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A Review of Mindfulness and its Potential Supplementary Benefits for Enhancing Recovery in Older Community-Dwelling Mentally Alert Post Hip Fracture Surgical Patients

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Abstract

Among the many adverse and commonly devastating health outcomes faced by many community dwelling older adults and others are hip fracture injuries, which are well documented to impose immense and prolonged psychological as well as immense physical challenges to the aging individual, despite great improvements in surgical care and rehabilitation practices. However, while physical strategies to promote post surgical hip fracture recovery are quite well studied, and of considerable import, psychological interventions that might be of allied benefit are surprisingly quite limited, as well as non conclusive. This current general review aimed to examine the key documented ongoing health challenges and attributes observed post hip fracture by adults returning to the community setting after surgery, as well as the possible need for more psychological oriented interventions to minimize these often times persistent and disabling stresses. The review focused on what is evidenced in the context of older adults and hip fracture outcomes, and whether mindfulness intervention approaches in this regard would be helpful. Using data largely located in **PUBMED** over the time periods 2017 – 2021 it appears plausible to propose that persistent participation in one or more mindfulness approaches may prove helpful in cases that do not fully return to function after six months, but have no overt cognitive challenges. That is, regardless of the lack of current evidence, researchers who follow this line of inquiry are likely to find this largely overlooked intervention opportunity quite promising for alleviating the extent of this enormous ongoing and anticipated future public health burden.

Keywords: *aging, hip fractures, mindfulness, quality of life, pain, psychological health, rehabilitation*.

Introduction

Hip fractures, especially those attributable to frailty among adults 65 years of age or older, are of increasing concern, given their projected rates of prevalence, which are expected to increase exponentially in all parts of the world by 2050 [1-3]. Unfortunately, despite the multiple and considerable challenges associated with hip fracture injuries as summarized in Box 1, and in spite of decades of related research, and modern surgical approaches, there is as yet, no well validated approach that can effectively minimize the multiple psychological distresses and negative emotional responses that commonly prevail post hip fracture and that must clearly impede optimal recovery, as well as predispose to further fractures and/or poor health [2, 4]. Moreover, even though more than 20% hip fracture cases fail to survive, and many others are forced to enter residential care contexts, psychological correlates of suboptimal recovery among those who survive surgery are rarely discussed explicitly [eg.,2],

even though in the absence of medications that can safely minimize distress in the elderly, due to their associated potential for increasing the risk for falls, second fractures, dizziness, sleeplessness, or gastric conditions, plus immune system deficiencies in the face of ongoing unrelieved pain and stress, more effort to prevent or minimize excess distress, especially strategies that can ameliorate pain experienced by many of these adults is clearly warranted [4, 5]. Many may also have been on antidepressant medications as well as opioids prior to their injury-that is not always accounted for in reports examining post operative outcomes and interventions.

While many interventions have been examined as well as proposed to ameliorate one or more of the aforementioned hip fracture correlates, this mini review elected to specifically examine whether one or more mental and/or physical health correlates listed in Box 1 would be further mitigated to some degree by the supplementary and regular practice of one or more forms of mindfulness in some way.

