healthy and rather small, and service utilization was from self-report rather than from medical record survey. One additional problem in generalizing these finding to a community sample in the United States is the vast differences between the Canadian and U.S. health care systems. Further research in this area is needed to determine the actual contribution of pain to health care utilization. A recent focus on the importance of pain further points out that current policies may not be adequately addressing pain symptoms.

Pain and Health Policy

To stress the importance of pain management, the APS (2001) has coined the phrase "Pain: The Fifth Vital Sign." By using this phrase, APS (2001) is attempting to promote more frequent pain evaluation, remind clinicians of the importance of pain, and educate patients about their right to pain treatment. The Agency for Health Care Policy and Research and the APS have both developed and published widely accepted clinical practice guidelines for the care of patients with different types of pain, such as acute pain and cancer pain (APS, 2000; Larsen, 2000; Sanders, 2000). Guidelines are also available for general chronic pain conditions such as chronic pain, chronic pain in older persons, chronic pain syndromes, and complex regional pain syndromes. Additionally, other guidelines for specific chronic pain conditions are available for sickle-cell anemia and migraine headaches. However, none of these have become widely accepted guidelines for the management of chronic benign pain (Sanders). Additionally, as previously stated, physicians often have poor success with pain treatment when a specific etiology cannot be identified. To increase the acceptance of behavioral interventions, they will require empirical validation (Friedman, et al., 1995), and incorporation into treatment guidelines may also be useful.

The APS (2000) released a statement on the treatment of pain within MCOs that provides some direction for the treatment of chronic pain. The APS (2000) states that MCOs do not have enough qualified clinicians to appropriately manage the large number of chronic pain patients. Therefore, MCOs should develop chronic pain management strategies and direct their providers on how to implement them. They go on to state that any program developed by an MCO should be based on empirical evidence. Furthermore, APS (2000) recommends the collection of outcomes data looking at "physical parameters, functional status, health care utilization, occupational/disability-related measures, and patient satisfaction" (p. 3) to evaluate the effectiveness of all pain treatments, whether the pain is acute or chronic. While the APS can only make treatment recommendations, the JCAHO can mandate that specific guidelines be followed to receive accreditation.

The JCAHO (2001a) is a nonprofit organization that provides accreditation for health care organizations. The JCAHO (2001a) develops performance standards that must be met by health care organizations to obtain accreditation. The JCAHO (2001b) has released a statement describing the minimum standards to be maintained in the management of pain, and these standards are then evaluated when JCAHO surveys the organization. The JCAHO explains the requirements by first stating a specific standard of care. The JCAHO then follows with a statement of intent for that standard, which describes the standard in more detail by giving specific direction on ways to meet the standard. JCAHO (2001b) states that "patients have the right to appropriate assessment and management of pain." This standard requires baseline pain assessment for all patients, follow-up assessment for those patients with pain, provider education, patient and family education, and inclusion of the patient's sociocultural background in treatment planning. Each organization is also required to collect data to evaluate the outcomes of this program (JCAHO, 2001b). JCAHO accreditation is not mandatory. However, this accreditation makes it easier for an organization to qualify to care for patients covered under programs directed by the CMS. Clinical psychologists trained in the scientist-practitioner model with a specialty in health/medical psychology may be ideally trained to implement such programs. As behavioral scientists, clinical health psychologists can perform assessments, provide treatment, and evaluate program outcomes.

Health Psychology

Medical education and practice overly rely on technologies for diagnosis and pay little attention to psychology and prevention despite the fact that over half of physician visits involve symptoms for which an organic cause cannot be found (Kerrey & Hofschire, 1993). The medical service system is set up for a biological disease management model that generally disregards psychological interventions for lack of a biological explanation (Frank, 1993; Friedman et al., 1995). Additionally, traditional health care providers are not prepared or trained to consider psychological factors when providing services (Elder, Ayala, & Harris, 1999). The use of medical testing to find physical causes for the symptoms may not be the most efficient use of resources (Kroenke & Price, 1993). Furthermore, although the United States spends far more on health care than other developed countries spend, the people are no healthier in the United States (Frank; see Kaplan, as cited in Johnstone et al., 1995). Health psychologists could be a vital resource for evaluation and treatment of symptoms when the symptoms appear to have no physiological cause or when distress is exacerbating the symptoms.

Behavioral interventions have been shown to improve physical health and reduce costs of care for a variety of conditions: hypertension, rheumatoid arthritis, osteoarthritis, heart disease, and somatization (Friedman et al., 1995). Behavioral medicine interventions have also been shown to be effective at reducing health risk behaviors, stress, length of hospital stay, and subthreshold psychological distress (Friedman et al.). More specific to pain, behavioral interventions are effective for improving patients' ability to deal with both acute and chronic pain in cases of burns (Haythronthwaite, Lawrence, & Fauerback, 2001), rheumatoid arthritis (Leibing, Pfingsten, Bartmann, Rueger, & Schuessler, 1999), low back pain (McCracken & Gross, 1998), fibromyalgia (Mason, Goolkasian, & McCain, 1998), peripheral neuropathy in HIV patients (Evans & Fishman, 1997), cancer (Peter, 1997), osteoarthritis (Keefe et al., 1996), chronic pain (Monsen & Monsen, 2000), and painful medical procedures (Schiff, Holtz, Peterson, & Rakusan, 2001). Additionally, other studies have shown positive results for treating chronic pain with multidisciplinary pain management teams that include behavioral components (Becker, Sjogren, Bech, Olsen, & Eriksen, 2000; Jensen, Romano, Turner, Good, & Wald, 1999; Johansson, Dahl, Jannert, Melin, & Andersson, 1998; Williams et al., 1996). However, behavioral interventions for pain have typically focused on specific types of pain in specialty clinics and have not addressed generic pain in primary care, where most pain symptoms are seen. Showing the effectiveness of psychosocial interventions in medical settings is an important step to opening doors for health psychologists in medical settings.

Written Self-Disclosure

One intervention that has shown particularly good promise in laboratory studies is a brief written self-disclosure protocol that was developed by Pennebaker and colleagues (Francis & Pennebaker, 1992; Pennebaker, 1993; Pennebaker & Beall, 1986; Pennebaker, Colder, & Sharp, 1990; Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Spera, Buhrfeind, & Pennebaker, 1994). This intervention has been shown to reduce distress and improve health outcomes, particularly among those who do not reach the threshold for a psychiatric diagnosis. The intervention generally involves having individuals write about the most distressing experience in their life for 15-30 min on three occasions. A meta-analysis by Smyth (1998) showed that this type of intervention consistently reduces health care costs, physical symptoms, and psychological distress among healthy young adults. However, studies of specific medical conditions have shown mixed results in cases of rheumatoid arthritis and asthma (Broderick, Stone, Smyth, & Kaell, 2004; Smyth, Stone, Hurewitz, & Kaell, 1999), prostate or gynecological cancer (Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004), and fibromyalgia (Broderick, Junghaenel, & Schwartz, 2005). A more recent meta-analysis (Frisina, Borod, & Lepore, 2004) evaluating studies of medical populations also showed positive effects, but these effects were not as strong as those found in Smyth's meta-analysis of healthy individuals. One study demonstrated a reduction in reported pain symptoms among women with pelvic pain when they wrote specifically about the distress associated with having chronic pain (Norman, Lumley, Dooley, & Diamond, 2004). However, Norman and colleagues did not find any improvement in other health outcomes. Gidron and colleagues (2002) used this intervention with high utilizers of primary care services and found significantly fewer clinic visits over 15 months after intervention compared to clinic visits by the control group. Although results of previous studies seem promising, researchers are uncertain about the mechanisms for action with this intervention.

Pennebaker (1997) originally proposed that individuals inhibit thoughts and feelings related to traumatic life events and that this inhibition leads to chronic stress and increased somatic symptoms. Writing about these events then reduces the inhibition, indirectly reducing the physical symptoms. However, Pennebaker goes on to say that available evidence has not completely supported this theory. Another theory discussed by Pennebaker proposes that the written disclosure allows individuals to process their thoughts and feelings related to the traumatic event and bring some form of meaning to it in a manner similar to that of cognitively restructuring. Others have proposed effects caused by mechanisms similar to having positive social support (Bootzin, 1997; Zakowski et al., 2004). Some have found some evidence that the written disclosure may be similar to repeated exposures in a therapeutic setting (Kloss & Lisman, 2002; Sloan & Marx, 2004). It appears most likely that a complex combination of factors interact to give the positive effects found (Bootzin, 1997; Sloan & Marx, 2004).

Broad Objectives

The current project answers questions related to the impact and treatment of pain symptoms at the Macro and Micro levels with the ultimate goal of adding to the evidence supporting the need for change in health care delivery policies to include behavioral interventions provided by clinical health psychologists. To increase the likelihood of promoting policy change toward the use of behavioral interventions, it may be beneficial to show that a need for additional services exists and to show that behavioral interventions can be effectively implemented into medical settings.

