



Naturopathic Management of Osteoarthritis in Old Age with Particular Reference to the Knee in the Ashaiman Municipal

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Abstract

Original Research Article

The purpose of the study was to examine the naturopathic management of Knee Osteoarthritis among the aged sixty (60) and above in the Ashaiman municipality. Cross sectional study design was adopted. Two sampling methods were used in the study. To obtain a sample for the study, simple random sampling was applied. In the case of the naturopathic centers, purposive sampling was used. Data was collected from the aged 60 and above group with Knee OA using questionnaires and interview schedules. The findings of the study revealed that, all the respondents (aged 60 and above with Knee OA) adopted the naturopathic methods in managing their condition in the Ashaiman Municipality. The major methods of naturopathy used were diet therapy and clinical nutrition, homeopathy medicine, hydrotherapy (water cure), and behavioral change plans. Among the main determinants were females, age ranged between sixty (60 and sixty-nine (69)). Age, gender, education, marital status, religion and number of lived with condition were strongly related to naturopathic use. The challenges encountered were challenge of affordability, without caregivers and few side effects. However, despite the challenges, majority of the respondents (66.7%) had their condition improved through naturopathy. The research recommends that, naturopathic professionals strengthen the level of education and awareness of naturopathic practices and remedies especially the aged with Knee OA.

Key words: Knee Osteoarthritis, Naturopathic, Ashaiman Municipality.

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GENERAL INTRODUCTION

Background to the Study

Complementary and alternative medicines (CAM) are widely used by those with pain and/or musculoskeletal problems and previous research has shown that high proportions of individuals with Osteoarthritis have used these therapies. One of the largest CAM modalities is that of naturopathy, which combines nutritional, herbal and other complementary practices to treat such conditions [1]. According to Blake and Chaitow [2] naturopathic medicine is a primary health care profession that functions to promote health, prevent, diagnose and treat disease. Moreover, the intent of a naturopathic doctor (N.D.) is to stimulate the self-healing capacities of the individual by using a number of therapeutic modalities that include botanical medicines, clinical nutrition/diet counseling, nutritional supplements, homeopathy, physical medicine (physiotherapy, hydrotherapy, manipulation) and psychologic counseling [3]. Also, naturopathic medicine is practiced as either a complement or an

alternative to conventional medicine [4]. Licensed N.D.s are considered by many people to be the most broadly trained in complementary and alternative practices and by some people to be the best prepared for integration into the mainstream health care system as a result of their education in both conventional biomedical sciences and a broad range of natural medicine modalities. Osteoarthritis of the hip or knee is particularly disabling activities because it limits ambulation, but the affliction also strikes the hands, the spine and the feet with the same destructive joint process. The end point of the OA disease process is total loss of joint cartilage in the affected area and the need for joint replacement [5].

In this review, evidence is examined in relation to those factors which prompts old age affected with osteoarthritis of the knee into utilizing naturopathy modalities in the study area and are hence the main focus of therapeutic management. Naturopathic treatment attempts to alleviate symptoms by altering these factors through dietary modification, manipulation

of dietary fats, and use of antioxidants and proteolytic enzymes. An understanding of the rationale for these treatments and evaluation of the evidence from their use in clinical settings will assist with the integration of complementary and conventional practices in the treatment of arthritis. The aim of this study was to describe naturopathic approaches for treating Osteoarthritis in the Ashaiman Municipality.

Problem Statement

Despite the availability of these conventional treatments, many patients still become disabled from OA of the knee and very often have symptoms that decrease their quality of life. Till now, there is no cure for OA, as it is extremely difficult to restore the lost cartilage [5]. The number of symptomatic Knee OA is likely to increase due to aging of the population and obesity epidemic [6].

The WHO Scientific Group on Rheumatic Diseases estimates that 10% of the world's population who are 60 years or older have significant clinical problems that can be attributed to OA. Worldwide prevalence rate of OA is 20% for men, 41% for women. According to Cross *et al.*, [7], years of life lived with disability (YLD) for hip and knee OA increased from 10.5 million in 1990 (0.42% of total DALYs) to 17.1 million in 2010 (0.69% of total DALYs). Knee is the most frequent joint affected by OA and is expected to become the fourth leading cause of disability by the year 2020 in developing countries of which Ghana is not an exception. Also, it is estimated that levels will continue to increase if OA of the knee among the aged is not controlled. The levels can be controlled if naturopathic care is incorporated into the management of the condition. This study therefore seeks to unearth some of these naturopathic approaches in managing OA of the knee among the old age in the Ashaiman Municipality.

Objectives of the Study

The main objectives of this study was to describe the different naturopathic approaches in managing Osteoarthritis, the case of knees among old age in the Ashaiman Municipal.

The Specific objectives were:

1. To determine the different naturopathic methods that are being used in managing Osteoarthritis of the Knee among old age in the Ashaiman Municipal.
2. To identify the determinants of use of naturopathic methods in managing Osteoarthritis of the knee
3. To determine the various challenges of adopting a particular naturopathic method in managing OA of the Knee among the old age in the Ashaiman Municipal.
4. To suggest ways of mitigating the challenges in adopting naturopathic methods in managing OA of

the Knee among the old age in the Ashaiman Municipal

Research Questions

1. What are the different naturopathic methods that are being used in managing Osteoarthritis of the Knee among old age in the Ashaiman Municipality?
2. What are the determinants for adopting naturopathic method among the old age affected with OA of the Knees?
3. What are the various challenges of adopting a particular naturopathic method in managing OA of the Knee among the old age in the Ashaiman Municipality?
4. How can the challenges in adopting a particular naturopathic method in managing OA of the Knee among the old age in the Ashaiman Municipality be mitigated?

Significance of the Study

OA affects quality of life extensively with increase in mood impairment, sleep disturbance, co morbid diseases, and risk for falls and substantial economic and health care burdens. The aim of treatment is to reduce pain, improve joint mobility, increase the muscle strength of the joints and minimize the disabling effects of the disease [8].

Several studies have been separately focused on effect of Yoga and Naturopathy in the treatment of Osteoarthritis of Knees. However, till now no study has been done to evaluate the effect of the Yoga, Naturopathy, Physiotherapy, Healing, along with the diet control altogether as the package of treatment for osteoarthritis of Knees. Therefore, it is felt to develop this package treatment for the benefit of elder people of 60 years of age and above who are suffering from OA of Knees to improve their health status as these modalities do not create any adverse effect, as no risk is associated with the treatment.

Scope of the Study

Geographically, the study covered one Municipal, Ashaiman Municipality situated in the East of Accra, Ghana's regional capital. The contextual scope of the study however focused on assessing the various approaches of naturopathic care adopted by the old aged affected with knee osteoarthritis in the metropolis.