The reason for this is that immediate recovery post hip fracture surgery is unlikely, and it appears to commonly take up to six months to attain maximal recovery status, albeit a longer period in the presence of factors such as depression [6]. It is possible however, that more targeted efforts to acknowledge hip fractures may lead to a form of traumatic stress disorder [7], and to specifically target and harness and heighten health affirming cognitions that can promote psychological resilience, cannot only mitigate prolonged feelings of vulnerability, despondency, sadness, distress, and gloominess, plus a sense of multiple personal worth losses and dependencies from the outset [4, 7, 8], but will potentially yield a more speedy and fuller less painful recovery of physical function at least for some, especially among those who feel they are not progressing or likely to improve in the future, and further recovery does not readily ensue [8, 9]. Also, even if access to care after six months is available, many hip fracture cases may be challenged to leave their residence, and not all desire home visits or counselling or have funds for this, especially post COVID 19. Technology based approaches that prevail are also not likely to be favoured by all, practical or accessible. As well, educational materials that produce generic recommendations, and that focus largely on mobility, and increasing exercise participation, may not be suitable for all or address emotional aspects that unfold over time as the promise of recovery diminishes, which is likely to be common among a high percentage of hip fracture cases returning to the community after surgery, as many are found to have pre existing health challenges as well as post surgical anxieties. Moreover, in the absence of specific strategies targeted at reducing emotional based reactionary distresses that can impede or hamper recovery processes, those who do not progress even with home health care delivery and services may feel especially despondent. As well, those who receive initial favourable therapeutic benefits who may not be eligible for long-term care in the home with progressive therapy approaches, as well as those who may not want to leave their homes or are unable to, may not improve optimally if they have no tangible understanding of how their overall wellbeing can be fostered by applying some possible practical, and proven cost-effective cognitive based self-care approaches.

On the other hand, the persistence of erroneous appraisals and negative cognitions, plus ruminative thoughts that can readily ensue post injury and surgery, can lead to prolonged states of reactivity and negativity that may greatly hamper the attainment of an optimal recovery state, while provoking a heightened perception of their many functional difficulties, rather than possible adaptations that can still prove life affirming if ignored. In addition, the will to pursue or manage their condition, as well as undertake novel tasks may be especially and markedly impacted. This potential situation of unrelieved stress may not only delay full recovery, but may be expected to exacerbate prevailing chronic health symptoms, sleep and immune system functioning, while heightening a situation for future falls and second or third hip fractures.

In this sense, a growing body of research shows mindfulness meditation techniques that can be taught, or applied in the home or other venues, may help to shift cognitive appraisals from one of a threat to one of a challenge, while decreasing ruminative

thoughts, and reducing stress arousal. Mindfulness based approaches may also directly increase positive arousal states [10]. In addition, the specific application of meditative movements may improve other psychological health domains such as depression, fear of falling and sleep quality in older adults [11], along with health related quality of life and psychological function in those persons suffering from chronic pain [12].

Mindfulness practices also appear to have a positive effect especially on attention, memory, and cognitive flexibility [13], as well as increasing awareness, self-reflection and more self-accepting attitudes [14]. Furthermore, they can help improve self-care habits and appear efficacious for intervening upon multiple musculoskeletal health conditions [15], including the possibility of the likelihood of falling through mindful attention to optimizing eyesight, stairs and bathtub usage [16].

Importantly, mindfulness applications may provide an appropriate non-pharmacological intervention approach aimed at the prevention of cognitive decline in the elderly. According to a 2014 report by Marciniak et [13]. Employed readily in the home environment to problem solve, set goals, and reduce the magnitude of any pain experience that is a great mobility impairment determinant as well as an indicator of future hip fractures and further disability post hip fracture [17], this brief sought evidence to support:

1. The need for novel methods of reducing post-operative morbidity and possibly mortality rates among older adults discharged to their home environments and who have minimal cognitive challenges.
2. The possible application of psychologically oriented mindfulness strategies, including, but not limited to imagery, visualization, deep breathing and relaxation, acceptance and gratitude thoughts, autosuggestion, music therapy, yoga, qigong and others, as a supplementary therapeutic approach, in the armament to attain maximal post surgical recovery,

