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Mental Health and Chronic Pain in the Elderly

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ABSTRACT

Chronic pain occurs frequently among older people and is often persistent and disabling in nature. This pain usually worsens with other chronic diseases (comorbidities), sensory impairment and depression. Changes in the brain associated with chronic pain can disturb communications between brain sites that regulate feelings and sensory perceptions. This increases the odds of developing mental disorders. Fussier diseases can cause extremely high discomfort which can eventually cause many more serious diseases in others. Mental health care is not integrated with chronic pain management. Every elderly individual should undergo routine screening for mental disorders, especially depression and anxiety. The use of geriatric psychiatry expertise is strongly advised. Antidepressants, when well-monitored, will not increase morbidity or mortality in older patients, say experts. Social isolation worsens depression, so communities are encouraged to engage with their elders through intergenerational activities. Caregivers can also be better trained. Training geared toward physical and social participation, along with family-centered education and counseling, may lower depressive symptoms and improve overall quality of life in the elderly with persistent pain.

Keywords: Chronic Pain, Elderly, Depression, Anxiety, Geriatric Psychiatry

INTRODUCTION

Depression is a complication that frequently follows chronic pain in older people (1). However, it is frequently underdiagnosed and under-treated (1). This is regrettable because treating comorbid depression in the elderly population not only alleviates emotional distress, but also may lessen the perception of chronic pain, foment psychological coping with it, and enhance treatment outcomes (2). Older people frequently have multiple chronic illnesses and take more drugs than younger ones (1). This means that treatment decisions involve greater risks of adverse drug reactions and drug-drug interactions, proportional to the number of medications prescribed (2). Thus, evidence of efficacy and tolerability is of dire importance before medication selection (3). In the elderly population, the importance of possible drug side effects, potentially leading to falls or other late-onset adverse reactions, is even greater than in other medical conditions (3). Co-leading the biggest study performed on a chronic pain population aged greater than 70 has provided the authors with a unique opportunity to summarize here their belief on untreated issues of the symposium and their suggestions for future studies in this field (1). The symposium was attended by professionals who have worked at the forefront of epidemiology, clinical, or therapeutic interventions on sleep disorders and chronic pain in older people (4). Even though it was suggested at the beginning of the meeting that all panellists concentrate on older people in of the 70s, some questions were too far-reaching for that age group and were addressed more generally to the elderly population (4). However, these considerations apply to almost all age groups suffering from chronic pain (5). It would be helpful to better understand bidirectionality

of depression and musculoskeletal pain, its mechanisms, translational studies, and pharmacological and non-pharmacological interventions (6). A simple and reliable sleep questionnaire should be devised for chronic pain older people in order to select the appropriate target population for future studies (5). There is a need for epidemiological studies on sleep disorders in older people, taking into account the bio-behavioral model and sex/gender differences (6). The growing use of drugs acting on the newer generation of analgesics and sedatives, including substances with abuse potential and medical cannabis, is alarming (5).

Understanding Chronic Pain

Chronic pain, defined as pain lasting longer than three months, is a debilitating condition affecting quality of life and daily functioning in the elderly population (7). There is a rising prevalence of chronic pain in the elderly due to increased life expectancy and advances in healthcare resulting in an increase in degenerative diseases (7). Pain complaints are common among the elderly with a prevalence of 25-75% (7). Elderly experiencing chronic pain have a major risk of decreased quality of life, altered social function, sleep disturbances, depression, poor cognition, poor appetite, autonomic dysfunction, and increased incidence of falls and fractures (8). On the contrary, pain in the elderly is underreported and undertreated due to barriers in pain assessment, concerns regarding opioid addiction, signs of dementia leading to changes in pain perception, and difficulties in differentiating chronic pain from other diseases (9). Various medications including NSAIDs, opioids, antidepressants, and antiepileptics are prescribed; however, the efficacy and safety in the elderly are under evaluated and limited by inadequate reporting (10). Invasive procedures like spinal injection and radiofrequency ablation are beneficial but the prevalence and risk in older persons and the available evidence on the efficacy and safety in the elderly are scant (11).