Two studies were conducted with the broad objectives of (a) demonstrating the need for additional pain management strategies by describing the rate of generic pain symptoms among a multistate sample of older adult Medicare beneficiaries and the association between pain and physical health, mental health, and functional status and (b) evaluating the integration and effectiveness of a behavioral intervention in the primary care clinic to reduce pain symptoms among older adult Medicare beneficiaries. The Macro level study involved a multistate sample of older adult Medicare beneficiaries and sought to (a) examine the prevalence of pain interference in the community and describe associations with distress, health status, and functional status and (b) demonstrate the usefulness of community survey data for evaluating symptoms and identifying the needs of Medicare beneficiaries to target for further assessment, intervention, and policy change. The Micro level study consisted of a sample of Medicare beneficiaries seeking services in primary care and (a) classified participants on the basis of number and impact of pain symptoms and characterized the differences in distress, health status, and health care visits of those with high levels of pain and those with low levels of pain; (b) tested the effectiveness of a laboratory-based written disclosure intervention among older adults in a primary care clinic to improve health status, somatic complaints, psychiatric symptoms, distress, and health care visits; and (c) evaluated the effectiveness of a laboratory-based written disclosure intervention to improve the health outcomes of older adult primary care patients with high levels of pain complaints.

PAIN, FUNCTIONAL STATUS, AND DISTRESS AMONG A MULTISTATE COMMUNITY SAMPLE OF MEDICARE BENEFICIARIES

by

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Abstract

Although a large body of literature exists evaluating specific types of pain, few studies have looked at the impact of general pain reports among older adults in the community. This study characterizes the impact of pain within a large sample of community-dwelling older adult Medicare beneficiaries. Cross sectional survey of 7,999 community dwelling Medicare beneficiaries age 65 years and older was conducted. Mean age was 73.4 years old. Of the participants 59% were female, 56% were married, and 84% were Caucasian. All data were from the Behavioral Risk Factor Surveillance System, 2000. Twenty-six percent of participants reported interference from pain an average of 15.4 days of the past 30 days. Those with any pain interference had significantly poorer self-reported physical and mental health status and quality of life. However, mental health was not significantly associated with number of days of pain interference, but disability was positively associated with pain interference. Those widowed, having less education, and having a lower income were more likely to have pain interference. A large number of older adult Medicare beneficiaries in the community reported limitations due to pain. This study shows that pain interference is significantly associated with worse mental and physical health and functioning.

Pain, Functional Status, and Distress among a Multi-State Community Sample of Medicare Beneficiaries

Among adults of all ages, physical symptoms are prevalent in the community and in clinic settings (Kroenke, Arrington, & Mangelsdorff, 1990; Kroenke & Price, 1993), and pain is the most common symptom (American Pain Society [APS], 2000; Kroenke, Jackson, & Chamberlin, 1997; Kroenke & Price; Latham & Davis, 1994). In a community-based study, Kroenke and Price found that 37% of symptoms were thought to be of unknown or psychiatric origin. Additionally, women, older adults, and people with low socioeconomic status reported more physical symptoms. In a community sample of older adults, participants averaged over four different symptoms in a 3-week period, and approximately 89% of this sample reported that some of their symptoms were unrelated to medical disease state (Stoller & Forster, 1994). Unexplained symptoms may often have a psychosocial component. Hotopf, Mayou, Wadsworth, and Wessely (1998) reported a bidirectional relationship between pain symptoms and psychological distress. Furthermore, pain seems to have an impact across multiple aspects of quality of life. Pain reduces functional status by restricting mobility, activity, self-care, and independence (Herr & Mobily, 1991). Researchers have found that, as pain severity increases, the ability to perform daily activities decreases (Mobily, Herr, Clark, & Wallace, 1994). Studies describing pain have typically focused on specific types of pain or on pain patients in specific specialty medical settings including low back pain (Newton, Curtis, Witt, & Hobler, 1997; Walsh, Cruddas, & Coggon, 1993), chronic pain (Gagliese & Melzack, 1997), cancer pain (Mercadante & Portenoy, 2001), HIV (Breitbart, 1998), headache (Prencipe et al., 2001), orofacial pain (Riley, Gilbert, & Heft, 1998), foot pain (Benvenuti, Ferrucci, Guralnik, Gangemi, & Baroni, 1995), psychiatric inpatient (Corruble & Guelfi, 2000), and dental clinic (Madland & Feinmann, 2001).

The symptom of pain is the most common reason for an individual to go to a physician (APS, 2000). Pain is responsible for approximately 80% of physician visits (Latham & Davis, 1994). Latham and Davis estimated the annual costs related to back pain in the United States at approximately $50 billion. Besides standard medical costs, other economic losses result from pain. Sternbach (1986) found that, among full-time workers, losses of productivity due to missed workdays from pain were $55 billion in 1985. More recently, Stewart, Ricci, Chee, Morganstein, and Lipton (2003) estimated annual losses of $61.2 billion for employees in the United States missing work or being impaired due to pain. As neither study's estimate includes those permanently disabled from pain, actual losses are likely much higher. Disability caused primarily by pain was estimated by Loeser (1999) to be 75% of the disabled population. Additionally, among those with comorbid pain and depressive symptoms, the economic costs are estimated to be even higher (Greenberg, Leong, Birnbaum, & Robinson, 2003). Although most these studies have primarily evaluated workers under age 65 years, many older adults are staying in the workforce longer.

Older adults are a growing percentage of our population and will require health care for a longer period. Those reaching age 65 years today are expected to live to an average age of 83 years (Administration on Aging, 2000). Older adults currently account for approximately one eighth of the people in the United States and are expected to increase to 20% over the next 30 years (Administration on Aging). They currently make up the largest patient population in the health care system (Herr & Mobily, 1991) and use the most health care services in the United States (Balkrishnan & Anderson, 2001; Stoller & Forster, 1994). Most older adults receive health care benefits from the Medicare system. Considering these factors, it will be beneficial to better understand how health changes as people age so that appropriate interventions can be developed to address the needs of older adults. This can serve to improve their quality of life and to keep costs manageable within the Medicare system.

At least two studies have been conducted to examine the differences between older and younger adults in medical clinics (Klapow et al., 2002). Both studies reported that older adults had more chronic medical conditions, and they also had fewer somatic symptoms than younger adults had. Klapow and associates found that psychological distress was less common among older adults, even in the presence of more chronic conditions. However, Wijeratne, Shome, Hickie, & Koschera (2001) found no differences in rates of depression, but they did show that older adults were likely more anxious. These study samples were taken from different types of clinics (primary care and chronic pain), which may account for differences in their findings. However, both show that the differences between older and younger adults may not always be intuitive. Although these studies are useful for understanding patients once they reach the clinic, they do not help describe older adults living in the community. Few studies have been conducted to examine physical symptoms among community-dwelling older adults. One recent Swedish study found that both acute and chronic pain were most common among those 50-64 years old, followed by those 65 years old and older (Gerdle, Björk, Henriksson, & Bengtsson, 2004). Additionally, it appears that most specific pain complaints are more common among younger adults (< 65 years old) with the exception of joint pain, which is much more common among those 65 years old and older (Sternbach, 1986).

Although a large body of literature exists evaluating specific types of pain, few studies have looked at the prevalence and impact of pain reports in general among older adults. Additionally, those available have had small samples (Elliott, Smith, Penny, Smith, & Chambers, 1999), are at least 10 years old, or had study populations that were not representative of the United States, making it difficult to generalize findings to Medicare beneficiaries. Among older adults in rural Iowa, estimates of general pain complaints were 86% in one year with 59% having multiple pain complaints (Mobily et al., 1994). A Canadian study of 205 community-dwelling older adults found that nearly 70% reported current pain (Roy & Thomas, 1987). In a larger U.S. sample, over 71% of older adults reported some type of pain problem in the past year (Sternbach, 1986). A recent Swedish study found that 53% of older adults surveyed had current pain, and 61.6% reported pain in the past month (Gerdle et al., 2004). Countries with national medical systems are at an advantage in trying to answer specific health questions related to their entire population; however, representative surveys in the United States are adding to our ability to better describe our population.

The Behavioral Risk Factor Surveillance System (BRFSS) may provide an opportunity to characterize the impact of pain in a large community sample as well, as monitor prevalence of pain impairment over time. The BRFSS is an annual nationwide survey conducted by all 50 states, the District of Columbia, Guam, Puerto Rico, and the U.S. Virgin Islands (Centers for Disease Control and Prevention [CDC], 1998). The survey was initiated in 1984 with 15 states participating, and it has grown to include all states. This survey is intended to collect "state-based data on preventive health practices and risk behaviors that are linked to chronic diseases, injuries, and preventable infectious diseases in the U.S. population" (CDC, 1998, p. 1-xvi).

The BRFSS questionnaire consists of four parts. First, there is a core set of questionnaires that are asked by all states every year. Second, two sets of questions act as a rotating core by alternating with each other every other year. Third, a set of other modules is available for use at the discretion of each state. Finally, the states are allowed to add any additional question they may want to have answered (CDC, 1998). Although the core questions are theoretically set, they have changed over the years and continue to change as the survey evolves. Furthermore, additional modules have been added since the survey's inception.

The BRFSS is used for a variety of purposes. It can be used to evaluate interventions that states have implemented and track the progress of improvement over the years. It has also been used to make state-to-state comparisons, to collect information about health knowledge, and to follow trends in risk behaviors. Similar to the present study, the BRFSS has been used extensively to identify areas where additional services may be needed and to provide assistance in promoting policy changes (CDC, 1998).

In this study, we provide a characterization of pain within a large sample of community-dwelling older adult Medicare beneficiaries. Objectives include (a) examining the prevalence of pain interference in the community among Medicare beneficiaries; (b) describing the associations of pain reports with distress, health status, and functional status; and (c) demonstrating the usefulness of community survey data for evaluating symptoms and identifying the needs of Medicare beneficiaries to target for further assessment and intervention, as well as for better informing policy decisions regarding the need for pain management strategies.