It specifically examined the methods of naturopathy, benefits of using the different of naturopathy, challenges of practicing the different methods and suggested solution to the challenges mitigating the use of those methods. The study is a cross sectional survey which covered a period one year (2019-2020).

Organization of the Study

The study has been organized into five chapters. Chapter one deals with the background to the study and statement of the problem, research objectives, research questions, significance of the study, scope and organization of the study. Chapter Two of the study covered the review of theoretical principles underpinning the subject matter under consideration. With this, past works pertaining to the topic under study, definition of key concepts, conceptualization of the topic and identification of gaps in the approaches and previous literature are examined. Chapter Three focused on the methodology used to conduct the study. This specifically includes the research design, sampling procedures, data collection and data analysis. Chapter Four discusses and presents the findings of the study. Chapter Five contains the summary of findings, suggestions and recommendations that will inform policy as well as a conclusion to the study.

Limitations of the study

A limitation of the study is the systematic bias that the researcher did not or could not control and which could inappropriately affect the results [9]. The study was limited because of the following reasons assigned below: Inadequate resources could not permit the researcher to consider quite sizable number of municipalities and as well as high number of respondents that will enable the work to be highly representative.

Similarly, due to the burdensome nature of the condition, some respondents were demanding financial inducements before responding to the questions posed which hindered the study. Also, the time for the research was limited considering the broad nature of the topic itself. It is worthy of note that the concept naturopathy is broad which demands a longer period of time to study.

LITERATURE REVIEW

Brief Introduction

This chapter is centered on the theoretical foundations of naturopathy and osteoarthritis. Issues in this chapter include the explanations of relevant theoretical approaches, concepts and characters of naturopathy and its application in management of Osteoarthritis, the case of the Knee among aged in Ghana, the various naturopathic methods and merits, the challenges in adopting these approaches. The chapter will also zoom it onto the types appropriate for the study.

Theoretical Frameworks

Among the approaches that guided the study was the therapeutic order of naturopathic medicine. This principle was first developed by naturopathic physicians, Drs. Jared Zeff and Pamela Snider. The principle follows these seven components and stages of the therapeutic order [10].

Remove Obstacles to Health

In order to return to health, the initial step must be removal of anything impeding the healing process. This is often referred to as “removing obstacles to cure.” Naturopathic physicians create a plan with their patient that addresses these obstacles (common culprits are poor diet, excessive stress or disruptive coping mechanisms, digestive disturbances, inadequate rest, toxic exposures, socioeconomic stressors, trauma, etc.) in an effort to remove them and their effects, and improve the conditions under which the disease developed. Removing the things that are disturbing health allows the person’s vitality to increase, the self-healing process to be optimally engaged, and further therapeutic interventions to have the greatest beneficial effects possible. Removing obstacles to cure is core to the expression of the Naturopathic Philosophical Principle, Treat the Cause.

Stimulate the Body’s Self-Healing Mechanisms

Every person has within them an innate wisdom and intelligence that tends toward the optimal expression of health. In naturopathic medicine, this is called the “*Vis Medicatrix Naturae*.” The “*Vis Medicatrix Naturae*” is the body’s innate healing ability, the *process of healing* which engages with one’s “vital force” or life force, as it is often termed. Naturopathic physicians use various therapies such as nutrition, botanical medicine, physical medicine, lifestyle counseling, acupuncture, homeopathy and hydrotherapy to stimulate and enhance this mighty and dynamic force and process allowing the body to heal itself.

Strengthen weakened or damaged systems – restore and regenerate

Sometimes the mind, spirit and body’s systems or functions need more than stimulation to improve. Systems that are under or overactive, or that need repair or support are addressed in this step. Naturopathic physicians use their broad and varied natural medicine(s) and healing practices to aid in restoring optimal function to an entire physiologic or organ system. This might include applying botanical medicine, endocrine balancing, professional grade supplements, homeopathy, counseling, manual therapies, acupuncture and others with the intention of enhancing the function of specific tissues, organs or systems; or at the psycho-emotional level.

Correct structural integrity

This level involves the use of physical therapies such as spinal manipulation, massage therapy, electrotherapy and cranio-sacral therapy to improve, support, and maintain musculature, fascial and skeletal integrity. Therapeutic movement, optimizing biomechanics, physical therapy and exercise may also be employed at this level to promote return to optimal structural condition.

Use natural therapies to address pathology and symptoms

Although the primary objective of naturopathic medicine is to restore health, not to treat a distinct pathology, there are instances where specific pathologies must be addressed and managed. In these cases, naturopathic physicians utilize physiologically synergistic, dependable, effective natural substances that are unlikely to add toxic burden, cause adverse effects, place undue additional strain on an already disordered system, nor undermine the *vis medicatrix naturae*, while relieving the symptoms which cause suffering.

Use pharmaceutical or synthetic substances to stop progressive pathology

Synthetic or pharmaceutical substances may be necessary to restrain or strongly manage symptoms, and address specific pathology that is negatively impacting a patient's quality of life or safety. NDs recognize that suppressing symptoms removes some of the awareness that helps us better understand the root cause of an issue and the ability to restore vitality.

Use high force, invasive therapies to suppress pathology

Sometimes it is necessary in the interest of patient health, comfort and safety to suppress pathological symptoms, prior to addressing underlying causal factors, and ultimately restoring health. Though suppressive or palliative therapies may result in reduced symptomatic expression, even when done with the best of intentions, the end result of suppressive therapies is that the original, fundamental disturbing factors will continue to impact the person by sustaining disruption of functions (though perhaps to a lesser degree). Resolution of the disturbing factors may also be impeded or halted until the patient is stabilized and can address underlying causes while minimizing suffering and preventing further deterioration. Naturopathic medicine is a distinct form of healthcare and is guided by its principles and therapeutic order.

Conceptual Issues of Participation

According to Nair *et al.*, [11], naturopathy is a form of alternative medicine based on a belief in vitalism, which posits that a special energy called vital energy or vital force guides bodily processes such as metabolism, reproduction, growth and adaptation. It is a system of man building in harmony with constructive principles of nature on physical, mental, moral and spiritual planes of living. It has great health primitive, diseases preventive and curative as well as restorative potential [12]. Naturopathy is also defined as a system of medicine for cure of diseases by encouraging natural curative reactions inherent in every diseased cell through methods and treatments based upon the fundamental laws which govern health [13]. Naturopathy is basically a preventive system of treatment that can be used to prevent and / or treat

arthritis. a general term for conditions that affect the joints and surrounding tissues including the knees, wrists, fingers, toes and hips [14].