The abnormal pain processing mechanism in the elderly can be explained through physiological changes like decreased gamma-aminobutyric acid, serotonin, noradrenaline, and acetylcholine (12). Changes in the spinal cord and periphery like decreased number of peripheral nociceptive neurons, increased pain thresholds, and decreased endogenous analgesic responses result in paradoxical increase in the pain (12). Musculoskeletal disorders like degenerative spine and arthritic conditions are the commonest cause of chronic pain in the elderly (13). Central pain syndromes like post-herpetic neuropathy and occlusive vascular pain due to ischemic disease are a less prevalent but very debilitating cause of pain in the elderly (14). Other common causes include primary and metastatic lesions of the brain, and tumors of the head and neck (14). Chemotherapy and radiotherapy on the oral cavity for carcinoma of the head and neck and HIV associated Kaposi's sarcoma can cause pain along with burning sensation in the elderly (15). Among elderly women, a high prevalence of vertebral compression fractures causing post-traumatic acute and chronic pain, radiculopathy, and spinal canal stenosis due to herniated discs is observed (15).

Prevalence of Chronic Pain in the Elderly

Chronic pain is a major health problem in the elderly worldwide (15). Discomfort, resulting from chronic pain, has a well-known decrease on the quality of life among the elderly, and longitudinal studies have demonstrated an association between chronic pain and increased depressive symptoms, cognitive decline, and mortality risk (16). Therefore, it is of utmost importance to determine the frequency of chronic pain among the elderly living independently at home (16).

The program searched for subjects in three cohorts aged 75, 80, and 85 years, and 460 subjects were arranged (17). The 75 and 80 years old subjects received visits by communal home-care department nurses and the 85 years old subjects by the nurses or by a physician from another source. Information on medications had been recorded by the nursing staff and extracted from a database, and a cross-sectional survey was conducted (18).

Chronic pain was defined based on existing chronic pain and pain intensity rated from 0 (no pain) to 10 (worst possible pain presently) on a numerical rating scale (18). Thereby, two groups of subjects were formed (19). Characteristics, health, and quality of life differences between the groups were sought (19). The results showed that chronic pain was common, and good pain relief rare among the elderly (20). Long-standing most commonly musculoskeletal or neuropathic pain decreased the quality of life (20). The information provides useful guidance for healthcare providers and educates both the elderly and their families on how to take care of chronic pain among the elderly population (21).

Mental Health Overview

Depression is a state of low mood and aversion to activity (21). It involves the whole body and mind along with behavioral, cognitive, emotional, motivational, and physical changes (22). The most common form of depression is unipolar or major depression (22). The general symptoms include fatigue, insomnia, excessive sleeping, loss of interest, chronic pain, and lethargy (21). The risk factors include personality traits, family history, genetics, drug abuse, and medical conditions (1). Depression is usually treated with a combination of counseling and antidepressants (1). Counseling helps in listening to the patient's feelings and being a supportive friend (23). Talking

through the feelings can help clarify thoughts (22). Meditation is learning to be thoughtful and allowing time to relax. Mindfulness meditation involves focusing on breath and surroundings (23). The medications that belong to SSRIs require 4–6 weeks for maximum efficacy (24). The common side effects of SSRIs include digestive disorders, weight gain, sexual dysfunction, insomnia, and anxiety (23).

Impact of Chronic Pain on Mental Health

Chronic pain can affect any part of the body; the most common parts are the neck, lower back, and knees and other joints in the extremities (24). Chronic pain is often associated with a reduction in mental health-related quality of life (24). Anxiety, depression, somatic symptoms, and suicidal ideation are more common and prevalent among persons with chronic pain in general (25). Elderly persons face many transitions that can lead to an increased prevalence of chronic pain; it was hypothesized that chronic pain would be more prevalent among older persons (25). Chronic pain was even thought to be more common for persons aged > 65 years than for those of working age (26). This population-based study showed that in a random sample of persons aged > 65 years, 39% of persons experienced chronic pain in the past month (26). Chronic pain was most often due to musculoskeletal pain, typically back pain and osteo-arthritic pain (26). Nevertheless, although elderly people with chronic pain conditions also suffered from comorbidities, sadness, loneliness, tiredness, worse mobility, worry about long-term care, and fear of falling, they were as satisfied with their lives as those without pain (27).