Method

Participants

Participants were 7,999 community-dwelling Medicare beneficiaries age 65 years and older. The participants for this study came from the 18 states and the District of Columbia that completed the Quality of Life and Care Giving Module from the BRFSS 2000: Arizona, Arkansas, California, Connecticut, District of Columbia, Georgia, Iowa, Kansas, Minnesota, New Jersey, New York, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, and Virginia. Table 1 provides a demographic description of the participants. All cases are weighted; this procedure makes adjustments to the sample to make it representative of each state's population and also adjusts for potential sampling errors (CDC, 1998).

Measure

All data were from the BRFSS 2000. This study used questions from core survey sections of Health Status Module, Health Care Access Module, and Demographics Module. Additional items were taken from the Quality of Life and Care Giving Module. Health status questions included a rating of general health on a scale from 1 (*excellent*) to 5 (*poor*), number of days with poor physical health (0 to 30), number of days with poor mental health (0 to 30), and number of health-related disability days (0 to 30). Medicare status was assessed in the Health Care Access Module. Demographic items included age, race, marital status, education, household income, and gender (see Table 1 for categories). The quality of life items were activity impairment (yes or no), days pain made it hard to do usual activities (0 to 30), days with depressed mood (0 to 30), days of anxiety (0 to 30), days of sleep disturbance (0 to 30), and days of good health (0 to 30).

Table 1

Comparison of Sample With Complete Data to Cases With Incomplete Data on Descriptive Statistics

Variable	Cases with complete data (n = 7,999)	Cases with incomplete data (n = 2,482)
Age, *M* (*SE*)*	73.40 (0.12)	75.09 (0.22)
Reported any pain interference, % (*SE*)	25.75 (0.87)	29.18 (1.67)
Gender, % (*SE*)*		
Male	40.99 (0.99)	34.42 (1.64)
Female	59.01 (0.99)	65.58 (1.64)
Marital status, % (*SE*)*		
Married	56.42 (0.97)	48.78 (1.71)
Widowed	30.93 (0.88)	40.18 (1.60)
Divorced/Separated	9.07 (0.53)	7.03 (0.73)
Never married/Unmarried couple	3.58 (0.39)	4.02 (0.62)
Race/Ethnicity, % (*SE*)*		
White non-Hispanic	83.59 (1.00)	83.77 (1.42)
Black non-Hispanic	7.13 (0.60)	11.50 (1.06)
Hispanic	6.13 (0.76)	2.86 (0.85)
Other	3.15 (0.54)	1.87 (0.69)
Education level, % (*SE*)*		
Less than high school	18.76 (0.86)	30.36 (1.62)
High school graduate	32.58 (0.90)	32.08 (1.49)
Some college	24.61 (0.86)	20.27 (1.42)
College graduate	24.05 (0.81)	17.29 (1.31)
Annual household income, % (*SE*)*		
< $20,000	26.42 (0.92)	27.64 (1.50)
$20,000 to $34,999	24.44 (0.79)	19.85 (1.30)
> $34,999	29.66 (0.91)	14.60 (1.39)
Don't know/refused to state	19.49 (0.78)	37.91 (1.58)

* $p < .05$.

Procedure

Each state conducts its own survey, and the procedures are explained in detail elsewhere (CDC, 1998). In brief, each state conducts a telephone survey using probability sampling techniques. Interviews are conducted during a 2-week period each month, and then the data are sent to the Behavioral Surveillance Branch of the CDC monthly after collection. Only nonmilitary, community-dwelling adults (age 18 years and older) are surveyed. Interviewers are trained in a standardized protocol and are regularly evaluated by supervisors. The data are weighted at the end of the year on the basis of Census statistics (CDC, 1998).

Data Preparation

The BRFSS data set was downloaded from the CDC Web site in ASCII format (CDC, 2004). It was converted into a SAS data set. Cases for this study were extracted on the basis of two criteria. All participants not age 65 years or older and not receiving Medicare benefits were excluded. Next, cases from states that did not complete the quality of life and caregiving module were excluded. Variables described above were recoded to allow for the analyses described later. In its original form, each variable had cases coded with preset values to indicate answers of none, missing data, and refused to answer. The "none" items were recoded as zeros, and the other two were recoded as missing data. Categorical demographic variables were collapsed to include no more than four levels. The cases with missing data were compared to the rest of the sample with complete data on demographic variables to look for distinct differences that may have contributed to not answering some items. Table 1 presents these analyses; as can be seen, the participants with missing data were older and more likely to be female, be widowed, be Black Non-Hispanic, have less education, and be unwilling to report income. Due to these differences, the cases missing data were excluded from additional analyses. This left a sample of 7,999 Medicare beneficiaries, age 65 years and older, with complete data.

Data Analyses

SUDAAN 8.0.2 statistical package as an add-on to SAS 9.0 was used for all analyses to allow for the complex weighting of variables. Participants were classified into two groups on the basis of question 6 from the Quality of Life and Caregiving Module: "During the past 30 days, for about how many days did pain make it hard for you to do your usual activities, such as self-care, work, or recreation?" (CDC, 2001, p. 113). One group consisted of participants reporting difficulty completing tasks due to pain, and the other group reported no difficulties due to pain. Groups were compared on demographics using *t*-tests or chi-square tests as appropriate. A series of multiple regressions in two steps were used to compare the groups on general health, physical health, mental health, depression, anxiety, sleep, and feeling health. In Step 1, the demographic variables from Table 2 were entered as covariates for each dependent variable. In Step 2, the pain grouping variable was entered and the R^2 change was measured between the steps. The confidence intervals for the covariate adjusted means were calculated by hand. Logistic regression was used for the activity impairment variable evaluation.

Additional analyses were conducted by using only those cases reporting pain (n = 2,005). For these analyses, the pain variable was used continuously. Hierarchical regression was used to evaluate the unique association of mental health and disability days of pain problems. The first step entered demographic variables as covariates. The second step entered mental health, and the last step entered disability days.

Table 2

Comparisons of the Two Pain Groups on Demographic Variables

Variable	No pain interference group ($n = 5{,}994$)	Pain interference group ($n = 2{,}005$)
Age, *M* (*SE*)	73.33 (0.14)	73.61 (0.23)
Gender, % (*SE*)*		
Female	56.78 (1.15)	65.46 (1.85)
Male	43.22 (1.15)	34.54 (1.85)
Marital status, % (*SE*)*		
Married	58.16 (1.12)	51.41 (1.95)
Widowed	29.29 (0.98)	35.66 (1.87)
Divorced/Separated	8.86 (0.63)	9.69 (1.01)
Never married/Unmarried couple	3.70 (0.46)	3.24 (0.70)
Race/Ethnicity, % (*SE*)		
White non-Hispanic	83.87 (1.17)	82.80 (1.96)
Black non-Hispanic	6.57 (0.65)	8.73 (1.36)
Hispanic	6.26 (0.92)	5.75 (1.32)
Other	3.30 (0.64)	2.73 (1.04)
Education level, % (*SE*)*		
Less than high school	17.48 (1.00)	22.45 (1.65)
High school graduate	32.52 (1.03)	32.74 (1.82)
Some college	24.18 (0.97)	25.84 (1.80)
College graduate	25.81 (0.96)	18.97 (1.44)
Annual household income, % (*SE*)*		
< $20,000	24.45 (1.07)	32.10 (1.84)
$20,000 to $34,999	24.35 (0.92)	24.68 (1.59)
> $34,999	31.85 (1.06)	23.33 (1.72)
Don't know/Refused to state	19.35 (0.90)	19.89 (1.59)

* $p < .05$.

Results

Twenty-six percent of participants reported that pain made it difficult to complete their usual activities at least one day out of the last 30. Pain interfered with their activities for an average of 15.41 days (*SE* = .47). These individuals were used to represent the pain interference group for the following analyses; the remainder of the sample, which reported no days of pain interference, comprises the no pain interference group. Table 2 describes the demographic characteristics of the two groups. The groups were the same age and were similar on race/ethnicity. However, those with pain interference were more likely to be female, be widowed, have less education, and have a lower income.

As can be seen in Table 3, those in the pain interference group had significantly poorer self-reported health status and quality of life after adjustment for the demographic variables was done. Pain grouping uniquely accounted for a significant percentage of the variability for each of the Health Status Module and Quality of Life and Care Giving Module questions, ranging from a low of 2.4% for days of poor mental health to 13.3% for days of poor physical health. More specifically, those in the pain interference group had nearly 4 times as many days of poor physical health ($M = 11.22$, $SE = 0.46$), more than twice as many days of poor mental health ($M = 3.39$, $SE = 0.28$), over twice as many days of reported depression ($M = 3.96$, $SE = 0.28$), 2.5 times more days of feeling anxious ($M = 4.89$, $SE = 0.31$), twice as many days with sleep disturbance ($M = 6.93$, $SE = 0.43$), and approximately half as many days of feeling healthy ($M = 12.09$, $SE = 0.45$). Additionally, those in the pain interference group were significantly more likely to report having their activities limited due to health problems after covariate adjustment for demographic differences was done, odds ratio = 6.32, 95% confidence interval (CI) = 5.17-7.74. Fifty-four percent of those in the pain interference group had limited activities compared to 16% of those without pain interference.