Osteoarthritis (OA) is a painful, degenerative joint disease that often involves the hips, knees, neck, lower back, or small joints of the hands. OA usually develops in joints that are injured by repeated overuse from performing a particular task or playing a favorite sport or from carrying around excess body weight [15]. Eventually this injury or repeated impact thins or wears away the cartilage that cushions the ends of the bones in the joint. As a result, the bones rub together, causing a grating sensation. Joint flexibility is reduced, bony spurs develop, and the joint swells. Usually, the first symptom of OA is pain that worsens following exercise or immobility. OA management refers to the use of an explicit systematic population-based approach to identify persons at risk, intervene with specific programs of care, and measure clinical outcomes of the condition [16]. Aging is one of the most prominent risk factors for OA. Differences and divisions are sometimes made among populations of elderly people such as the young old (60–74), the middle old (75–84) and the oldest old (85+). For example, as the formal sector in Ghana classify pension age as 60 years, the Informal sector, classify old age as how far one's health could lead him/her whilst the national health insurance scheme considers 70-year-old as aged. Therefore, this study considered 60 years and above as an aged.

Naturopathic modalities in managing Osteoarthritis of the Knee among old age

The main modalities of Naturopathy are comprised of:

Diet therapy and Clinical Nutrition

Proper nutrition is the foundation of a naturopathic practice, and food is utilized for both health promotion and disease prevention. NDs recommend diets individualized to each patient, though typically this means a balanced whole-foods diet rich in fruits, vegetables, whole-grains, legumes, wild-caught fish, lean animal proteins, whole dairy products. In order to maximize nutritional value and minimize environmental impact, foods are considered best in their natural state, obtained locally, and eaten seasonally. NDs recognize how difficult and complex dietary changes may be, and assist patients through these changes by providing very specific individualized recommendations, as well as educational materials and resources. It is the main modality under Naturopathy which stresses that the food must be taken in natural or maximum natural form only. Fresh seasonal fruits, fresh green leafy vegetables and sprouts are excellent form of natural foods. These diets are further broadly classified into following three types: Eliminate Diet: Liquids-Lemon water, Citric juices, Tender Coconut water, Vegetable soups, Butter milk, Wheat grass juice. Soothing Diet: Fruits, Salads, Boiled or Steamed Vegetables, Sprouts, and Vegetables etc. Constructive

Diet: Wholesome flour, Unpolished rice, little pulses, Sprouts, Curd

Botanical Medicine (Herbalism)

Traditional medicine has been used in communities for thousands of years [17]. According to the World Health Organization, herbal treatments are the most popular form of traditional medicine. In developing countries, 80% of the population depends exclusively on medicinal plants for primary healthcare [18]. NDs use herbal preparations in the form of teas, tinctures, poultices, balms, baths, elixirs, compresses, oils, syrups, suppositories, and capsules. The ND prescribes and prepares herbal remedies based on the uniqueness of each patient and their presenting symptoms. Organic and wild harvested herbs are used if available. A growing body of research supports the efficacy and safety of various herbs for preventing and treating many health conditions.

Naturopathic Physical Medicine

Since the founding of naturopathy in the early twentieth century, physical medicine modalities have been an integral component of naturopathic treatments. Naturopathic physical medicine is the therapeutic use of physiotherapy, therapeutic exercise, massage, energy work, naturopathic manipulation, and hydrotherapy. It is distinct from the practice of chiropractic, physical therapy and physical rehabilitation [19]. Although it encompasses a broad range of treatment modalities, most are used for musculoskeletal conditions, such as injury and pain.

Massage Therapy

It plays an important role in Naturopathy treatment procedure. It is a scientific and systemic manipulation of the tissues and organs of the body, aims at improving the blood circulation and also at strengthening muscles and bodily organs. Taking Sun bath after massaging the whole body is a well-known health practice in India during winters. It bestows combined benefits of massage and Sun ray's therapy. To overcome different disease symptoms, specific techniques of massage are used and necessary therapeutic effects are obtained through it. Mustard oil, sesame oil and coconut oil are generally used in massage for lubrication as well as for creating therapeutic effects. A randomized controlled trial including 60 participants was conducted in Sweden between 2005 and 2007 to evaluate change in health-related quality of life for people with constipation receiving abdominal massage. The control group continued using laxatives as before and the intervention group received additional abdominal massage. Health-related quality of life was assessed using the EQ-5D and analyzed with linear regression. The study revealed that abdominal massage may be cost-effective in the long-term and it is relevant to consider it when managing constipation [20].

Homeopathic Medicine

Homeopathy is a healing system that was created over 200 years ago by a German physician, Samuel Hahnemann. It is based on a central theory known as The Similia Principle. Substances made from plants, minerals or animals, which are known to cause symptoms similar to a certain disease, are given to patients in an extremely diluted form. Homeopathic remedies are believed to stimulate auto-regulatory and self-healing processes [21]. Remedies are selected by matching a patient's symptoms, based on taking a finely-detailed history, with symptoms produced by the substances in healthy individuals. Homeopathy is extensively used worldwide by homeopaths, MDs, DOs, NDs and DVMs. Across Europe, approximately a quarter of the population uses homeopathy, and depending upon the country, from 20% to 85% of all general practitioners either use homeopathy in their practices or refer their patients to homeopaths [22].

Hydrotherapy – Water Cure

Hydrotherapy is the external or internal use of water in any of its forms (water, ice, steam) for health promotion or treatment of disease [23]. It was used widely in ancient cultures, including Egypt, Persia, China, India, and Israel, before it was well established as the traditional European water cure [24]. Water is a main component of Naturopathy. Hip bath, Enema, Hot and Cold fomentation, hot foot bath, Spinal bath, Steam bath, Immersion bath, Hot and Cold packs on Abdomen, Chest and other parts of the body are the recent developments in Hydrotherapy.

Behavioral Change (prevention and Lifestyle Counselling)

NDs emphasize that in order to live healthfully, one must work at it daily. Support is offered by the ND in the form of basic counseling, lifestyle modification, hypnotherapy, meditation, biofeedback, hygiene and stress management. NDs may also lead group classes in lifestyle modifications and stress management, helping foster community and connectedness for patients and physicians as they share and gain knowledge together. This holistic approach to healing acknowledges the importance of treating patients in the totality of their mind, body, and spirit environment. For the ND, it is essential to spend quality time listening to the patient in order to gain an understanding of how they live and strengthen the physician-patient relationship. There is overwhelming evidence that effective physician-patient communication is associated with improved patient health outcomes [25].