Chronic pain was not more prevalent among elderly persons (13). Pain intensity was, however, higher among those aged > 75 years (28). Other chronic pain conditions were more common among those aged > 65 years (28). Further studies are needed on how the increasing longevity of the population will affect the prevalence of chronic pain and other characteristics of chronic pain among older persons (29). It was concluded that a lifetime of experiences, successful coping strategies, and social support could protect older persons from the development of chronic pain (30). Musculoskeletal chronic pain and its mechanisms deserve further attention (30). In elderly persons, the nature and deterrents of chronic pain need further studies (31). Chronic pain directed too much attention away from activities of daily living, which affected the everyday life of elderly persons but there would always be happiness and joy as a balance to the stresses of life (31).

Common Mental Health Disorders in the Elderly

The harsh reality is that clinicians can do little when faced with the victim of a stroke (32). There are very few drugs and most patients are older (32). Alongside this inertia and helplessness, a tremendous sense of loss characterizes the aftermath of a stroke (32). Loss of body integrity, of power, of independence, and preparation for protracted vulnerabilities often accumulate alongside care needs and unsustainable burdens on families, communities, and health care systems (33). Emotions of grief, guilt, fear, worry, and hopelessness are often accompanied by sadness and loneliness (33). For older people, the experience of multiple losses can trigger complex grief configurations or prolonged patterns of intense grieving (32). These emotions can trigger depression in those most vulnerable to it (34). Chronic illness and suffering are risk factors for depression, especially among older adults with a lifetime predisposition to it (34). Recurrent strokes, increased vulnerability to metabolic brain disorders, and profound losses of significant others increase this risk (35). Antidepressants which act on serotonin metabolism modulate emotional expression, a process that is impaired in both children and the elderly (34). They have a role in mitigating grief-related impairment and suffering through their impact on emotions (35). Similarly to post-stroke aphasia, the loss of significant others impacts emotions expressed on a non verbal mode, which risks being transposed to the verbal communication mode with an affective permissiveness acting as a filter (35). When groups of bereaved older people reminisce or pay tribute to those lost, although at times they laugh, much of the time they weep (36). This also occurs when they remember visual stimulus from memorized songs or participants on screen (36). Similar observations have been made in children who have suffered a loss (33). With acceptance, the blending of bio-psycho-social memories accommodating what cannot and can be undone alters self-perception in such a manner as to enable new bonds to be established as gate keepers of the lived past (37). The experience of speaking to, or writing on behalf of, and feeling the presence of a loved one in day to day activities dissipates the "familiar strangness"' inflecting a disarray which accounts for someone's absence (37). Philanthropy and devotion to the cause of the deceased may blossom, a bittersweet process which preserves those one has loved whilst relinquishing the despair, sense of betrayal, and anger which hurts through life (37).

Anxiety Disorders

Anxiety is a normal and adaptive response to stress that can help motivate individuals to cope with stressors (38). However, when anxiety symptoms become persistent and disproportionate to a stressful event, individuals may begin to experience an anxiety disorder that has a significant impact on their cognitive, emotional, and behavioral functioning (39). Anxiety disorders are a collection of psychopathological disorders that may include generalized anxiety disorder (GAD), panic disorder, phobias, obsessive-compulsive disorder, posttraumatic stress

disorder (PTSD), or a comorbidity of these disorders in its most severe cases (40). Anxiety disorders are common in the general population and have been shown to co-occur with chronic pain, especially in later life (40). Yet, despite their prevalence, anxiety disorders are often under-identified and under-diagnosed among older adults (38). Despite the serious consequences of undiagnosed anxiety disorders on individuals' well-being and health outcomes, there is limited evidence that older adults, particularly with chronic medical conditions such as heart disease, are disproportionately undertreated for anxiety disorders (39).

