# Contributing Factors for Adult with osteoarthritis in Al-Diwaniya Governorate Hospitals

## العوامل المساهمة في إصابة المفصل العظمي عند المرضى البالغين في مستشفيات محافظة الديوانية

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**الخلاصة**

**الهدف:** تهدف الدراسة الحالية إلى تقييم العوامل المساهمة في إصابة التهاب المفاصل العظمية ولمعرفة العلاقة بين الخصائص الديموغرافية وعوامل الخطورة مع الإصابة بالتهاب المفصل العظمي.

**المنهجية:** أجريت دراسة تحليلية وصفية لغرض تحديد العوامل المساهمة للبالغين الذين يعانون من التهاب المفاصل العظمية المراجعين إلى العيادة الخارجية من المستشفيات في محافظة الديوانية. وقد أجريت الدراسة خلال الفترة ١٠ تشرين الثاني ٢٠١٣ إلى ١٠ آب ٢٠١٤. وشملت عينة البحث (٧٠) مريضا من الذين يعانون من التهاب المفاصل العظمية واختيرت بطريقة غرضيه (غير احتمالية) لتحقيق أهداف الدراسة. وصممت استمارة استبانة لغرض الدراسة تضمنت جزئين (المعلومات الديموغرافية ،والعوامل المساهمة لمرض التهاب المفاصل العظمية). وتم تحديد صدق الأداة من خلال عرضها على (١٦) خبيرا من ذوي الاختصاص ومن ثم تطبيق (الاختبار- وإعادة الاختبار) لتحديد ثبات الاستمارة من خلال حساب معامل الارتباط بيرسون ($r= 0.931^{**}$) . وجمعت المعلومات باستخدام استمارة الاستبانة وبطريقة المقابلة. وتم تحليل البيانات من خلال أسلوب الإحصاء الوصفي (التكرار ،النسبة المئوية و الوسط الحسابي الموزون) والأسلوب الإحصائي ألاستنتاجي (الانحراف المعياري ومعامل الارتباط).

**النتائج:** أظهرت نتائج الدراسة أن الأغلبية (٤٠٪) من الفئة العمرية كانت أكثر من ٦٠ سنة وكان متوسط أعمارهم (٥٤.٣) سنة. وكان معظم عينة الدراسة (٥٤.٣٪) من الإناث. وان (٩١.٤٪) وكانت غالبيتهم من المتزوجين، وان (٤٥.٧٪) لا يجيدون القراءة والكتابة. وأشارت نتائج الدراسة بأن الغالبية (٤٧.١٪) من ربات البيوت. وكانت معظم عينة الدراسة (٤٧.١٪) لديهم بيئة مناسبة و (٧٧.١٪) يعيشون في المناطق الحضرية.و كان معظمهم (٦٥.٧٪) يعانون من السمنة المفرطة و(٥١.٤٪) كان الوضع الاقتصادي متوسط لديهم. وأظهرت نتائج الدراسة أيضا أن (٤٥.٧٪) كان موضع الإصابة في الركبة ومفصل الورك ومفصل اخر وان (٣٨.٦٪) في الركبة ومفصل الكاحل. ومعظم عينة الدراسة (٤٨.٦٪) كانت مدة الاصابة من (١-٢) سنوات. وكان معظمهم (٦٥.٧٪) لم يخضع لعملية جراحية.

**الاستنتاجات:** توصلت الدراسة الحالية بأن التهاب المفاصل العظمي له علاقة بالسمنة وارتفاع ضغط الدم. وأشارت نتائج الدراسة إلى أن اهم العوامل المساهمة لالتهاب المفاصل العظمي هي (عدم تناول الطعام من أصل نباتي وأكل اللحوم البيضاء) من النظام الغذائي وكانت هذه الفقرات من الربع الأول (عدم تناول الطعام من أصل نباتي، وتناول اللحوم البيضاء، عدم الرغبة في شرب الحليب، و زيت السمك، وعدم أكل الجبن، وعدم الرغبة بأكل الفول، وعدم التعرض لأشعة الشمس، ولا يأكل صفار البيض، و لا يأكل السمك).