Traditional Chinese medicine / acupuncture

Studies have shown acupuncture is successful in treating joint pain, including knee OA [26]. In Traditional Chinese Medicine (TCM) theory, chronic knee OA is considered to be mainly due to kidney

deficiency, blood stagnation, and the retention of damp cold in the knee. Moxibustion, part of traditional acupuncture treatment, involves the burning of an herb at the site of acupoints. It is commonly used in treating arthritis particularly joint pain caused by cold and old age [27].

Determinants of Naturopathy Use

Rates of naturopathic utilization vary depending on the particular geographic location. Gender, age, educational level, religious affiliation, marital status and number of years lived with the condition by the user might influence the use of naturopathic methods. Demographic characteristics of naturopathy users provides insights into not only who is likely to use the method but also some of the factors that may influence the choice of use.

Gender and Naturopathy Use

Gender differences in social determinants of health and illness, as well as health care decision-making, have been explored by various researchers over the past two decades [28]. A recent study in Norway also revealed that the relationship between demographics and naturopathy and CAM use differed significantly between men and women on age, household income, and marital status [29]. A higher use of CAM among females is also evident in a number of clinical populations, including patient's acute coronary syndrome and diabetes [30]. There is reasonably consistent evidence that women are somewhat more likely than men to use of naturopathy. US survey of Asian-American subgroups found that, contrary to findings in the broader population, naturopathy use may be lower among women compared to men within certain ethnicities [31]. A review of surveys investigating naturopathy use among community-based adults indicated an association between naturopathy use and gender, with women more likely than men to use naturopathic methods [32].

Age as a Determinant of Naturopathy Use

The relationship between age and naturopathy use has been examined in a variety of ways and in a wide range of samples. Use of acupuncture, chiropractic and homeopathy normally associate positively greater age. whereas hydrotherapy and clinical diet counselling use negatively relates to greater age. Significant positive relationships have been found in some studies between use of types of naturopathy that require a practitioner, such as acupuncture and chiropractic and increasing subject age [33].

Educational level and income and use of naturopathy

Naturopathic use might increase with education because people with more education also tend to have higher incomes, that is, they can better afford to use naturopathy [34]. It has been suggested that naturopathy use is more common among the well-

educated and wealthy. In some studies, users of naturopathy tend to have more years of education than non-users especially in the use of homeopathy. Although some studies suggest that naturopathic use is greatest among those between 35 and 50, but other studies finds no significant effect of age, especially the among the elderly [33].

Religious Affiliation as a Determinant of Naturopathy Use

The relationship between religion and health has been of longstanding interest in the health, social, and behavioral sciences, spanning a period of >100 years [35]. Despite recognized methodological and analytical issues, overall the findings indicate a consistent and salutary influence of religious factors on individual and population health [36]. In naturopathy, religious affiliation influences the choice of methods and healing process especially aged with Knee OA [37].

Marital Status and Use of Naturopathy

According to Sirois [38], marital status tends to influence the use of naturopathy. Users can be categorized as divorced, single, or living with someone and married. In other studies, Conboy *et al.*, [33] stated that chiropractic and homeopathy, clinical nutrition, botanical medicine use among married individuals are more likely than others types of naturopathy. Meanwhile in some other studies, divorced individuals are also significantly more likely than married individuals to use naturopathy physical medicine such as massage [39]. Moreover, Lim *et al.*, [40] reported that, separated individuals were significantly more likely than married individuals to use Chinese acupuncture. Also, Fox *et al.*, [39] reported that, individuals who had never been married were significantly more likely than married individuals to use naturopathy physical such as massage. Widowed individuals are more significantly less likely than married individuals to use herbs [41].

Number of Years Lived With Condition and Use of Naturopathy

Number of years lived with Knee OA might prompt individual to adopt different methods of naturopathy. Evidence suggests efficacy and satisfaction with integrating complementary pain management strategies for older adults, especially yoga, massage and natural products especially with older individuals who lived with the condition for some time [42].

Different Conditions Aside Knee OA and Naturopathy Use

In the context of naturopathy use it has been suggested that people who use naturopathy either suffer from chronic conditions that might not have been treated satisfactorily by conventional medicine or have life-threatening diseases and use naturopathy because they are experiencing psychological distress and will try

anything that might offer a cure [13]. According to Murray & Pizzorno [13], hypertension, diabetes, hepatitis, gastritis, ulcer and diseases of the kidneys that occurs along with the Knee OA are some of the instances that make individuals to seek for naturopathic method of treatment.

Challenges of naturopathic methods in managing OA of the Knee among the old age Fear of Side Effects

A few naturopathic treatments have known side effects and risks including: Some of Supplements (vitamin and herbal) may interfere with prescription medications. In large doses, certain vitamins may raise your risk of other diseases like cancer [43]. According to [44] as part of naturopathic manipulative treatment, the practitioner may apply pressure to your spine once osteopathic treatment encompasses more than joint manipulation alone. This can damage arteries, nerves, bones, and spinal discs. In rare cases, it may lead to a stroke [45]. Moreover, detox diets are meant to rid the body of toxins. This involve cutting out certain foods or fasting. That means going for periods without eating. This can be dangerous for people with some chronic conditions like diabetes [46] and being on diet for a long time can expose one run the risk of not getting enough vital nutrients.

Financial /Income Challenges of the Aged

There is an effort reported by [47] in taking care of the health needs of the aged in Ghana, and this is the national health insurance scheme where the aged at age 70 is exempted from the payment of premium. This however discriminate against the aged below 70 years, this age cohort (60-70 years) therefore has to struggle with health problems for the next 10 years after retirement from active service. Even, when one is able to crossover the mandatory age requirement of 70 years, there is another condition attached to the national health insurance scheme, where, certain ailments are not covered by this insurance scheme and therefore part of the cost of the healthcare delivery has to be borne by the aged.

This vulnerable livelihood makes affordability a challenge to the aged. Almost all the modalities of naturopathy require little amount of resources which may be difficult for this age bracket.

Inadequate support from Caregivers

According to Anning [47], caregivers play an essential role in the wellbeing of the aged. They give social and psychological support, financial support, healthcare support and some give housing support all gearing towards the wellbeing of the aged. Hence if this

Research Design

The researcher adopted the descriptive cross sectional study design. According to Setia [48], Cross-sectional studies are used to assess the burden of health

aspect is missing in the care process, the core mandate of administering a particular naturopathic method would be a challenge.

PROFILE OF THE STUDY AREA AND METHODOLOGY

INTRODUCTION

This chapter presents the sources and methods that were used in collecting data for the research. It deals specifically with the sampling procedure used in selecting a sample for the research, the instruments used for data collection and data analysis. It also provides a brief description of the study area.