The epidemiology of anxiety disorders has been studied primarily among younger adults; for instance, anxiety disorders are estimated to affect 23% of the general population, and similar upper-bound estimates have been longitudinally corroborated over decades (41). However, there is limited epidemiological data on anxiety disorders among older adults, despite the fact that a majority of the risk factors for anxiety disorders remain pertinent through later life (41). When accounting for differences in study design and methodological quality, studies of community-dwelling older adults consistently report lifetime prevalence estimates of anxiety disorders between 10% and 20%, with 'current' or 12-month prevalence estimates in a range of 5–15% 99 (42). Late life onset of anxiety disorders is rare, as only 10–20% of older adult's report having experienced their first anxiety symptom after age 60 (43). Paradoxically, under-detection and under-treatment of anxiety disorders among older adults may be more consequential in this age group than among younger adults, as untreated anxiety disorders are associated with poorer health outcomes such as an increased rate of cognitive decline, and more comorbidities (43).

Depression

Many studies have addressed the mental health of chronic pain patients (44). Most studies have taken a "disease-based approach", with musculoskeletal pain and mental health as separate constructs (45). Considerable effort has been made to study their comorbidity (46). Although few have examined pain intensity, that is likely because of the complexity of measuring chronic pain (46). Pain intensity can be assessed using a variety of self-report instruments using different measures and techniques (45). This questionnaire can be utilized effectively to gather information about chronic pain levels, pain characteristics, and the associated impact on daily living activities and the psychological state of chronic pain patients (44). Through the evaluation of chronic pain intensity using the questionnaire, useful and valid conclusions can be drawn on patients' pain intensity and their psychological and quality of life status compared to normative data (47).

Elderly people participating in a variety of social activities were significantly less depressed, more mentally healthy, and had lower levels of comorbid conditions than respondents who did not engage in various activities (47). Simply talking on the telephone or going to the coffee shop with friends can reduce chances of anxiety and depression. Surprisingly, having young children was correlated positively with depressive symptoms and comorbid conditions (48). Most respondents having children at that young age experienced certain distress and unhappiness, which has altered their psycho-emotional state (48). Early age marriages among adults with lower socioeconomic status and education as well as limited access to modern means of birth control were the main contributing factors (49).

Cognitive Impairment

Pain is a complex perceptual and subjective experience that has sensory, affective and cognitive dimensions (2). The perception of pain, together with its neural correlates, is largely unknown in dementia patients (3). Chronic pain is one of the most prevalent health problems among elderly individuals (4). Population studies have documented high rates of chronic pain in community dwelling elderly individuals, assisted living residents and nursing home residents (11). With advancing age, chronic pain occurs more frequently and is associated with comorbidities (11). There is no empirical evidence that people with dementia experience less pain (50). Studies in different settings, such as long-term care facilities and control community settings, have suggested that dementia patients experience pain as all individuals do (51). Moreover, in patients with severe cognitive impairment the progression of cognitive decline dramatically affects the ability to verbalize the presence of pain (51). The difficulty in the specific conversation could be interpreted as absence of pain (e.g. passive behavior) (50). However, patients gradually becoming more withdrawn, less socially connected and less communicative may indicate the presence of uncontrolled pain, especially if the ability to verbalize pain did not change (52). The prevailing current view is that the cognitive impairment arising from Alzheimer's disease extends to the previously intact mechanisms underlying the evaluation of estimated duration of pain (53).

Physiological Factors

There are many physiological aspects of many organs that can directly impact or predispose to chronic pain (54). Pain perception starts at transduction of nociception in peripheral receptors, which are found throughout the body (54). Peripheral changes occur in the skin, musculature, viscera, spine, and others that result in peripheral sensitization and actual structural change to a painful area (55). Pro-nociceptive mechanisms, such as an increase

in inflammatory cells, histamine, prostaglandins, and serotonin, sensitize nociceptors and perpetuate the pain (55). As pain persists, there are changes in the central neural axis that can also lead to chronic pain (56). The abiding nociceptive input from an acute injury retools the spinal cord and brain to amplify nociceptive signals and decrease anti-nociceptive input (56). This is manifested by changes in gene and protein expression in areas such as the dorsal root ganglia, spinal cord, thalamus, periaqueductal gray, insula, and anterior cingulate cortex (57). In addition, with pain chronicity, other brain regions may change again, leading to more widespread and colocalized pain networks as structural and functional changes that can be seen with functional neuroimaging techniques (58). Drugs targeting both peripheral and central components of physiological mechanisms address these biological aspects of chronic pain (58).