Among those with pain, demographics were significantly associated with number of days of pain problems, $R^2 = .067$, model $F(15, 7{,}881) = 98.73$, $p < .0001$. Mental health was entered in Step 2, and $R^2 = .077$, model $F(16, 7{,}881) = 94.52$, $p < .0001$. Mental health significantly contributed to the model with $\beta = .16$, SE $\beta = .05$, $t(7{,}881) = 3.03$,

Table 3

Covariate Adjusted Means Comparing Pain Interference Versus No Pain Interference

Variable	No pain interference ($n = 5{,}994$)		Pain interference ($n = 2{,}005$)		$F(1, 7{,}881)$	p	Unique R^2 for pain group
	Mean (*SE*)	95% *CI*	Mean (*SE*)	95% *CI*			
Health Status Module							
General health status (1-5)	2.61 (.02)	2.57-2.65	3.28 (.05)	3.18-3.38	161.40	< .0001	.068
Days of poor physical health	3.03 (.20)	2.64-3.42	11.22 (.46)	10.32-12.12	259.50	< .0001	.133
Days of poor mental health	1.26 (.10)	1.06-1.46	3.39 (.28)	2.84-3.94	49.97	< .0001	.024
Days physical or mental health caused disability	1.04 (.13)	0.79-1.29	6.49 (.43)	5.65-7.33	146.60	< .0001	.108
Quality of Life and Care Giving Module							
Days felt depressed	1.64 (.12)	1.40-1.88	3.96 (.28)	3.41-4.51	59.06	< .0001	.027
Days felt anxious	1.98 (.31)	1.76-2.20	4.89 (.31)	4.28-5.50	79.08	< .0001	.036
Days of sleep disturbance	3.48 (.18)	3.13-3.83	6.93 (.43)	6.09-7.77	55.08	< .0001	.031
Days felt very healthy	21.49 (.26)	20.98-22.00	12.09 (.45)	11.21-12.97	322.60	< .0001	.115

Note: Covariates included marital status, education, income, gender, race/ethnicity, and age. *CI* = confidence interval.

$p < .01$, R^2 change = .010. On Step 3 disability days were entered, and the model $R^2 = .151$, model $F(17, 7881) = 124.23$, $p < .0001$. Mental health no longer contributed significantly to the model in the third step with $\beta = .03$, $SE\ \beta = .04$, $t(7,881) = .58$, $p = ns$; disability days contributed significantly to the model with $\beta = .32$, $SE\ \beta = .04$, $t(7,881) = 8.80$, $p < .0001$, R^2 change = .074.

Discussion

Results show that one of four older adults had trouble completing his or her normal daily tasks at least one day in the past month, and the activities of most participants were impacted at least half of the days of the month. Those reporting pain interference had worse health status across the board compared to those not reporting any interference from pain. Those in the pain interference group reported more depression, anxiety, and sleep disturbance; worse physical functioning and global health status; and fewer days of good health. As pain is the most common reason for an individual to go to a physician (APS, 2000) and with pain being responsible for approximately 80% of physician visits (Latham & Davis, 1994), these findings suggest that these individuals may also be more likely to use medical services. Older adults currently account for approximately one eighth of the people in the United States and are estimated to increase to 20% over the next 30 years (Administration on Aging, 2000). Furthermore, older adults currently make up the largest patient population in the health care system (Herr & Mobily, 1991) and they use the most health care services in the United States (Balkrishnan & Anderson, 2001; Stoller & Forster, 1994). If these trends continue, pain may be the ideal symptom to treat to better manage the likely large increase in health care cost due to the increasing number of older adults.

As would be expected, as the number of days with pain interference increased, so did the number of disability days. Pain has consistently been found to be the leading cause of disability in the United States among people of working age. Loeser (1999) estimated disability caused primarily by pain at 75% of the disabled population. Latham and Davis (1994) estimated the annual costs related to back pain in the United States at approximately $50 billion per year. As the retirement age becomes older and as many adults choose to work longer, disability due to pain among older adults may become more important than just the impact on medical costs. Besides standard medical costs, pain leads to other economic losses. Sternbach (1986) found that, among full-time workers, losses of productivity due to missed workdays from pain were $55 billion in 1985; as this estimate does not include part-time employees or those permanently disabled from pain, actual losses are likely much higher. Although those with pain interference reported more psychological distress, the total number of days of pain interference was not uniquely associated with level of psychological distress after accounting for disability. Therefore, it appears that a dose response relationship between pain interference and mental health is not present in this sample. However, pain severity may be more closely associated with psychological distress than pain interference, but we were unable to test this hypothesis as pain severity was not directly assessed in the BRFSS survey.

In analyzing demographic variables and their association with pain, we found that those with less income and less education were likely to report more days of pain interference. Previous research has shown that, among medical patients of all ages, those with less education are likely to report more symptoms in general and more pain specifically (Kroenke & Spitzer, 1998; Kroenke, Stump, Clark, Callahan, & McDonald, 1999). In a community study, Kroenke and Price (1993) found that people with a low socioeconomic status reported more physical symptoms. One reason for this may be that they would be less able to afford effective treatments for whatever condition may be leading to their pain.

The current study has several limitations worth noting. A cross-sectional study does not infer causality. It may be that those with mental health problems are reporting more symptoms. Several studies have shown that patients with some type of mood disturbance are likely to report more physical symptoms (Carson et al., 2000; Kroenke et al., 1997, 1999). Kroenke and colleagues (1997) also found that patients with depression or anxiety problems were more likely to report more severe symptoms. A large group of potential participants (*n* = 2,482) was excluded from the study due to missing data. This group was older, and Frisoni, Fedi, Geroldi, and Trabucchi (1999) found that older adults in the community reported more physical symptoms as their cognitive functioning declined, which may have led to the exclusion of a group of people with pain problems in this sample. Additionally, those excluded were more likely to be female, widowed, Black non-Hispanic, less educated, and unwilling to divulge income. Therefore, the sample may not be truly representative.

This study shows that pain has a significant impact on the mental and physical health and functioning of older adult Medicare beneficiaries in the community. Future studies that examine the longitudinal pattern of pain symptoms among older adult Medicare beneficiaries will be useful to identify patterns that may change because or policy changes and to further assess the causal relationship between psychological distress and physical symptoms. Additional studies are also needed to identify interventions to better address these functional impairments. Policies to ensure access to care for all older adults may be a good starting point. Some recommended approaches may include any of the following treatments, individually or in combination: medication, patient and family education, associated disease treatment, psychotherapy, relaxation training, specialist referral, and physical therapy (APS, 2000; JCAHO, 2001; Leland, 1999). Regular assessment among older adults is particularly important because they may be less likely to report pain without prompting because of fears related to loss of independence or because of the belief that older people have more pain and just have to live with it (Herr & Mobily, 1991; Leland).

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PAIN, DISTRESS, AND HEALTH CARE USE AMONG MEDICARE PATIENTS: EVALUATION OF WRITTEN SELF-DISCLOSURE IN PRIMARY CARE

by

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Abstract

Physical symptoms are the primary reason individuals seek medical care, and pain is the most common symptom. Most symptoms reported in primary care clinics have no identifiable etiology and may be partially explained as a somatic response to psychological distress. This study characterizes the impact of pain within a primary care sample of older adult Medicare beneficiaries and tests the effectiveness of written self-disclosure to reduce pain, distress, and medical visits. Participants were 105 Medicare beneficiaries age 65 years old and older in primary care. They were randomly assigned to a treatment (write about most distressing life experience) or comparison (write about things to do to stay healthy) condition. Mean age was 73.4 years. Participants were 63% female, 51% married, and 61% Caucasian. Participants were assessed at baseline and at 1 month and 6 months after intervention on physical health, mental health, somatic symptoms, and number of medical visits. In the past month, 88% had some pain with 61% having functional impairment from pain. High pain was associated with significantly more depressive symptoms, psychosocial distress, and worse global health status. At 1 month and 6 months after intervention, the groups did not differ significantly from each other, and neither group showed significant improvement on any of the outcome measures. Just among those reporting high pain at baseline, no treatment effect was seen. Pain is associated with psychosocial distress, depression, and global health status in older adult primary care patients. Written self-disclosure does not appear to be an effective intervention among this general sample of older adults or among those with higher levels of pain.

Pain, Distress, and Health Care Use among Medicare Patients: Evaluation of Written Self-Disclosure in Primary Care

Physical symptoms are the most common reason for patients to attend primary care clinics (Kroenke, Arrington, & Mangelsdorff, 1990). In nearly three quarters of patients reporting symptoms, no known etiology can be identified (Kroenke & Mangelsdorff, 1989), and medical tests to evaluate these symptoms can be very expensive (Kroenke, 1992). Many of these symptoms may be explained as a somatic response to psychological distress. Psychological distress is common among primary care patients (Linzer et al., 1996), and patients with distress tend to report more symptoms and more severe symptoms (Kroenke, Jackson, & Chamberlin, 1997). Although most people report their symptoms to their physician, commonly used treatments often do not help (Kroenke et al., 1990). The most common treatment for symptoms, regardless of etiology, is medication, which typically only helps those patients who have symptoms with a known organic etiology (Kroenke & Mangelsdorff). Patients with symptoms of unknown or psychological etiologies show no difference in outcomes whether they receive treatment or not (Kroenke & Mangelsdorff). Furthermore, patients with anxiety or depression seem to receive the least benefit from common primary care treatments (Kroenke et al., 1990).