Profile of Ashaiman Municipal, population, location and size

Ashaiman Municipal with its administrative capital Ashaiman was carved out of the then Tema Municipality, now Tema Metropolitan Authority, as one of the newly created Districts in 2008 by LI 1889 and Local Government Act of 1993 (Act 462). Ashaiman Municipality is located about 4km to the North of Tema and about 30km from Accra, the capital of Ghana. The Municipality shares boundaries with Tema Metropolitan to the east, Ledzokuku Municipal to the south, Adenta Municipal to the north and to the west with La-Nkwantanang-Madina Municipal.

Total area of the district is 45 square kilometers. According to the 2010 census, the population of the district is 190,972, with 93,727 males and 97,245 females. The current population based Ghana Statistical Service record is 235,465.

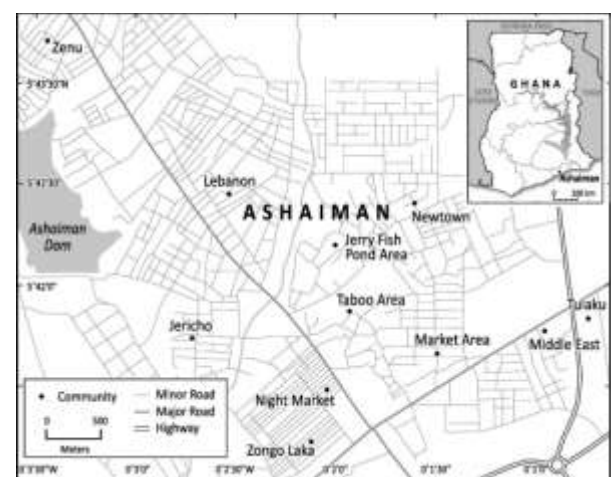


Fig-1: Map of Ashaiman, Ghana

Source: Town and country plan, Greater Accra, 2010

Source: GSS, 2010

needs of a population and are particularly useful in informing the planning, monitoring, evaluation and allocation of health resources. Cross-sectional studies are relatively faster and inexpensive. Hence, the study

used the cross-sectional survey aimed at describing the characteristics of typical naturopathic practices and their associated patients in the Ashaiman Municipality.

Sources of data

Data for the study was obtained primarily from field work by the researcher. This was done through interviews and documentation. The following were the respondents interviewed by the researcher; patients aged 60 and above who are affected by OA of the knee, caregivers and practitioners of the various naturopathic centers within the Ashaiman municipality. List of various registered naturopathic centers was obtained as a secondary data. Also data was obtained from the naturopathic centers.

Study Population

The population of interest is the study's target population that it intends to study [49]. The population of the study included aged from 60 years and above with Knee OA, who are receiving different naturopathic management at naturopathic centers in the Ashaiman Municipality.

Determination of sample size, sampling and sampling technique

Sampling is the process of selecting or searching for situations, context and/or participants who provide rich data of the phenomenon of interest. It is an important tool for research studies because the population of interest usually consists of too many individuals for any research project to include as participants [50].

The sample frame was 350 and the sample size of 60 was selected randomly.

Simple random sampling was used to select from the various quota, the number of patients aged 60 and above with Knee OA and attending those naturopathic care centers. The research used the lottery method. In this method, all the members in the sampling frame were assigned unique numbers written on separate slips of papers of the same size, shape and color. These slips of papers were folded and mixed up in a container. A blindfold selection was then made until the desired sample size was drawn. According to Trivedi [51], this method of sampling, the number of candidates corresponding to numbers on the slip drawn constituted a random sample as shown in Table-1 below.

Table-1: Random sample determination

| Modality/ Method of naturopathy | Population/sample frame | Sample |
|---|-------------------------|-----------|
| <i>Diet therapy and clinical nutrition</i> | 100 | 10 |
| <i>Botanical medicine (Herbalism)</i> | 50 | 8 |
| <i>Naturopathic physical medicine</i> | 80 | 10 |
| <i>Homeopathic Medicine</i> | 40 | 7 |
| <i>Hydrotherapy – Water Cure</i> | 15 | 8 |
| <i>Behavioral change (prevention and lifestyle counselling)</i> | 25 | 6 |
| <i>Traditional Chinese medicine / acupuncture</i> | 40 | 11 |
| <i>Total</i> | 350 | 60 |

Source: Field survey, 2020

The research used a combination of purposive sampling (a type of non-probability sampling method), and simple random sampling (a type of probability sampling technique) sampling methods in selecting the sample units for investigations.

According to Tuli [52], purposive sampling is a form of non-probability sampling where samples are chosen by intentionally seeking individuals or situations that meet criteria of interest or are likely to provide greater understanding of a chosen concept of research. Hence, the researcher used this method in selecting four (4) naturopathic centers in the municipality, Ashaiman.

Data Collection Instruments

The instrument use to collect data depend on the type of data. For the purposes of survey in this study, data was mainly obtained by use of questionnaires and interview guide.

Questionnaires

The questionnaire is a tool designed for collection of quantitative data by providing quick responses. This data collection tool allowed the researcher to develop series of structured questions and prompts for the purpose of gathering information from the respondents [53]. This tool assisted the study to gather information such as the socio-demographic characteristics, patients' satisfactions with naturopathic care and challenges of the various methods.

Checking for misunderstandings, incomplete concept coverage, inconsistent interpretations, satisficing and context effects, Collins [54] relates that, it is important to pre-test research instruments. The questionnaire was pre-tested using 5% of its respondents. The researcher interpreted to the patients of knee OA aged 60 and above and their caretakers in English, Twi and Ga Languages since language in the study area was not a barrier. The pretest was answered and returned to the researcher where accuracy and appropriateness was checked.

Interviews

According to Roulston and Choi [55], interviews are active interactions between two or more people leading to a negotiated contextual based result. The research adopted different forms of interviews as semi-structured, unstructured, face-to-face verbal interactions

A set of questions, both open ended and closed ended, were developed based on the various themes that underpinned naturopathic care of knee OA, roles that each method was required to play in the Knee management. The questionnaire covered the different sections of the study; Section A covered basic socio-demographic and economic determinants such as gender, age, level of education, marital status, religious affiliation, number of years lived with condition and occupation of the respondent, Section B investigated the various methods/types of naturopathy that are being used in managing Knee OA among old age in the four (4) registered naturopathic centers of the Ashaiman Municipality. Section C examined the various challenges in adopting a particular naturopathic method in managing Knee. Section D which gathered information on specific benefits for adopting the different naturopathic methods in managing OA of the Knee among the old. The rest of the sections asked the respondents to suggest ways of mitigating the challenges in adopting naturopathic methods in managing OA of the Knee in the Ashaiman Municipality.