Methodology

To support the need for more effective post hip fracture surgery approaches, especially the application of mindfulness as a possible beneficial and practical low cost form of therapy for older adults who are deemed to have few cognitive challenges, data for this strictly narrative topic overview were sought and downloaded largely from those available on the **PUBMED, Google Scholar, and PubMed Central** electronic data sources. While not inclusive of all data bases, nor inclusive of all published studies on this broad topic, it was accepted that these large repositories of medical related research journals would offer salient high quality relevant information. The years searched ranged from January 1, 1980-October 15, 2021 with a focus on those published between 2017 and 2021 wherein the key words included: hip fractures, quality of life, mindfulness, older adults, and others listed below in Table 1 and as selected by the author. All potential articles were first carefully scanned for relevance, and excluded if they were proposals for study, or did not focus on hip fractures and their surgical outcomes in the community. Because this review sought to make a strong case for mindfulness in some format in the context of home based after care for older adults who have sustained a primary hip fracture, nursing home or community based studies were largely excluded. However, even though an attempt was made to access a variety of associated empirical studies related to the present topic and that employed a randomized controlled trial design, rather than any other design, this was not consistently possible even though all forms of mindfulness were deemed acceptable, as were all forms of hip fracture and hip fracture surgery, fracture mechanisms, modes of research, and geographic locations. Omitted were articles referring to patients suffering cognitive challenges, falls related studies, and community based, as opposed to home-based intervention studies. After examining the key themes that could be described, those that were of general interest were categorized and described separately from those recounting research findings.

Results

General Findings

Despite a diligent search for materials related to the present topics, especially a concerted effort to obtain resources dealing with the possible need as well as the utility of psychologically oriented approaches in the context of securing optimal hip fracture surgery outcomes, the most common strategy used today for purposes of intervening on most hip fracture injuries, search results from **PUBMED** January 1, 1980-October 1 2021, deemed to represent the content of the other key data bases examined showed a decided absence of such articles when compared to those examined in general, as well as in the physical realm [Table 1]. This paucity of research into the parallel treatment of emotional issues post hip fracture surgery was evident even though a strong case can be made for the interactive attributes of multiple physical and emotional correlates of disability reported for many home bound hip fracture surgery survivors [Box 1] and a treatment goal focused on the importance of protection and reducing mortality and mortality rates.

Table1. *Summary of Relative Numbers of Articles on Various Themes as Located In PUBMED, January 1 1980-October 10, 2021 Showing Low Numbers of Articles Focusing on Psychological Aspects of Hip Surgery Recovery and Rehabilitation Approaches, including Mindfulness.*

Key word applied	Number of citations listed
HIP FRACTURES	41, 450
Hip fractures and emotional distress	21
Hip fractures and psychological consequences	25
Hip fractures and anxiety	135
Hip fractures and physical disability	439
Hip fractures and depression	456
Hip fractures and quality of life	1,728
Hip fractures and pain	4,039
Hip fracture rehabilitation	5,342
Hip fracture surgery	28,334
MINDFULNESS	20,963
Mindfulness and fear of falling	7
Mindfulness and pain	1,506
Mindfulness and quality of life	1,928
Mindfulness and anxiety	2,962
Mindfulness and depression	3,440
Mindfulness and older adult**s**	4,547
HIP FRACTURES AND MINDFULNESS	**7**
HIP FRACTURES AND EXERCISE	1660

Box1. *Selected Problems Commonly Faced by Older Adults Returning to the Community Post Hip Fracture Surgery That May Persist For More Than Two Years [*=factors that increase mobility limitation; ** =factors that could be exacerbated as a result of psychological issues] [Source: Author]*

Physical health correlates
- Pain**
- Frailty*
- Muscle weakness**
- Increased risk for falling**
- Limited joint flexibility and increased joint stiffness**
- Limited mobility and functional task difficulties**
- Poor bone health*
- Poor endurance capacity**
- Reduced balance capacity*
- Walking difficulties, need for assistive, mobility devices*

Mental health correlates
- Stress**, fatigue, and lack of energy
- Sleep disturbances**
- Depression and anxiety**
- Fear of falling**
- Feelings of vulnerability and gloominess**
- Lack of confidence in prevailing abilities to function, control pain**
- Feelings of helplessness**
- Opioid dependency

Social health correlates
- Reduced ability to work**
- Social isolation**
- Reduced ability to enjoy recreational activities

Other

Loss of independence
Increased risk comorbid health symptoms'management challenges**
Financial losses
Nutrition, self-care challenges
Paranoia**
Possible resurgence or persistent alcohol abuse**