**التوصيات:** أوصت الدراسة بإجراء برنامج تثقيفي يتم وضعه وتنفيذه للمرضى حول العوامل المساهمة لالتهاب المفاصل العظمي.

**Abstract:**

**Objective:** To assess of contributing factors for adult with osteoarthritis and to find out the relationship between demographic characteristic with contributing factors for osteoarthritis.

**Methodology:** A descriptive analytic study was carried out throughout the present study to determine the contributing factors for adults with osteoarthritis who attended the outpatient clinic department of hospitals in Al-Diwaniya governorate. The study was carried out during the period extended from the November 10th 2013 to August 10th 2014. A purposive "non- probability" sample of (70) patients with osteoarthritis. Questionnaire form was constructed for the purpose of the study and it comprised of two parts. The questionnaire consists of (50) items. They include (1) demographic characteristics (2) assessment of contributing factors. Content validity of the questionnaire was determine through a panel of (16) experts. Reliability and validity of questionnaire was determined through test re-test (r= 0.931) of pilot study. Data was collected by the researcher who interviewed those patients and filled out the constructed questionnaire form. Data were analyzed by using descriptive statistical approach (frequency, percentage and mean of score) and inferential statistical approach (stander deviation and correlation coefficient).

**Results:** The findings of the study have revealed that the majority (40%) of the age group were more than 60 years old and the mean of age were (54.3) year. Most of the study sample (54.3%) was female. Most of them (91.4%) were married and (45.7%) were no read and write. The findings of the study sample indicated that the majority (47.1%) of the occupation were housewife. Most of the study sample

(47.1%) were have appropriate of environmental of employ and (77.1%) living in urban area. Most of them (65.7%) were obese patients and (51.4%) were medium on the economic status. The result of the study also showed that the (45.7%) of the site joint injured were knee and hip joint and the second joint (38.6%) were knee and ankle joint. Most of the study sample (48.6%) of duration of injured from (1-2) year. Most of them (65.7%) were had underwent surgery. **Conclusions:** The findings of the study indicated that the Osteoarthritis has been linked to obesity and high blood pressure. The findings of the study sample indicated that important items were (Do not best eat food of plant origin and eat white meat) from diet and the first quarter items were (Do not eat food of plant origin, eat white meat, Does not want to drink milk, Do not like eat fish oil, Do not like eat cheese, Do not best eat beans, Do not like exposed to sunlight, eat egg yolks, and Do not prefer to eat fish)

**Recommendations:** The study recommended an education program to be developed and implemented of patients about contributing factors for adult patients with osteoarthritis.