Data Collection Procedure and Ethical Considerations

Approval and an introductory letter for the study were obtained from the authorities of Holistic and Naturopathic Medicine, Dr. Nyarkotey College of Holistic Medicine to the units of the various naturopathic centers in the study area and was accepted.

The study also ensured strict adherence to the following ethical standards during its data collection exercises:

1. The study respected the dignity and welfare of all its respondents.
2. Again, the study respected the freedom and rights of its respondents to decline participating in it.
3. Additionally, the study ensured and maintained the confidentiality of all the data it collected from its respondent.
4. Furthermore, the study guarded against violating or invading the privacy of all its respondents.
5. The study anonymized the identity of its respondents (the study used code numbers instead of the names of its respondents to analyze their individual responses).

Most importantly, in keeping with Cooper & Schindler [56] admonishment, the study was conducted

in a manner that ensured that none of its respondents suffered any intentional harm, discomfort, mental anguish, embarrassment or loss of privacy.

Methods of Data Analysis and Presentation

Analysis of data is a process of editing, cleaning, transforming, and modeling data with the goal of highlighting useful information, suggestion, conclusions, and supporting decision making [57]. Data from the field were edited and coded appropriately to make meaning out of them. Editing was done to correct errors, check for nonresponses, accuracy and correct answers. Coding was done to facilitate data entering and a comprehensive analysis. Descriptive statistics was the medium used for analysis. The software was the Statistical Package for Social Science version twenty (SPSS 20). The study employed descriptive and inferential statistics to show the relationship between the naturopathic methods and level of satisfaction and patronage by the subjects. This included percentages, mean and standard deviation, while inferential statistics was correlation analysis using chi-square.

PRESENTATION OF SURVEY RESULTS INTRODUCTION

This chapter presents the analysis and discussions of findings of the naturopathic management of Knee OA and practices in the Ashaiman Municipality. These are obtained from the interviews conducted as well as other relevant documents such as documents obtained from the various naturopathic centers in the study area. They are discussed in sections that reflect the objectives of the study

Socio-demographic and socio-economic determinants of the respondents

A total of 60 aged (60 years and above) with Knee OA (respondents) were recruited for the study. The results presented in the Table-2 indicated that, majority of the respondents (66.7%) were females with more than half (65%) aged between 60 and 69. Also, in the Table-2 below, greater proportion (66.7%) of the respondents attained tertiary education and higher number (42) had lost their spouse at the time of the research interview. Although there were Christians and other religion among the respondents, majority (66.7%) of the respondents were practicing Islamic religion.

Most of them (66.7%) had lived the condition (Knee OA) between 10 and 20 years at the time of the research while half of the respondents were having records of hypertension along with the Knee OA according to Table-2 below. Also, although 41.7% had had caretakers, more than half (58.3%) of the respondents reported they were not having caretakers.

Table-2: Socio-demographic characteristics of the respondents

| Characteristic | | Frequency | Percentage |
|---|------------------------------|-----------|------------|
| <i>Sex</i> | Male | 20 | 33.3 |
| | Female | 40 | 66.7 |
| <i>Age</i> | 60-69 | 39 | 65 |
| | ≥ 70 | 21 | 35 |
| <i>Level of education attained</i> | Uneducated | 10 | 16.7 |
| | SHS and below | 10 | 16.7 |
| | Tertiary | 40 | 66.7 |
| <i>Marital status</i> | Single/ not married | 4 | 6.7 |
| | Married | 4 | 6.7 |
| | Widowed | 42 | 70 |
| | Divorced/separated | 9 | 15 |
| | Co-habiting | 1 | 1.7 |
| <i>Religious affiliation</i> | Christian | 10 | 16.7 |
| | Muslim/ Islamic | 40 | 66.7 |
| | African traditional religion | 5 | 8.3 |
| | Other, specify | 5 | 8.3 |
| <i>Number of years lived with condition (Knee OA)</i> | ≤ 10 years | 40 | 66.7 |
| | 10 – 20 years | 10 | 16.7 |
| | 21 – 30 years | 9 | 15 |
| | 31 – 40 years | 1 | 1.7 |
| <i>Other health condition apart from the Knee OA</i> | Hypertension | 30 | 50 |
| | Diabetes | 10 | 16.7 |
| | Kidney disorders | 10 | 16.7 |
| | Hepatitis | 1 | 1.7 |
| | Others, Specify | 9 | 15 |
| <i>Caretaker/ anyone that support you at home</i> | Yes | 25 | 41.7 |
| | No | 35 | 58.3 |
| <i>Total</i> | | 60 | 100 |

Source: Field Survey, 2020

Different naturopathic methods usage and reasons for adherence/challenges among knee osteoarthritis

From the Table-3 below, all (100%) of the respondents had used naturopathic methods. Majority of the respondents adhered to diet therapy and clinical nutrition (66.7%), naturopathic physical medicine (58.3%), homeopathic medicine (83.3%), behavioral change (61.7%) and hydrotherapy – Water cure (83.3%). Meanwhile, more than half (66.7%) of the respondents were not using Traditional Chinese medicine / acupuncture.

A greater proportion (83.3%) of the respondents reported to have encountered challenges

across the various naturopathic methods and these challenges ranged from difficulty affording the remedies (50%), to side effects (20%) to interactions with other medications as indicated in the table 4.3 below. Also, more than half (83.3% of the respondents were on other medications apart from the naturopathic methods and reported (66.7%) that affordability was a challenge in getting other medications apart from naturopathic remedies. Moreover, the study further enquired the specific side-effects respondents were experiencing. According to Table-4, a greater proportion of the respondents had nausea, stomach upsets and vomiting.