In sum, although many articles pertaining to hip fractures discuss associated declines in life quality among survivors, comparatively few studies focus on psychological correlates of hip fracture surgery, when compared to exercise, for example. As well, among the possible related studies highlighted on **PUBMED,** as well as the other data bases reviewed, very few discussed mindfulness based approaches in the realm of hip fracture surgical recovery processes, even though the topic is quite well researched in the realm of older adults wellbeing and other health challenges, as shown. As well, a review of most studies pertaining to the importance of psychological health correlates among hip fracture surgical patients living in the community, mostly referred to what should be done in terms of enhancing this focus of endeavor, but did not study the idea directly. As a result, few revealed practice based results or guidance for this, although the need was reinforced quite consistently in the current effort by some interested in extending current largely physically oriented rehabilitation strategies to include psychological inputs that might greatly allay suffering,

and render more favorable as well as profound hip fracture recovery outcomes.

In this regard, ample data on mindfulness based approaches consistently show that even at its most basic level, one or more of these practices has the potential to help foster a more relaxed mind, a calmer spirit, and flexible body, along with improvements in self-image that may be very helpful in terms of reducing the immense stress associated with painful disabling hip fractures. Mindfulness is also found to be a possible approach for countering possible negative changes in self-worth, value to others, and self-esteem that may prevail post hip fracture recovery. In addition, multiple co-existing chronic health conditions may be impacted positively, as may immune responses, self-efficacy for falls prevention, self-care ability and motivation, adaptability, and overall life quality.

Research Findings

Hip Fractures

Numerous authors recount the unfortunate fact that not only are hip fracture rates tending to increase, especially among the frail elderly, and those in the higher age ranges, but the indisputable fact is that for over 25 years, most available studies have shown poor outcomes as far as mobility and independence goes for the older surviving hip fracture injured individual returning to the community, with many functional mobility challenges that persist or worsen over time, despite years of endeavor. However, even though the reasons for this appear to be poorly studied and hence discussed in the evidence based literature, data clearly reveal that while the physical attributes and outcomes of hip fractures are well studied, less attention has been paid to the overall impact of hip fractures on aspects of psychological health that can be shown to markedly impact both walking ability [6], as well as the life quality for a prolonged period [18]. In this regard, Alexiou et al. [1] who conducted a systematic electronic search of the relevant literature up to January 2017 showed that the majority of elderly hip fracture cases who participated in studies to uncover their disposition and beliefs post surgery, indicated that sustaining a hip fracture seriously affected their physical and mental functioning, as well as exerting a severe impact on their health status and quality of life. Moreover, most did not return to pre-fracture levels of performance regarding these parameters. It was concluded that among those older adults who survive a hip fracture injury and surgery, the presence of persistent psychosocial factors and symptoms of depression, among others, can clearly heighten the presence of pain and its severity as well as the individual's ability to function physically and independently. As well, Pfeiffer et al. [19] who focused on the attribute of fear of falling and fall-related self-efficacy in the context of hip fracture injuries indicated that this determinant of falls is a frequent consequence of hip fractures that may demand specific attention in efforts to maximize hip fracture recovery and avert further injury, as supported by Voshaar et al [20].

Other negative emotional effects that can occur following a hip fracture, include pain, and anxiety [21], as well as fear of falling that often lead to functional disabilities and increased dependence on others [19, 20, 22]. Ziden et al. [23] further recorded increases in feelings of insecurity and life restrictions, sadness, and disappointment. While some respondents felt more positive, in either case, it appeared that the individual's thoughts could play a key albeit unrecognized determining role in mediating the extent and pace of their recovery and overall health outcomes.