Psychological Factors

Chronic pain is a common public health problem, which has a detrimental impact on individuals' health and quality of life (59). It is defined as pain that persists or recurs for more than 3 months, according to the International Classification of Diseases (60). Chronic pain is a burden to society since it has a direct impact on individual productivity and mental health (61). It may also have social consequences, like increasing social service costs and a decrease in the quality of life, especially in older adults (61). The burden and prevalence are high at the societal level, and it is the most frequent cause of disability worldwide (61). According to many studies, the prevalence of chronic pain in older adult's ranges from 27–86% (62). Identifying risk factors associated with chronic pain in geriatric outpatients through comprehensive geriatric assessment and related methods may help to reduce chronic pain (62).

Social Factors

Chronic pain is a public health problem, representing a leading cause of disability among the general population, especially the elderly (24). In the elderly, chronic pain has a higher prevalence, which is often coexistent with a variety of other medical and psychiatric illnesses (13). Chronic pain has diverse etiologies such as neoplastic diseases and post-operative pain in addition to degenerative conditions such as osteoarthritis and spinal stenosis (62). Hence the management of chronic pain in the elderly should be multifaceted addressing the various biomedical, psychological and social aspects of chronic pain (31). Biopsychosocial models can be utilized to classify the various aspects of chronic pain (42). Screening for psychosocial aspects of chronic pain including mental health variables such as depression and anxiety, emotional support systems, psychobehavioral factors, social/familial support systems, and satisfaction with social support systems is essential (63).

Assessment Tools for Chronic Pain and Mental Health

If chronic pain is suspected or has been confirmed in an older person, a more detailed assessment should take place, ideally using a self-report instrument (64). A single item verbal (or visual) numerical rating scale (NRS) can be initially helpful (64). When managing pain and planning interventions, it is important to know the characteristics of the pain (onset, duration, location, quality and history), the factors associated with the pain (exacerbating or relieving factors, aggravating conditions, associated symptoms, previous treatments tried and their effect), and how the pain affects the person's function and quality of life (65). In addition, psychosocial factors contributing to pain should be evaluated (65). These could include social isolation, caregiver stress, depression, anxiety or fear-avoidance beliefs (64). Further assessment may then involve the use of questionnaires that clinically quantify the characteristics of the pain for more formal pain assessment (66).

Screening Instruments

Despite the importance of assessment, the inconsistency with which it is performed in practice settings is disappointing given the evidence base that exists for documentation and management (64). Pain is rarely assessed using any structured tool and, when it is, relies upon self-report or indirect evidence for pain behavior (67). Additionally, the validated tools that do exist may not be routinely used by staff (67). Ad-hoc assessment using non-validated tools is common (68). In particular, staff seem to regard the 1–10 Numerical Rating Scale as too complex a tool for use in cognitively impaired individuals, despite the fact that it requires both less effort and time than a detailed verbal assessment (69). The presence of co-morbidity necessitates a standardised multi-disciplinary approach to assessment but such approaches remain in the minority (70). Judging by the hypothetical scenarios posed in the present study, there is a need to examine routine documentation and, in particular, note the degree to which assessment is recorded in relation to management plans and written prescriptions for pharmacological agents (70).

Cognitive Behavioral Therapy

Cognitive behavioral therapy (CBT) for chronic pain can help patients improve depression and anxiety (70). The purpose of the CBT program in Japan was to observe the improvement of chronic pain syndrome, its

associated mental problems, and quality of life after therapy (71). CBT was conducted by trained psychologists. Each subject received 10 sessions of 40–50 minutes each, throughout 14 weeks (2 sessions in the first week and 1 session weekly thereafter) (71). Subjects were then followed up. Significant improvement was seen in pain intensity, depression, and anxiety scores. Improvements were maintained at 6 months after therapy (72). Although the results were five months after the end of the structured program and no significant systematic improvement was seen in quality of life, these findings are useful to help improve chronic pain and the associated mental problems (72).