Table-3: Naturopathic methods usage

| Variable | | Frequency | Percentage |
|---|-----|-----------|------------|
| <i>Naturopathic use</i> | Yes | 60 | 100 |
| | No | 0 | 0 |
| <i>Diet therapy and clinical nutrition</i> | Yes | 40 | 66.7 |
| | No | 20 | 33.3 |
| <i>Botanical medicine (Herbalism)</i> | Yes | 30 | 50 |
| | No | 30 | 50 |
| <i>Naturopathic physical medicine</i> | Yes | 35 | 58.3 |
| | No | 25 | 41.7 |
| <i>Homeopathic Medicine</i> | Yes | 50 | 83.3 |
| | No | 10 | 16.7 |
| <i>Hydrotherapy – Water Cure</i> | Yes | 10 | 83.3 |
| | No | 50 | 16.7 |
| <i>Behavioral change (prevention and lifestyle counselling)</i> | Yes | 37 | 61.7 |
| | No | 23 | 38.3 |
| <i>Traditional Chinese medicine / acupuncture</i> | Yes | 20 | 33.3 |
| | No | 40 | 66.7 |

Source: Field survey, 2020

Table-4: Challenges for adhering to naturopathic methods

| Variable | | Frequency | Percentage |
|--|---|-----------|------------|
| <i>Do you encounter challenges in using the naturopathic methods</i> | Yes | 50 | 83.3 |
| | No | 10 | 16.7 |
| <i>Total</i> | | 60 | 100 |
| <i>Are you aware of naturopathy?</i> | Yes | 40 | 66.7 |
| | No | 20 | 33.3 |
| <i>Do you take other medications apart from the naturopathic methods</i> | Yes | 50 | 83.3 |
| | No | 10 | 16.7 |
| <i>Are you able to afford the medications(other medications)</i> | Yes | 20 | 33.3 |
| | No | 40 | 66.7 |
| <i>What challenges do you encounter</i> | Difficult affording diet/remedies prescribe | 25 | 50 |
| | Far distance to centre | 10 | 20 |
| | Side effects | 5 | 10 |
| | Does not get healing | 0 | 0 |
| | Other | 10 | 20 |
| <i>Total</i> | | 50 | 100 |
| <i>Side-effects</i> | Nausea, stomach upsets, vomiting | 3 | 60 |
| | Skin rashes, itches | 1 | 20 |
| | Other, Specify | 1 | 20 |
| <i>Total</i> | | 5 | 100 |

Source: Field survey, 2020

Benefits using naturopathic methods by aged (60 and above) affected with Knee OA

From the Table-5 below, more than half of the respondents (66.7%) indicated that, the naturopathic methods made them feel better including managing emotions and anxiety, thereby making them feel general

sense of wellbeing. All (100%) the respondents were adhering to the naturopathic methods for the reason of feeling more control over their health and boosting their immune systems. Meanwhile, out of the 60 respondents, 66.7% were using the methods for the purpose of looking for cure.

Table-5: Benefits of naturopathic methods

| Benefits | | Frequency | Percentage |
|--|-----|-----------|------------|
| <i>Help feel better including emotions, anxiety, increase general sense of wellbeing</i> | Yes | 40 | 66.7 |
| | No | 20 | 33.3 |
| <i>Total</i> | | 60 | 100 |
| <i>Reducing symptoms or side-effects</i> | Yes | 35 | 58.3 |
| | No | 25 | 41.7 |
| <i>Total</i> | | 60 | 100 |
| <i>Feeling more control over one's health</i> | Yes | 60 | 100 |
| | No | 0 | 0 |
| <i>Total</i> | | 60 | 100 |
| <i>For its natural and healing therapies</i> | Yes | 60 | 100 |
| | No | 0 | 0 |
| <i>Total</i> | | 60 | 100 |
| <i>Comfort from touch, talk and time with therapist</i> | Yes | 45 | 75 |
| | No | 15 | 25 |
| <i>Total</i> | | 60 | 100 |
| <i>Staying positive and hopeful for the future</i> | Yes | 30 | 50 |
| | No | 30 | 50 |
| <i>Total</i> | | 60 | 100 |
| <i>Boosting one's immune system</i> | Yes | 60 | 100 |
| | No | 0 | 0 |
| <i>Total</i> | | 60 | 100 |
| <i>Looking for cure</i> | Yes | 40 | 66.7 |
| | No | 20 | 33.3 |
| <i>Total</i> | | 60 | 100 |
| <i>Has your condition (Knee OA) improved</i> | Yes | 40 | 66.7 |
| | No | 20 | 33.3 |
| <i>Total</i> | | 60 | 100 |

Source: Field survey, 2020

DISCUSSION OF SURVEY RESULTS

INTRODUCTION

This chapter presents summary of key findings of the study. These findings are derived from the results from the field work. Recommendations from the study are highlighted to show how naturopathic practices in the sector can be strengthened and sustained in the study area and Ghana as a whole.

Socio-demographic and socio-demographic characteristics of the respondents

The use of naturopathic methods is sometimes associated with age, gender and several sociodemographic and health behavioral factors [58]. A strength of this study, minimizing risks of recall bias, thus $P < 0.05$, is the analysis of the present use of naturopathy among the oldest (≥ 60 years) in the Ashaiman municipality. The determinants of naturopathic use, was obtained by using chi-square correlational analysis, as presented in table 4.5 below.

Naturopathy use and gender and age of respondents

Sex and age have earlier been shown to be most important factors for the use of naturopathy. As indicated in the Table-6 below, the study found significant differences in the use naturopathy between men and women and different age category. Women

adhered to naturopathy use compared with men with the Knee OA (Pearson chi-square, $p = 0.02$). This outcome was in relation with Stjernberg [59], who found significant relation in the use of alternative medicines among aged (≥ 60) females ($p = 0.011$) than males. Also, age was determined with use of the naturopathy. The probability of use decreased with increasing age. Age was significant with use with the 60-69 age bracket ($P = 0.030$) compared with ≥ 70 years. This was consistent with Nilsson *et al.*, [69] who found that the use of alternative and complementary decreased with increasing age. However, the age category was not consistent with Kumar [60] who did not find significant association of age and naturopathic use.

Naturopathy use and educational status of respondents

Furthermore, educational status was important in adhering to the use of the naturopathy. Those who were educated were more likely to adopt the naturopathy with significant association of use ($p = 0.003$). A study was done by Kumar [60] to assess the level of knowledge and attitudes of users revealed significant association ($p = 0.02$). Possibly, due to increased educational status amongst the respondent, the level of awareness of the existence of naturopathy was high and significantly associated with its use ($p = 0.02$).

Naturopathy use and marital status and religious affiliation

However, marital status was insignificant with the use of naturopathy with $P= 0.560$. A study was done in Israel between 1993 to 2007 to assess the use of naturopathy and other alternative medicine revealed no significant association between marital status and the practice [61]. However, it was contradicted with McIntyre *et al.*, [62] who found significant association between marital status determinant and use of naturopathy among aged with musculoskeletal issues. Religious affiliation was associated use of naturopathy. Islamic religion was significant ($p=0.05$), maybe because Muslims was dominant in the study area, Ashaiman Municipal. However, religious affiliation was inconsistently related to Callahan [63] who reported that religious affiliation determinant was not significant in the use of naturopathy amongst the aged.