Pain is the most common symptom leading to physician visits (American Pain Society, 2000; Kroenke et al., 1997; Latham & Davis, 1994). Stoller (1993) found that those with depression reported higher levels of pain. Kroenke and Mangelsdorff (1989) found that, among patients reporting pain symptoms, an organic cause could be found in less than 12% of the cases; the remaining cases of reported pain were attributed to psychological or unknown causes. The three most expensive acute symptoms to work up with laboratory tests for diagnosis involved pain (Kroenke & Mangelsdorff). Stoller and

Forster (1994) found that functional interference caused by pain was one of the strongest predictors of physician visits.

The available research looking at older adults has indicated that they may respond differently to symptoms than younger people do but that pain is still an important predictor of outcomes. Klapow and associates (2002) found that psychological distress and somatic symptom reports were less common among older adults despite the fact that they had more chronic conditions than younger adults had. Another study that compared older and younger chronic pain patients also found that older adults were less likely to have somatic complaints, but no difference was found in rates of depression (Wijeratne, Shome, Hickie, & Koschera, 2001). However, the older group did have higher levels of anxiety.

Hotopf, Mayou, Wadsworth, and Wessely (1998) reported that physical symptom presentation and psychiatric diagnosis have a bidirectional relationship. In other words, people with physical symptoms are more likely to become psychologically distressed, and those with distress are more likely to gradually report more physical symptoms. Psychotherapy is effective for reducing distress; however, it cannot be easily integrated into medical settings, and it may not be the most efficient approach for symptom reduction among nonpsychiatric patients. A brief written self-disclosure protocol that has been developed and studied by Pennebaker and colleagues (Francis & Pennebaker, 1992; Pennebaker, 1993; Pennebaker, & Beall, 1986; Pennebaker, Colder, & Sharp, 1990; Pennebaker, Kiecolt-Glaser, & Glaser, 1988; Spera, Buhrfeind, & Pennebaker, 1994) has been shown to reduce distress and improve health outcomes, particularly among those who do not reach the threshold for a psychiatric diagnosis. A meta-analysis by Smyth (1998) showed that this type of intervention consistently reduced health care costs, physical symptoms, and psychological distress among healthy young adults. However, results from studies of specific medical conditions have been inconsistent; these conditions include rheumatoid arthritis and asthma (Broderick, Stone, Smyth, & Kaell, 2004; Smyth, Stone, Hurewitz, & Kaell, 1999;), prostate or gynecological cancer (Zakowski, Ramati, Morton, Johnson, & Flanigan, 2004), and fibromyalgia (Broderick, Junghaenel, & Schwartz, 2005). Additionally, only the pilot study upon which the present study is based, has looked at older adults in primary care, which is particularly important as this is where most people receive the majority of their health care services. The pilot showed that it is feasible to implement a minimal contact written self-disclosure protocol in a primary care clinic with health-care-seeking older adults (Klapow et al., 2001).

The present study evaluates the effectiveness of a written self-disclosure protocol for reducing psychosocial distress, somatic symptoms, and health care use among health-care-seeking older adults. The present study also characterized pain and its impact among a primary care sample of older adult Medicare beneficiaries. More specifically, this study (a) classified participants on the basis of the number and severity of pain symptoms and characterized the differences in the distress, health status, and health care visits of those with high and low levels of pain; (b) tested the effectiveness of a written self-disclosure intervention to improve health status, somatic symptoms, psychiatric symptoms, psychosocial distress, and health care visits among Medicare beneficiaries seeking medical care in a primary care clinic; (c) tested the effectiveness of a written self-disclosure intervention at improving health status, pain, somatic symptoms, psychiatric symptoms, psychosocial distress, and health care visits among older adult Medicare beneficiaries with pain problems in primary care.

Method

Participants

Participants were 105 Medicare beneficiaries recruited from two primary care clinics, general internal medicine and geriatric medicine, at one medical clinic. Participants were randomly assigned to the treatment (*n* = 49) and comparison (*n* = 56) groups of a larger study. Originally, 231 participants were recruited; an additional 65 were assigned to a control condition; 60 withdrew from the study before completion, and one died before completion. The 105 participants had a mean age of 73.4 years (*SD* = 6.3 years) ranging from 66 to 91 years old; 62.9% were female, 37.1% were Black, 61.0% were Caucasian, 51.4% were married, 35.2% were widowed, 83.8% had at least a high school education, and 35.9% had an annual household income of less than $20,000. Additional details are presented in Table 1.

Measures

Patient Health Questionnaire. The Patient Health Questionnaire (PHQ) was designed as a self-administered version of the Primary Care Evaluation of Mental Disorders (PRIME-MD). The questionnaire is designed to screen for mental health diagnoses commonly seen in primary care clinics. These include depression, panic/anxiety, eating disorders, alcohol abuse, and somatization. Besides identifying patients who potentially meet criteria for diagnosis, patients with sub-threshold psychological distress can also be

Table 1

Descriptive Statistics for Treatment Group, Comparison Group, and Entire Sample

Variable	Treatment (*n* = 49)	Comparison (*n* = 56)	Total (*N* = 105)
Age, mean (*SD*)	73.5 (6.7)	73.3 (6.1)	73.4 (6.3)
Sex, *n* (%)			
Female	32 (65.3%)	34 (60.1%)	66 (62.9%)
Male	17(34.7%)	22 (39.3%)	39 (37.1%)
Race, *n* (%)			
Black	19 (38.8%)	20 (35.7%)	39 (37.1%)
White	30 (61.2%)	34 (60.7%)	64 (61.0%)
Native American	0 (0.0%)	1 (1.8%)	1 (1.0%)
Asian	0 (0.0%)	1 (1.8%)	1 (1.0%)
Marital status, *n* (%)			
Married	21 (42.9%)	33 (58.9%)	54 (51.4%)
Widowed	19 (38.8%)	18 (32.1%)	37 (35.2%)
Divorced/Separated	6 (12.2%)	4 (7.5%)	10 (9.5%)
Never married	3 (6.1%)	1 (1.8%)	4 (3.8%)
Education, *n* (%)			
< High school graduate	6 (12.2%)	8 (14.3%)	14 (13.3%)
High school graduate	9 (18.4%)	13 (23.2%)	22 (21.0%)
Some college	18 (36.7%)	15 (26.8%)	33 (31.4%)
College graduate	7 (14.3%)	9 (16.1%)	16 (15.2%)
Postgraduate	9 (18.4%)	11 (19.6%)	20 (19.0%)
Income, *n* (%)			
< $20,000	19 (39.6%)	18 (32.7%)	37 (35.9%)
$20,000-40,000	11 (22.9%)	12 (21.8%)	23 (22.3%)
$40,000-60,000	10 (20.8%)	16 (29.1%)	26 (25.2%)
> $60,000	8 (16.7%)	9 (16.4%)	17 (16.5%)

Note. Groups did not differ significantly on any of the demographic variables.

identified (Spitzer, Kroenke, Williams, & the Patient Health Questionnaire Primary Care Study Group, 1999; Spitzer et al., 1994). Several scores can be calculated. The Psychosocial Distress score consists of 10 items answered *Not Bothered* (0) to *Bothered a Lot* (2) with total scores ranging from 0 to 20. The Depression score consists of 9 items scored from *Not at All* (0) to *Nearly Every Day* (3) with scores ranging from 0 to 27. The Somatic score consists of 13 items scored *Not Bothered* (0) to *Bothered a Lot* (2) with total scores ranging from 0 to 39. The 7 pain items from the Somatic scale were used to calculate a total pain severity score ranging from 0 to 14.

Medical Outcomes Study Short Form 12. The Medical Outcomes Study Short Form-12 (SF-12) is a 12-item questionnaire derived from the Medical Outcomes Study-36. Two summary scores, the Physical Composite Score and the Mental Composite Score are calculated; both are comparable to the summary scores of the same name from the Medical Outcomes Study-36. Additionally, the Medical Outcomes Study-36 normative tables can be used with the SF-12 summary scores (Ware, Kosinski, & Keller, 1996). Item 8 asks how much pain has interfered with activities and is scored on a 5-point scale ranging from (1) *Not at All* to (5) *Extremely.* This item will be used in combination with PHQ Pain Severity to classify participants on the basis of reported pain.

Global Health Status. This is a one-item visual analog scale (VAS) numbered from 0 to 100 in intervals of 5 with 0 being least desirable health and 100 being perfect health. Participants were asked to rate their health today.

Health Conditions Questionnaire. The Health Conditions Questionnaire lists 15 common chronic health conditions (see Table 2) and asks patients if they currently have any of the conditions. Responses include “yes,” “no,” or “unsure.” The items with “yes” responses were summed to provide the total number of chronic health conditions with scores ranging from 0 to 15.

Table 2

Comparison of Participants Across Pain Groups Reporting Chronic Health Conditions at Baseline

Condition	% Total sample (N=105)	% Low-pain group (n = 41)	% High-pain Group (n = 64)
High cholesterol	41.9	39.0	43.8
Hypertension	62.9	56.1	67.2
Angina	6.7	2.4	9.4
Congestive heart failure	5.7	4.9	6.3
Chronic lung disease	6.7	4.9	7.8
Asthma	5.7	4.9	6.3
Ulcers	4.8	2.4	6.3
Gastroesophageal reflux disease	20.0	17.1	21.9
Kidney disease	2.9	2.4	3.2
Diabetes	22.9	26.8	20.3
Cancer	8.6	12.2	6.3
Hearing problems	32.3	34.2	31.3
Arthritis*	63.8	39.0	79.7
Chronic back problems	25.7	22.0	28.1
Headaches	12.4	7.3	15.6

*$\chi^2 = 17.89, p < .0001$.