Indeed, qualitative research approaches and others clearly convey the extent to which many older previously independent hip fracture survivors may not only experience interruptions in their daily lives, but may experience this for a lengthy post operative period, even among healthy persons. In this regard, more than 20% of cases who return home can be expected to experience prolonged depression or depressed mood [24], thus the absence of adequate or timely and tailored psychological assessments and support, an area of intervention often neglected [18, 24], may be one of the reasons for a patient's prolonged dependency, or the finding of no added benefit of geriatric interdisciplinary home based rehabilitation approaches on complications and hospital readmissions [25]. Peeters et al. [26] observed

that even though health status and life quality recovered in the first 6 months after fracture for most patients, not all returned to their pre-fracture health status. Their mental state, pre-fracture functioning on physical and psychosocial domains, comorbidity, and degree of postoperative pain were among those factors associated with the health status outcomes and life quality.

In this regard, Pol et al. [27] assert that physical and psychological restrictions that are common consequences of hip fractures among older adults may indeed lead to a very slow recovery process, especially in the absence of successful experiences during recovery. This suggested that what patients themselves do or perceive may predict the extent of recovery from hip fracture surgery to some degree. Additionally, coaching that provides emotional support, and that boosts self-confidence in performing everyday activities can be expected to encourage, rather than discourage, older adults to become more active and engaged in the recovery process. This finding suggested that more attention should be paid to follow-up interventions after discharge from inpatient rehabilitation to support older adults in finding new routines within the confines of their everyday needs, as well as new ways of thinking about their situation, along with cognitive strategies to avert excess stress, and depression, plus possible falls risk [28].

Ziden et al. [29] who studied hip fractures as a life-breaking event among 18 community dwelling elderly people post hip fracture using the phenomenographic method found reports of being limited in movement, having feelings of lost confidence in the body, but at the same time the possibility of becoming humble and grateful, respecting oneself and one's own needs, becoming more independent of others, and retaining their zest for life, and taking one day at a time were possible key alternate attributes to consider. That is, while the fracture seemed not only to break the bone but also to cause social and existential cracks, pursuing the struggle to count their blessings for some considerable time after sustaining this form of injury may be expected to yield quite profound results [4], and reduce common feelings of being vulnerable, dependent and dislocated from a normal life where the loss of mobility and the impact of age may prove to be life breaking events. Alternately, as discussed by Ramponi et al. [30] and Goto et al. [31] a failure to consider all pathways of possible benefit to the patient's recovery, is predicted to significantly heighten morbidity and mortality rates, as well as pain, and bone weakness. In turn, fatigue and pain which may persist post hip fracture may limit the extent of independent mobility and participation in ongoing physical therapies and self-care [32], even if ongoing home-based physical therapy is somewhat helpful [33].

Mindfulness

Consistent with Orem's self-care model of intervention that can be applied to hip fracture cases successfully [34], mind-body approaches where the mind predominates and includes multiple forms of non judgmental thoughts or focused attention [35] using multiple diverse intervention approaches may help to avert excess distress, while heightening agency and self-control. It may also foster calm and acceptance of their situation through the medium of prayer, meditation, hypnotherapy, biofeedback, auto suggestion, meaning based coping, and guided imagery. Found to relieve pain in a non narcotic manner [35] and restore function, its mechanisms of action is premised on the understanding that cognitive as well as body structures and function are interrelated. Moreover, it assumes, the body possesses self-regulatory mechanisms that can promote healing and defend and repair itself under conditions of calmness.[36].

Hsu et al. [37] who aimed to provide pain associated post-operative guidelines for acute musculoskeletal injuries such as a hip fracture implied a salient role among others for psychosocial and cognitive interventions, especially among those dependent on opioids. For those with prolonged depression, mindfulness meditation may also be expected to heighten life quality, as well as acceptance of one's situation [38], plus stress [35]. Mindfulness practices may also help improve resilience [39] and cognitions,

in general [35], and may further prove to be especially helpful for fostering emotional regulation and cognitive control [35], while reducing stress [40], as well as fatigue, pain, anxiety, and depression [35, 40, 41].