Naturopathy Use and Caregivers

Caregivers can help aged with Knee OA develop an accurate record of their response to treatment. The study revealed a strong association ($P= 0.02$) between caretakers and use of naturopathy. This means that, those affected with the condition were more likely to use the naturopathy than their counterparts that were without them. Mackenzie *et al.*, [64] revealed significant relationship between users of naturopathy and other alternative medicine with caregivers.

Naturopathy use and number of years lived with condition

Almost all respondents were likely to use the naturopathy irrespective of the number of years lived with Knee OA. Those who lived with the condition less than ten (10) years were significantly associated ($p=0.03$) as well those lived with it more than ten (10) ($p=0.04$). Myers *et al.*, [65] reported aged with knee problems were likely to initiate the use of naturopathy from first day of the condition.

Respondents with other conditions and use of naturopathy

Respondents were also like to adhere to naturopathy if they were having other conditions such as hypertension and diabetes. The study revealed a higher significant relationship ($P= 0.001$) between respondents who were hypertensive and use of naturopathy. This also occurred with respondents with diabetes and knee OA at the time of the study with significant association ($p= 0.031$) as indicated in the Table-6 below.

Naturopathy usage, benefits and challenges

Moreover, as indicated in Table-6 below, the study respondents were likely to use naturopathy if they were seeing improvement in their conditions. The study realized that more than half (66.7%) of its respondents reported to have improved condition since they started

using the naturopathic methods with Pearson chi-square value (p -value) of 0.045. Barker and Meletis [68] surveyed naturopathic pain management and reported that naturopathic methods improved Knee OA but with challenges. Even though the respondents encountered challenges (83.3%) in the use of the various naturopathic methods, this was not statistically significant. This meant that, the challenges did hinder usage of naturopathy.

Table-6: Determinants of use of naturopathic methods

| Variable | Naturopathic use | Test statistic |
|-------------------------------|------------------|----------------|
| <i>Age range</i> | Total/ Yes (%) | |
| 60-69 | 39(65) | *0.030 |
| ≥ 70 | 21(35) | 0.230 |
| <i>Sex</i> | | |
| Male | 20(33.3) | 0.520 |
| Female | 40(66.7) | *0.020 |
| <i>Level of education</i> | | |
| Educated | 50(83.3) | *0.003 |
| Uneducated | 10(16.7) | 0.450 |
| <i>Marital status</i> | | |
| Married | 4(6.7) | 0.350 |
| Unmarried | 56(93.3) | 0.530 |
| <i>Religion</i> | | |
| Islamic | 40(66.7) | *0.005 |
| Christians | 10(16.7) | 0.630 |
| Other religion | 10(16.7) | 0.630 |
| <i># years with condition</i> | | |
| ≤10 | 40(66.7) | *0.03 |
| ≥10 | 20(33.3) | *0.04 |
| <i>Other conditions</i> | | |
| Hypertension | 30(50) | *0.001 |
| Diabetes | 20(33.3) | *0.031 |
| Other diseases | 10(16.7) | 0.431 |
| <i>Caretaker</i> | | |
| Yes | 35(58.3) | *0.001 |
| No | 25(41.7) | 0.500 |
| <i>Level of awareness</i> | | |
| Yes | 40(66.7) | *0.020 |
| No | 20(33.3) | |
| <i>Improved condition</i> | | |
| Yes | 40(66.7) | *0.045 |
| No | 20(33.3) | |
| <i>Challenges</i> | | |
| Yes | 50(83.3) | 0.630 |

* = statistically significant

Source: Field survey, 2020

CONCLUSION AND RECOMMENDATION

INTRODUCTION

This chapter presents conclusion and recommendations of the study. These findings are derived from the results from the field work. Recommendations from the study are highlighted to

show how naturopathy as an alternative medical practice in the sector can be maintained in order to restore confidence in the alternative medical practice institutions in Ghana and beyond.

CONCLUSION

All the respondents (aged 60 and above with Knee OA) have had used naturopathic methods in managing their condition in the Ashaiman Municipality. The major methods of naturopathy used were diet therapy and clinical nutrition, homeopathy medicine, hydrotherapy (water cure), and behavioral change plans. Among the less used ones were botanical medicine and traditional Chinese medicine /acupuncture.

Among the main determinants were females, age ranged between sixty (60 and sixty-nine (69). Most of the respondents were educated which could account for higher level of awareness of naturopathy in the study area. Beliefs and spiritual faith is important in the healing process. As such, religion associated strongly with adoption of naturopathy.

Most the respondents were on other forms of medications but due to affordability challenge, adhered to naturopathy. Even though there were affordability and other challenges ($p=0.630$ challenges in the naturopathic methods, respondents still used the method maybe due to the more benefits

Number of years lived with the condition could have made the respondents to adhere to the use of different methods in managing their condition but this was not the case with the study. Most of the respondents ($p=0.03$) started utilizing naturopathy from the first year of their condition.

Hypertensive patients experience many profound emotions which increase their risk for the development of mental health disorders particularly anxiety and depression [66]. Among the major conditions accompanying Knee OA were hypertension and diabetes. Respondents with hypertension ($p=0.001$) and diabetes ($p=0.003$) used the naturopathic methods more. This exacerbated with lack of caregivers by most of the respondents. Most people with Knee OA receive care at home from family caregivers who are responsible for most daily activities, including feeding, bathing, assisting with toileting and dressing [67] but that was not the case with this study as many of the respondents (58.3%) were not having caregivers.

Despite the few side-effects (10%) experienced by the respondents including nausea, stomach upsets and vomiting among others, there was greater benefits than challenges in adopting the naturopathy methods. Amongst the benefits included: managing anxieties, emotions, general sense of wellbeing, feeling control over their health, for boosting their immune systems and for its natural and healing therapies.

Finally, there was general improvements (66.7%) in the Knee OA amongst the respondents.

The present study therefore adds to the growing body of research examining use of naturopathic forms of health care.

RECOMMENDATION

There is the need for naturopathic professionals to strengthen the level of education and awareness of naturopathic practices and remedies especially the aged with Knee OA especially in the area of botanical medicine and traditional Chinese medicine /acupuncture.

Further researches should be done by complementary and alternative medicine practice and naturopathic research institutions in Ghana to evaluate the various the naturopathic methods to improve upon its practice. It is also important for similar studies be carried out across the entire country to confirm the present study.

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DECLARATION

I hereby declare that this submission is my own work towards the diploma. And that to the best of my knowledge it contains neither materials previously published by another person or materials that have been accepted for the award of any other Diploma by the University or any other University except due acknowledgment has been made in the text.

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