Demographics Questionnaire. The Demographics Questionnaire includes basic contact information, age, gender, race/ethnicity, marital status, education, household income, and number of other people living in the household.

Health care utilization. Health care utilization was the self-reported number of emergency room visits, hospitalizations, and outpatient visits over the past 6 months. The four types of visits are summed for a total visits score.

Writing Questionnaire. A nine-item questionnaire assessing personal emotional disclosure is used as a manipulation check. This questionnaire was completed following the last writing session. Items 2 and 8 are reverse coded. The items are rated from 1 to 7 and summed. Scores can range from 7 to 63 with higher scores indicating more emotional disclosure in the writings.

Procedure

Participants were recruited from two primary care clinics; 1,331 consecutive patients were initially screened by their primary care provider for exclusion criteria and by project recruiters for inclusion criteria. Of the screened patients, 317 declined to participate, and 783 were excluded for some reason. Patients were excluded by their physician if they had a current mental health diagnosis (*n* = 161), dementia and/or Mini Mental Status Exam (Folstein, Folstein, & McHugh, 1975) < 23 (*n* = 168) or both (*n* = 59). Patients who did not meet the follow criteria were not included: have available transportation to the clinic (*n* = 48), have the same insurance for the past 6 months (*n* = 21), be able to read at seventh-grade level (*n* = 134), and have no physical impairments that prevent writing for 20 min (*n* = 156). An additional 36 did not participate for other reasons. Patients meeting these criteria and agreeing to participate were randomly assigned to an intervention, comparison, or control group. Those assigned to the control group were not evaluated in the present study as they did not complete follow-up questionnaires.

Participants assigned to the intervention or comparison groups were scheduled to return to clinic for baseline assessment and the first writing session. At the baseline visit, informed consent was obtained. Participants then completed the demographics, Health Conditions, Service Use, SF-12, and PHQ forms. After finishing the questionnaires, the participants were asked to write for 20 minutes on a specific topic. Each group was presented with brief written instructions that were reviewed with the study interventionist before writing began. The instructions for both groups are presented in the Appendix. The intervention group wrote about their deepest thoughts and feelings about the most distressing event in their life. The comparison group wrote about things they do to stay healthy. Writing about things to stay healthy is a modification from the Pennebaker protocol of writing about time management. This change was implemented on the basis negative participant feedback during the pilot study for this project (Klapow et al., 2001). After reviewing the instructions with the participant and answering any questions, the interventionist left the participant to write for 20 min. At the end of the writing session, the interventionist scheduled two additional writing sessions to be completed at home over the next 2 weeks. At the two scheduled home writing times, the interventionist called the participant, reviewed the directions, and answered any questions. Participants then wrote for 20 min and returned their writings in the mail. One month and 6 months after the last writing session, participants received follow-up questionnaires in the mail; they completed them, and then they returned them by mail. After completion of the last set of questionnaires, participants received $50 for their participation in the study. Of the 105 participants completing the study, 3 did not complete all follow-up questionnaires. Therefore, the analyses that only required baseline data included all 105 participants, and the analyses requiring follow-up data included 102 participants. This study was approved by the University of Alabama at Birmingham Institutional Review Board for Human Use.

Results

Baseline

Participants had the following means (standard deviation) at the baseline assessment: PHQ total Somatic score = 5.13 (3.9), PHQ Psychosocial Distress = 2.88 (2.5), PHQ total Depression items = 2.93 (2.9), SF-12 Mental Composite Score = 53.64 (7.9), SF-12 Physical Composite Score = 42.10 (12.1), total medical visits = 4.10 (3.7), and global health VAS = 75.90 (15.6). The most commonly reported health condition was arthritis (64%), followed closely by hypertension (63%). Other health conditions are listed in Table 2. All participants except one had at least one chronic health condition. Ninety percent of participants endorsed having more than one chronic health condition, and they had an average of 3.49 (1.8) chronic conditions. Additionally, 88% of the participants reported having pain in the past 4 weeks, and 61% reported interference from pain in their normal work outside the home and/or housework. They had an average total pain score of 2.68 (2.0).

Pain Grouping

Participants were classified into two groups on the basis of scores obtained from the baseline PHQ pain severity and the SF-12 pain interference question. Participants reporting any pain on the PHQ and reporting at least “A Little Bit” of interference from pain in the past 4 weeks on the SF-12 were classified as high pain. All others were classified as low pain. Groups were compared on demographic variables by using *t* tests or chi-square tests as appropriate, and no significant differences were found between the groups. Analysis of variance was used to evaluate group differences on number of chronic health conditions. The high-pain group ($M = 3.83$, $SD = 1.77$) had significantly more chronic health conditions than the low-pain group had ($M = 2.95$, $SD = 1.64$; $F(1, 103) = 6.49$, $p = .012$). Multivariate analysis of covariance with baseline measures was used with number of chronic health conditions and age as covariates; pain group as the independent variable; and SF-12 mental composite score, PHQ psychosocial distress, PHQ depression, total health care visits, and global health status VAS as dependent variables. The main effect of pain grouping was significant, $\Lambda = .699$, $F(5, 99) = 8.51$, $p < .0001$. Follow-up analyses of covariance were then performed for each dependent variable, and group means are shown in Table 3. The high-pain group had significantly worse psychosocial distress, $F(1, 101) = 4.30$, $p < .05$; more major depressive symptoms, $F(1, 101) = 16.80$, $p < .0001$; and worse global functioning, $F(1, 101) = 8.38$, $p < .01$. The pain groups did not differ significantly on SF-12 Mental Composite Scores or number of medical visits in the past 6 months.

Written Self-Disclosure

Demographics for treatment and comparison groups are presented in Table 1. Randomization was evaluated by comparing the treatment conditions on demographic variables and baseline dependent measures (means shown in Table 4) by using t test or chi-square test as appropriate. Groups were not significantly different on any demographic or baseline variables. The manipulation check was evaluated by using analysis of variance to compe the treatment groups on the Writing Questionnaire scores. Eight participants did not complete this questionnaire. Therefore, this evaluation is based on 96 participants. The treatment group ($M = 40.13$, $SD = 9.4$) scored significantly higher than

Table 3

Follow-Up Analyses of Covariance on Health Status Measures Comparing Low- and High-Pain Groups

Variable	Low Pain (*n* = 41)	High Pain (*n* = 64)
SF-12 Mental Composite	54.97 (7.7)	52.79 (8.0)
Patient Health Questionnaire		
Psychosocial Distress*	2.07 (2.3)	3.40 (2.5)
Total Depressive Symptoms*	1.34 (2.1)	3.95 (2.9)
Total Medical Visits in past 6 months	4.71 (4.5)	3.72 (3.0)
Global Health VAS (0-100)*	82.93 (13.7)	71.41 (15.2)

Note. Age and number of chronic health conditions were used as covariates. SF-12 = Medical Outcomes Study Short Form-12, VAS= visual analogue scale.
* $p < .05$.

the comparison group scored ($M = 32.88$, $SD = 7.7$), $F(1, 95) = 17.39$, $p < .0001$, which indicated that the treatment group disclosed more personal distressing information than the comparison group did.

A series of 2 X 3 (Treatment Condition X Time) mixed analyses of covariance were conducted with age and number of chronic health conditions as covariates and the following dependent variables: SF-12 mental composite score, SF-12 physical composite score, PHQ psychosocial distress, PHQ somatic severity, PHQ depression, and global health status VAS. Time points were baseline and 1 month and 6 months after intervention. An additional 2 X 2 (Treatment Condition X Time) mixed ANCOVA was run for total number of medical visits in the past 6 months. Time points were baseline and 6 months after intervention. The Greenhouse and Geisser correction was used to meet the sphericity assumption. Additionally, the Bonferonni-Holm's adjustment was used to protect family-wise $\alpha = .05$ for multiple analyses. All analyses were run two times, first with no covariates and then with covariates. Table 4 shows the group means at each time

Table 4

Repeated Measures Analysis of Covariance for All Participants With Complete Data, Mean (SD) at Each Time Point (N = 102)

Variable	Treatment ($n = 47$)			Comparison ($n = 55$)		
	Baseline	1 month	6 months	Baseline	1 month	6 months
SF-12						
Physical Composite	40.78 (11.9)	37.87 (12.2)	37.24 (12.9)	43.75 (12.2)	38.98 (12.4)	38.42 (12.1)
Mental Composite	54.59 (7.7)	53.51 (9.9)	51.63 (9.8)	53.11 (7.8)	54.17 (7.9)	54.17 (8.9)
Patient Health Questionnaire						
Psychosocial Distress	2.68 (2.3)	3.53 (2.7)	3.12 (2.3)	3.03 (2.7)	3.32 (2.8)	3.46 (3.2)
Somatic Severity	4.86 (3.8)	5.67 (3.4)	5.14 (3.1)	5.23 (4.0)	5.55 (3.9)	5.00 (3.4)
Total Depressive Symptoms	3.03 (3.1)	3.79 (4.1)	3.76 (4.0)	2.62 (2.6)	3.45 (3.4)	3.73 (4.5)
Global Health VAS (0-100)	77.02 (13.3)	72.13 (19.0)	74.89 (15.9)	76.09 (16.9)	76.00 (17.7)	73.27 (16.1)
Total Medical Visits past 6 months	3.83 (3.7)		4.32 (3.2)	4.18 (3.5)		3.69 (3.4)

Note. Age and number of chronic health conditions were used as covariates. No significant main effects or interaction effects were found. SF-12 = Medical Outcomes Study Short Form-12, VAS= visual analogue scale.

point. In the initial analyses without covariates, the SF-12 Physical Composite Score had a significant main effect of time, *F*(2, 200) = 13.76, $p < .0001$, and contrasts showed that participants scored worse at 1- and 6-month follow-up evaluations compared to baseline. PHQ total depressive symptoms also had a significant main effect of time, *F*(2, 200) = 4.55, $p = .013$, with contrasts showing that participants reported more symptoms of depression at 1- and 6-month follow-ups than at baseline. PHQ Psychosocial distress also had a significant main effect of time, *F*(2, 200) = 4.34, $p = .015$, and the contrasts showed that participants reported more psychosocial distress at 1-month follow-up but not at the 6-month follow-up compared to baseline. No other main effects or interaction effects were found for the analyses with no covariates. When the analyses were run with age and number of chronic health conditions as covariates, there were no significant main effects of time, main effects of treatment condition, or interaction effects for any of the dependent variables.