Xu et al. [34] advocate applying Orem's self-care model to those recovering from a hip fracture in order to mobilize their enthusiasm, explore their self-care potential, and maximize their self-care ability. They found this approach enabled the patients to correctly understand their situation and to master relevant self-care knowledge, so as to reduce the occurrence of complications and improve hip function and postoperative mobility, which is a prognostic mediator between cognitions and functional outcomes [42]. Also, this group recounted they made a concerted effort to enhance the patients' confidence, which appeared to enable them to correctly accept permanent changes in their internal and external environments, and this improved their overall life quality perceptions. At the same time, it enhanced the communication and understanding between medical staff and patients and promoted the harmonious development of this key relationship. These results specifically showed that designing and implementing a training program based on Orem's theory can be effective in satisfying patients' requirements and improving their life quality, and mindfulness approaches may provide key ways of achieving the desired self-care goals and optimal outcomes in this regard.

In short mindfulness, a method of self-action that has shown benefits in various cognitive realms associated with possible delayed recovery in hip fracture clients and derived mainly from Eastern-based philosophical traditions, involves a spectrum of mindfulness-related concepts that appear to heighten awareness and neutral thoughts if practiced according to standard recommendations. Effective in reducing chronic pain, depression, and life quality, and stress [43], this form of intervention is consequently being used in the context of numerous physical health conditions at the current time, but not to our knowledge in the many hip fracture trials listed in the key data bases [44].

Discussion

Hip fractures continue to have a substantial impact on older peoples' medium- to longer-term abilities, function, quality of life and accommodation following hip fracture surgery and a return to the community [45-47]. As such, ample research shows that even if the surgery to repair the fracture was successful, this group of patients may experience rapid and marked physical and mental functioning declines, as well as a severe impact on their mental health status and life quality perceptions [1] even if they were previously healthy and functional, and these elements may persist for protracted periods [48]. Among these adverse postoperative complications that may prevail are varying degrees of psychological correlates, such as emotional distress, anxiety, increases in pain and prior or incident or reactive depression, fear of falling, plus depression [49]. Another emergent issue might be an increased need for opioids [50, 51].

However, not only may mental health issues produce delays in functional recovery, but may hasten declines in overall health status if not be addressed or considered as important supportive programmatic efforts [52]. Moreover, a failure to examine and analyze the possible causes of the injury that might need to be rectified or mitigated, such as depression [53, 54], fatigue [55], and/or chronic pain and excess tramadol use [51] may prove highly detrimental, as may exercises that individuals with hip fractures are commonly asked to follow at home if too painful, unsupervised or done incorrectly. In addition to disrupting healing processes inadvertently, especially in the frail patient, a lack of ability to attend to the environment may predispose to falls, peri-prosthetic or a second hip fracture at the injury site with further disabling consequences [56]. As well, many older adults may have challenges in this realm if they are asked to apply pain relieving modalities rather than exercise such as transcutaneous nerve stimulation [57] or have to rely on medications that cloud concentration or promote dizziness to alleviate pain.

On the other hand, psychological approaches that can be done safely without equipment, both indoors, as well as outdoors, and independently of a gym or trainer, if required, would appear highly advantageous to

consider in the context of fostering reducing pain and supporting optimal hip fracture recovery, including a high life quality and functional capacity plus a lower dependency on social support as well as opioids or other narcotics for cases who previously exhibited the ability to live independently [58].

For example, using acceptance approaches as a mindful way of responding to their postsurgical pain may empower hip surgery survivors to feel they can interrupt the negative cycle of pain, distress, behavioral avoidance and escalating opioid needs that can limit functioning and quality of life while paradoxically amplifying risk of a second fracture [51] as well as an increased mortality risk [59, 60].

In this regard, and among a host of possible psychological strategies, mindfulness based strategies were specifically chosen for consideration because they appear to provide a well-established system of practices developed over the span of many years with a high safety profile and considerable favourable outcomes, and can be done regardless of economic, social and health status, type of hip fracture surgery, in general. The use of this approach in combination with efforts to encourage movement may prove more helpful than the singular stress often placed on the fearful pain ridden hip fracture older patient to move, especially if adherence to exercise is likely to be of significant benefit.