Family Involvement

Despite growing interest in the factors associated with the risk for and experience of pre and post surgical anxiety, there has been limited empirical research on the family aspects of patients' health care anxiety (73). New data are presented as part of a broader survey conducted in general practice settings in England (74). The aim of the present study is twofold: to present a quality of life (QoL) measure of family involvement (FI), associated with health and well-being, and to utilize this measure to contrast relevant views of anxious patient respondents with those of matched respondents of non-anxious patients (75).

Community Resources

Older adults frequently experience chronic pain along with physical, functional, and activity limitations (76). The prevalence of joint pain in the population aged 60 and older is 59%, which can impact quality of life (77). These statistics have led to an emphasis on the need for higher quality care for this population (76). Research has shown that self-management strategies can increase health perceptions, and reduce functional deficits, while encouraging better engagement and health-related quality of life (78). Unfortunately, some options to manage chronic pain may be stigmatized and thus underutilized (78). Research interest regarding chronic pain in older adults is growing, but many older individuals do not react to studies regarding pain because of a stifled interest in participation (79). These patterns question the efficacy in following intervention strategies (79).

FUTURE DIRECTIONS IN RESEARCH

Chronic pain is one of the most common and serious conditions in older adults. Because chronic pain is a multi-dimensional experience, research efforts in this area have been broad-ranging, examining the prevalence, risk factors, comorbidities, assessment, treatment, and mechanisms, and although there is still a great deal of work that is needed in these areas, a significant amount of this knowledge has been acquired in the last two decades (80). Furthermore, it is becoming clear that the complexity of this condition warrants taking a biopsychosocial approach to the study and management of chronic pain (80). Such an approach takes into account the wide range of biological, psychological, and social factors that contribute to the onset and persistence of chronic pain, its comorbidities, and its consequences in terms of psychiatric suffering and disability (81). It also recognizes that different factors take on different weights at different points in the sickness trajectory (81).

CONCLUSION

Chronic pain and mental illness both are a part of modern society and have an ever-increasing burden (82). The link between these two disorders can be traced back at least to 1920 (82). The disabilities caused by chronic pain and mental disorders can be debilitating, life-altering, and even life-ending, not to mention extremely economically expensive for countries and systems as a whole. It is important to identify mechanisms by which we can help those in need (83). They are deserving of care and patients with these disorders should not be embarrassed or ashamed to seek help getting on their pathway to flourishing and living meaningful lives (84).

Chronic pain is a common yet increasingly misunderstood disorder among older adults (85). Much of society has a lack of understanding for chronic pain, chronic pain disorders, and the persistent repercussions of these types of ailments (86). Until more is understood about chronic pain, as well as a likely myriad of other facets of medicine, society will continue to run into the same pitfalls and mistakes regarding these debilitating and life-altering issues (87). Pain is inevitable and can be a potent mechanism for behavior change. However, persistent pain does not serve the original purpose of acute pain and can destroy the meaning in life unequivocally (87). Other patients may only have one or a few severe injuries but with resilience will go on to live long lives with abundant meaning (88). There exists an intricate complex web of physiological, psychological, and other factors that come into play regarding a patient's perception of injury and chronic pain disorder (89). To even begin to understand chronic pain, the aforementioned variables will first need to be elucidated through investigation (89).

Many neurologic syndromes are both debilitating and poorly understood. Neuropathic pain is acknowledged as one such disorder (90). The most debilitating neurologic disorder linked with chronic pain is perhaps Fibromyalgia

(FM) (91). The core symptom of FM is global body aching and tenderness widely upon light palpation (91). Associated symptoms with FM and findings such as shallow sleep due to myoclonus, dysautonomic findings, and a distinct profile of daily activity (post-exertional malaise) are diagnostic points (92). Fortunately, many advances are being made in better understanding FM (93). The goal of this medical need and model is to systematically review the decisions and strategies currently being used analyzing FM pathophysiology (93). Types of decisions include IC-validating questionnaires, clinical trials and their drawbacks, neuroimaging, biological biomarkers, and treatment options (94). Considering patient righteous efforts to ameliorate their disease, research is very scarce and often poor quality. Efforts to greatly increase understanding of FM and ameliorate the lives of patients is pertinent (95).

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