High Pain and Written Self-Disclosure

The following analyses only included the 61 participants from the high-pain group with complete data at all three time points. As previously discussed, the high-pain group did not differ significantly on any of the demographic variables compared to the rest of the sample. A series of 2 X 3 (Treatment Condition X Time) mixed analyses of covariance were conducted with age and number of chronic health conditions as covariates and the following dependent variables: SF-12 mental composite score, SF-12 physical composite score, PHQ psychosocial distress, PHQ total pain, PHQ somatic severity, PHQ depression, and global health status VAS. Time points were baseline, 1 month, and

6 months after intervention. An additional 2 X 2 (Treatment Condition X Time) mixed ANCOVA was run for total number of medical visits in past 6 months. Time points were baseline and 6 months after intervention. The Greenhouse and Geisser correction was used to meet the sphericity assumption. Additionally, the Bonferonni-Holm's adjustment was used to protect family-wise $\alpha = .05$ for multiple analyses. All analyses were run two times, first with no covariates and then with covariates. Table 5 shows the group means at each time point. In the initial analyses without covariates, the SF-12 Physical Composite Score had a significant main effect of time, $F(2, 118) = 4.41$, $p = .015$, and contrasts showed that participants scored worse at 1- and 6-month follow-up evaluations compared to baseline. PHQ total Somatic Score also had a significant main effect of time, $F(2, 200) = 4.87$, $p = .0097$, and the contrasts showed that participants reported more somatic symptoms at 1-month follow-up compared to the 6-month follow-up with no significant differences from baseline at either time point. No other main effects or interaction effects were found for the analyses with no covariates. When the analyses were run with age and number of chronic health conditions as covariates, there were no significant main effects of time, main effects of treatment condition, or interaction effects for any of the dependent variables.

Discussion

This study was designed to achieve several goals. First, we were able to show that higher levels of pain are associated with overall poorer health status, even among a relatively healthy sample of older adults in primary care. However, our attempt to intervene with those with worse pain problems to improve their health outcomes was unsuccessful.

Table 5

*Repeated Measures Analysis of Covariance for Participants in the High-Pain Group, Mean (*SD*) at Each Time Point (*N *= 61)*

Variable	Treatment (n = 29)			Comparison (n = 32)		
	Baseline	1 month	6 months	Baseline	1 month	6 months
SF-12						
Physical Composite	34.96 (9.2)	33.69 (9.6)	32.71 (10.1)	37.65 (11.7)	33.16 (10.2)	34.28 (11.3)
Mental Composite	53.78 (7.6)	52.61 (9.9)	51.68 (10.6)	52.29 (8.0)	52.42 (9.1)	52.20 (10.0)
Patient Health Questionnaire						
Psychosocial Distress	3.13 (2.3)	3.77 (2.9)	3.47 (2.5)	3.66 (2.7)	4.24 (2.8)	4.49 (3.4)
Total Pain	2.83 (1.7)	3.66 (1.7)	2.97 (1.8)	3.97 (2.0)	3.91 (1.9)	3.59 (2.5)
Somatic Severity	6.11 (3.9)	7.00 (3.3)	5.96 (3.4)	7.25 (3.8)	7.30 (3.4)	6.19 (3.3)
Total Depressive Symptoms	3.74 (3.2)	4.86 (4.5)	4.65 (4.5)	3.84 (2.6)	4.96 (3.6)	5.38 (5.1)
Global Health VAS (0-100)	73.10 (12.5)	68.97 (18.6)	72.59 (16.3)	71.41 (17.0)	72.65 (17.7)	70.16 (16.6)
Total Medical Visits past 6 months	2.83 (1.4)		4.72 (3.4)	4.22 (3.5)		4.00 (3.7)

Note. Age and number of chronic health conditions were used as covariates. No significant main effects or interaction effects were found. SF-12 = Medical Outcomes Study Short Form-12, VAS= visual analogue scale.

The participants with more pain did not show improvement on any of the outcome variables. Additionally, our attempt to translate a laboratory-based written self-disclosure intervention in primary care was also unsuccessful. Although the participants seemed to follow the writing instructions by disclosing emotional information, the treatment group did not fare any better than the comparison group did, and neither group showed any improvement in health outcomes during the 6 months after intervention.

Baseline and Recruitment

The baseline assessment revealed that the sample consisted of relatively healthy older adults having both physical and mental functioning from the SF-12 within the normal range when compared to normative data. Despite their relative health, nearly all of the participants had multiple chronic health conditions, and 88% had at least one pain complaint. As would be expected, arthritis and hypertension were the most common chronic conditions. Although not a primary goal of the study, the recruitment data also provided us with some interesting information about those who did not participate. Nearly 30% of those going for a medical appointment had a psychiatric diagnosis and/or dementia; 10% did not have a literacy level adequate to participate; 12% were physically unable to do the writing exercise. Overall, 59% of patients screened were excluded, and 24% refused to participate. The exclusion rate is consistent with the 64% found in our pilot study (Klapow et al., 2001). However, the large number of refusals to participate was unexpected. As we did not collect any demographic data on individuals not participating, we cannot determine if these individuals were different in some way from the study participants. However, it is important to note that available information indicates that this type of intervention may only be appropriate for a minority of older adults in primary care clinics.

Pain Grouping

Participants in the high-pain group reported nearly 3 times as many symptoms of depression; although, none of the participants were diagnosed with a depressive disorder. This is consistent with previous research showing a consistent relationship among depression, physical symptoms, and pain (Carson et al., 2000; Hotopf et al., 1998; Stoller, 1993). However, pain was not associated with overall mental health functioning as measured by the SF-12. These findings together may point to a specific pain-depression association rather than to a pain-mental health association. Consistent with Herr and Mobily (1991), we found that those in the high-pain group were also functioning more poorly than the others were according to their report of global health status. Kroenke and colleagues (1997) found that people with higher levels of psychological distress also had more functional impairment; our results show that the high-pain group had significantly more psychosocial distress, which should make them good candidates for the written self-disclosure intervention. Although those in the high-pain group had more chronic health conditions as anticipated, this difference was primarily attributable to the arthritis. The pain groups did not differ significantly on any of the other chronic conditions. This is surprising considering that several of the other conditions have pain as the primary symptom. This may indicate that arthritis is not as well managed as the other conditions are.

Written Self-Disclosure

Surprisingly, the intervention did not have an effect on any of the outcome variables within this sample. Several factors may help to explain this lack of finding, which was unexpected because of the strength of the treatment effect in previous studies. This is the first study conducted with older adults in a primary care setting. Pearlin and Skaff (1996) reported that older adults have learned better coping skills. This study population may have developed better coping mechanisms than the predominantly younger participants did in previous studies. It is difficult to identify an exact reason for the lack of treatment effect because no single mechanism of action has been identified for this intervention (Bootzin, 1997; Pennebaker, 1997; Sloan & Marx, 2004). As Smyth (1998) reported, different mechanisms may be driving effects for different populations. Participants may have already processed traumatic events from their lives. Smyth noted that participants instructed to write about current stressors showed larger effect sizes, indicating that current relevance may play a role in this process. Furthermore, Norman, Lumley, Dooley, and Diamond (2004) found changes in pain symptoms when they had participants write about the distress of chronic pain. Our participants were instructed to write about the most distressing experience of their lives, which could have been events occurring decades ago that had already been adequately processed. It may be useful in future studies to directly compare alternative intervention instruction with one addressing current distress and one addressing past distress.

Pain and Written Self-Disclosure

Although we did not find any impact of the writing treatment for the entire sample, we were hopeful that those in the high-pain group would benefit from the intervention. This writing intervention may not be a blanket treatment for all and may be most useful with specific types of individuals (Zakowski et al., 2004). Seville and colleagues (2003) reported that 50% of primary care patients reporting pain had a previous trauma. However, they went on to say that only those who were still bothered by the trauma had significant impairments. The higher levels of baseline distress and depression, along with poorer global health status in the high-pain group, seemed ideal for this treatment; however, without asking about past trauma, we could not determine if this was a factor. The participants in the high-pain group did not show any improvement on any of the outcome measures. One problem may be that men have a shorter life span than women do, making our sample predominately female. This could have reduced our effect as previous studies had larger effect sizes when samples had a larger proportion of men (Smyth, 1998).