While acknowledging the benefits and importance of exercise, patients interviewed by Schiller et al. [49] explicitly emphasized the importance of remaining positive while going through the gradual process of recovery from hip fracture. As well, preserving a "good attitude" was seen as contributing to a positive recovery experience and participants explicitly emphasized the importance of remaining positive and patient while going through the gradual process of recovery from hip fracture. Preserving a "good attitude" was seen as contributing to a positive recovery experience and was often attributed to personal life experiences or general personal character, an attitude that can possibly be taught and practiced actively and accordingly.

According to Griffiths et al. [61] the extent of the hip fracture patient's perceptions about their ability to adapt to their reduced mobility state after fracture, and whether or not patients perceive themselves to be declining or not in light of their age are possible important recovery mediators, among others. Bruun-Olsen et al. [4] further stressed that being in recovery after hip fracture, which is often experienced as a life breaking event wherein patients may not only suffer mobility challenges, but may also suffer from depression as well as anxiety, indicates a need to carefully consider the importance of assessing the degree to which cognitive issues may impede recovery in an individual situation, followed by any desirable individualized treatment plan as required through each stage of the recovery process, even though Burns et al. [54] found intervening on preventing or treating depression in the case of hip fracture patients, no better than standard intervention approaches.

However, mindfulness is one path that has not been explored despite its possible implications for fostering self-care ability, mobilizing subjective initiative and patient active participation, and promoting patients to take responsibility for their self-care. Moreover, its thoughtful application may not only enhance recovery, it may reduce the changes of future hospitalizations and excess debility, it may potentially reduce feelings of isolation and loneliness, while allaying excess stress, and inflammatory gene expression reactions that are high risk elements of overall aging [62, 63]. It is also a cost-effective practice, an actionable practice, and a realistic potentially efficacious practice requiring minimal time and expertise.

Indeed, although we recognize this report is based on selected key words, selected data bases, and a basic limited qualitative analysis and may not be all inclusive or sufficiently grounded in a robust data base, it is a promising area to consider in efforts to improve the 25 year old lack of progress in hip fracture outcomes, while their projected prevalence in more frail older adults is rising.

To fill the apparent current void of empirical support in this realm and offer aging hip fracture cases living independently more hope than despair, more research that embraces hip fracture psychological attributes and their pathogenic importance and possible

supplementary mediation by mindfulness approaches as applied during often very protracted hip fracture recovery periods and outcomes may prove crucial and is strongly encouraged [63-67].

Conclusions

A comprehensive search of the literature dating back to 1980 has shown:

There are potentially immense psychological correlates of disability being experienced by many hip fracture surgical candidates returning to the community who continue to face many physical as well as social health challenges, even if they survive surgery, but these may be overlooked.

Clinicians involved in the rehabilitation of the elderly hip fracture surgical case returning to the community who consider the possible role of emotional distress in the context of their programmatic recommendations and offer some practical recommendations to their freely living clients in a timely and empathetic way can greatly benefit and protect their clients during their recovery.

While the multiple needs of the aging hip fracture surgical patient must be addressed and not neglected, such as nutrition, environmental safety, and exercise training, subject to further study, carefully selected mindfulness associated activities may be found to not only have a unique mechanistic effect, but to be quite helpful in terms of positively impacting hip fracture surgical recovery processes and outcomes among a sizeable number of home based mentally alert older adults for several reasons- including their potential for:

1. Alleviating pain, depression, sadness, and despair.
2. Aiding sleep quality, attention, and wellbeing.
3. Improving self-efficacy, morale, self-esteem, and self-image.
4. Reducing excess stress and its harmful effects.
5. Enhancing acceptance of their situation.
6. Reducing fears and negative thoughts.
7. Enhancing psychological resilience.
8. Improving adherence and willingness towards self-care/exercise participation.
9. Preventing a downward health spiral and unsafe situational responses.
10. Fostering ways of how to remain engaged in a meaningful life [35, 40, 41. 62, 63, 68-75]

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