Limitations

The strict exclusion/inclusion criteria eliminated over half of the patients coming into the primary care clinic. With another 24% refusing to participate, the sample is not truly representative of older adults in primary care. However, Frisina, Borod, and Lepore's (2004) meta-analysis found that this more homogeneous sample should have a larger effect size. The exclusion criteria led to a sample that was relatively healthy to start, which may have caused floor and/or ceiling effects as healthy participants had little room to improve. However, Smyth's (1998) meta-analysis showed that, even among healthy samples, effect sizes were still strong. Although researchers might expect to see improvements among a sicker population, our results did not support this. The possibility must be considered that with this age group, other factors such as physical inability or cognitive impairment may limit ability to participate in this intervention must be considered. Finally, the actual writings were not analyzed, so we were not able to identify specific factors from the writing sessions that may have contributed to our finding a lack of change.

In conclusion, the written self-disclosure intervention does not appear to be effective for older adult primary care patients in general. However, there may be specific subpopulations that would see the benefits shown with so many other populations. Pain continues to be a common symptom seen in primary care clinics and continues to cause interference with daily activities for many older adults. This study shows that behavioral intervention can successfully be implemented into a busy primary care clinic. However, our next challenge is to identify the specific interventions that will be most useful in these settings.

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Appendix

Writing Instructions

Comparison Group. For the next 20 minutes, please write about the things you do to stay healthy. You may want to describe the activities you perform to stay healthy on a typical day such as what you eat at each meal, the times you eat each day, the types of medication you take, what they are for and the times you take them. You may also want to describe any physical activities you do, including the kind of physical activity, the times you do the activities and how the activities affect your health. You will only have three writing sessions, so it is important that you go into as much detail as possible.

Try to only write about what you do. Please do not write about your feelings. Please try to write without stopping and do not worry about grammar or punctuation. All of your writing will be kept strictly confidential.

Please continue to write until you are asked to stop. If you run out of things to say, just repeat what you have already written. Please feel free to use both sides of the paper. At the end of the 20 minutes, I will come back into the room and have you put your writing in the envelope provided.

Treatment Group. For the next 20 minutes, please write about your deepest thoughts and feelings about the most distressing experience in your life. Ideally, this experience should be one that you have not talked about in great detail to other people. The experience could be something that happened in the past or is happening right now. You are free to write about any kind of distressing experience.

Different people have different experiences. The experience you describe might involve: relationships with others (spouse, family, friends, co-workers), employment, finances, illness, injury, death, etc. Or it may involve something else. You may write about the same distressing experience on all the days of writing or a different distressing experience on each day of writing. You might describe the experience in relationship to your past, present or future. You will only have three writing sessions, so it is important that you write about your very deepest thoughts and feelings that are related to the distressing experience that you picked.

Please try to write without stopping and do not worry about grammar or punctuation. All of your writing will be kept strictly confidential.

Please continue to write until you are asked to stop. If you run out of things to say, just repeat what you have already written. Please feel free to use both sides of the paper. At the end of the 20 minutes, I will come back into the room and have you put your writing in the envelope provided.

CONCLUSIONS

This project demonstrated that pain is prevalent among older adults at the Micro and Macro levels. Furthermore, higher levels of pain were associated with worse health status. Brief evaluations using subjective pain questions were useful for providing clinically meaningful classifications of patients in the community and in primary care clinics. Other studies have not thoroughly evaluated generic pain symptoms among older adults in this fashion, and these results show an initial need for additional intervention techniques to better manage pain among Medicare beneficiaries. Our attempt to integrate a relatively simple behavioral intervention into a primary care setting was successfully implemented. However, the treatment was not effective in this setting with this population.

At the Macro level, we found that a quarter of older adults in the community had some impairment attributable to pain. With pain being the most common reason for a physician visit (APS, 2000), these individuals are probably using more medical services. This is further supported by our findings at the Micro level that over 60% of our primary care sample had some impairment from pain and that almost 90% had at least one pain symptom. Additionally, as expected, at the Macro level, pain problems were associated with more depression, more anxiety, sleep disturbance, poor physical functioning, poor global functioning, and fewer days of good health. We found similar findings at the Micro level with pain being associated with more symptoms of depression, worse global health status, and more psychosocial distress. However, pain was not related to overall mental health functioning or number of medical visits. This may have been due to the relative health of our sample. Besides the likely increase in medical expenses among those with more pain problems, these individuals likely have a much poorer quality of life as their impairments seem to be very global. Pain seems to be an ideal symptom to use as a potential indicator for treatment from a clinical health psychologist. We know that pain, distress, and psychiatric symptoms all have bidirectional relationships with each other (Hotopf et al., 1998), and clinical health psychologists have the skills to help patients manage all three better. The rate of pain problems among Medicare beneficiaries in the community and in primary clinics indicates that current treatments are not optimal. These pain problems could be further complicated in the near future as several of the more effective pain medications have recently been pulled from the market for safety reasons, leaving many patients with reduced medical treatment alternatives.

Although a need for behavioral interventions was identified, the specific intervention tested was not successful. The written self-disclosure intervention did not improve symptoms or reduce the number of medical visits for the entire primary care sample or for those with higher levels of pain and distress. Previous research that showed the most support for reducing pain symptoms with this intervention had participants writing specifically about the distress related to the pain (Norman et al., 2004). More research is needed to determine if certain modifications to the writing instructions would provide different outcomes in different populations. We may need to tailor the specific writing exercise to the problems being treated. The present study looked only at one possible intervention that focused on the distress variable in the bidirectional relationship with pain. It will be important to continue to test additional behavioral interventions in clinical settings to determine their effectiveness outside the laboratory. In a true clinical setting, a clinical health psychologist would have a variety of treatment tools available that would allow for a combination of interventions that best fit each patient. Furthermore, all of these interventions would likely be most useful in conjunction and collaboration with primary care providers to help better manage symptoms.

Although psychologists have made dramatic gains in recognition through policy change, most of their policy battles have involved reimbursement for traditional psychotherapy and have disregarded behavioral interventions for other medical conditions (DeLeon et al., 1995). Behavioral interventions have been shown to be very effective for treating medical problems in the laboratory and specialty clinics, but these treatments must be empirically validated in applied medical settings before they will be accepted more widely (Friedman et al., 1995). The model proposed in the present study may provide some direction for methods to present data to policy makers about the potential impact that health psychology can have in medical clinics and may eventually lead to increased reimbursement for behavioral services.

This project demonstrates one model of research that addresses health problems across a broad spectrum (Micro, Meso, and Macro levels). It shows methods of describing the needs of patients and community-dwelling older adults. Future research that focuses on identifying the specific unmet needs of Medicare beneficiaries may be useful to influence policy makers at different levels such as the Medicare system, MCOs, or specific clinics. Once needs are identified, additional studies can be designed to test the effectiveness of behavioral interventions to improve the identified problems and to test the feasibility of using the intervention in primary care clinics.

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APPENDIX

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Institutions with an assurance of compliance that covers the research to be conducted on file with the Department, Agency, or the Department of Health and Human Services (HHS) should submit certification of IRB review and approval with each application or proposal unless otherwise advised by the Department or Agency. Institutions which do not have such an assurance must submit an assurance and certification of IRB review and approval within 30 days of a written request from the Department or Agency.

1. Request Type ☐ ORIGINAL ☐ FOLLOWUP ☐ EXEMPTION	2. Type of Mechanism ☐ GRANT ☐ CONTRACT ☐ FELLOWSHIP ☐ COOPERATIVE AGREEMENT ☐ OTHER:	3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No.
4. Title of Application or Activity Reducing Service Use in Older Primary Care Patients		5. Name of Principal Investigator,Program Director, Fellow, or Other KLAPOW, JOSHUA CHA

6. Assurance Status of this Project *(Respond to one of the following)*

☐ This Assurance, on file with Department of Health and Human Services, covers this activity:
Assurance identification no. M- 1149 IRB Identification no. __________

☐ This Assurance, on file with *(agency/dept)*____________________, covers this activity.
Assurance identification no.________ IRB identification no.________*(if applicable)*

☐ No assurance has been filed for this project. This institution declares that it will provide an Assurance and Certification of IRB review and approval upon request.

☐ Exemption Status: Human subjects are involved, but this activity qualifies for exemption under Section 101(b), paragraph________.

7. Certification of IRB Review (Respond to one of the following IF you have an Assurance on file)

☒ This activity has been reviewed and approved by the IRB in accordance with the common rule and any other governing regulations or subparts on *(date)* 9-13-02 by: ☐ Full IRB Review or ☒ Expedited Review

☐ This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by the common rule will be reviewed and approved before they are initiated and that appropriate further certification will be submitted.

8. Comments

Please note: UAB IRB Protocol Number is X980922001

Protocol subject to Annual continuing review.

Title

Reducing Service Use in Older Primary Care Patients

9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed and certification will be provided.		10. Name and Address of Institution University of Alabama at Birmingham 701 20th Street South Birmingham, AL 35294
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13. Name of Official Marilyn Doss, M.A.		14. Title Vice Chair, IRB
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GRADUATE SCHOOL
UNIVERSITY OF ALABAMA AT BIRMINGHAM
DISSERTATION APPROVAL FORM
DOCTOR OF PHILOSOPHY

Name of Candidate Steven M. Schmidt

Graduate Program Medical Psychology

Title of Dissertation Assessment and Impact of Symptoms Among Medicare Beneficiaries: Implications for Policy Makers, Managed Care Organizations, and Primary Care Clinics

I certify that I have read this document and examined the student regarding its content. In my opinion, this dissertation conforms to acceptable standards of scholarly presentation and is adequate in scope and quality, and the attainments of this student are such that he may be recommended for the degree of Doctor of Philosophy.

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