**Keywords: Contributing factors, osteoarthritis.**

# INTRODUCTION:

Osteoarthritis (OA) is a disease common progressive and disabling. It is one of the most frequent health problems for people in middle age and older [1]. According to other study that can occur osteoarthritis in all synovial joint, but is most common in the hip, knee and hand, foot and spine. Osteoarthritis is characterized by joint pain and limited function of the joint. Many of the structures in the synovial joint can cause these clinical symptoms. Bone, cartilage and synovial fluid, ligaments and muscles around the joint as well as the tissue is being altered with organic farming and affect the function [2]. Another study established risk factors that are known to affect the development of organic farming, including the knee. Age, sex, trauma, excessive, genetics, obesity, and deposition within articular crystal, muscle weakness and peripheral nerves, and these factors can be categorized as follows: Contributions hereditary; factors and the effects of aging mechanical [3]. Before age 50, men have a higher prevalence of osteoarthritis and more often than women, but after age 50, women have a higher incidence and prevalence increases with age. Each of the occurrence and seems to plateau or decline at about age 80. Sex- and age- related patterns of occurrence of osteoporosis are consistent with the hypothesis that hormone deficiency after menopause increases the risk of osteoporosis in fact[4]. The WHO estimates that 10% of the world's population aged 60 years and older has problems arising from clinical osteoarthritis personal risk factors. For osteoarthritis are difficult to manage or control, worker risk work may amplify the risks and suggest these opportunities for control. He admitted some professional and lifting greater risk include this arsenal, and carpenters, miners, construction workers, cleaners, agricultural workers and workers' rock[5]. Body mass index was associated with a significantly higher risk ratio of waist circumference or fat percentage. This indicates that excess weight is a risk factor is particularly important for the development of organic agriculture in the knee and hip [6]. Body mass index and the mass of adipose tissue and central adiposity (waist circumference and waist to hip ratio) were directly linked to the risk of knee elementary and hip replacements for osteoarthritis, while it was directly linked to waist circumference only with the risk of knee replacement [7]. Prevalence of hip osteoarthritis is strongly associated with age, and begins to rise in middle age in both sexes. According to the Finnish health survey for the year 2000, the prevalence of radiographic and clinical hip osteoarthritis increases with age in both males and females [8]. Osteoarthritis in women after menopause increases [9]. The World Health Organization estimates that osteoarthritis affects 9.6 % of men and 18 % of women older than 60 years of age [5].

## OBJECTIVES OF THE STUDY:

1- To assess of contributing factors for adults with osteoarthritis.
2- To find out the relationship between demographic characteristic (age, gender, level of education, marital status, occupation , residence, monthly income ) with contributing factors

## METHODOLOGY:

A descriptive analytic study was carried out throughout the present study to determine the contributing factors for adults with osteoarthritis who attended the outpatient clinic department of hospitals in Al-Diwaniya governorate. The study was carried out during the period extended from the $10^{th}$ of November 2013 to $10^{th}$ August 2014. The sample consisted of (70) patients. These patients were attending out patient's clinic department of hospitals in Al- Diwaniya governorate (Al- Diwaniya Teaching Hospital and Al- Hamzah General Hospital). A questionnaire- interview format was designed and developed by the researcher for the purpose of the study; such development was employed through the available literature, clinical background and interview with patients who osteoarthritis. All the items were measured on scale of (2) indicates that the problems were persistent as (yes). (1) Indicates the absence of the problems as (No). Rating scale was used to rate the frequency and extension of the problems [10] .The questionnaire consisted of (3) parts. Part I: Demographic Information Sheet. Part II: historical information satisfactory to the patient. Part III: Contributing factors. The content validity of the instrument was established through a panel of (16) experts. Test- retest reliability was determined through a computation of Pearson Correlations for the scales. Coefficients for the (38) items of contributing factors of osteoarthritis were (r= $0.931^{**}$) for the total score of contributing factors. The data were collected by using the questionnaire structured format through interview technique. Each patient was interviewed personally by the researcher. Throughout each interview explanation of the study was held up with patient in order to accept participation. Each interview took approximately from (20-30) minute and initiated at the waiting room. Data were collected between 8.30 am to 1.30 pm. The determination was conducted during the period of the $17^{th}$ December 2013 to $10^{th}$ May 2014.The data were analyzed through descriptive data analysis and inferential data analysis the data were analyzed through the use of Statistical Package of Social Sciences (SPSS) version 16.0.

# RESULTS:

**Table ( 1 ) Distribution of the Study Sample by Sociodemographic characteristics**

| No | Variables | | Frequency | Percent | Cumulative percent |
|---|---|---|---|---|---|
| 1 | Age ( years ) | 20-29 | 3 | 4.3 | 4.3 |
| | | 30-39 | 7 | 10.0 | 14.3 |
| | | 40-49 | 10 | 14.3 | 28.6 |
| | | 50-59 | 22 | 31.4 | 60 |
| | | 60 and older | 28 | 40 | 100 |
| | | Mean= 54.3 year | | | |
| 2 | Gender | Female | 38 | 54.3 | 54.3 |
| | | Male | 32 | 45.7 | 100 |
| 3 | Marital status | Married | 64 | 91.4 | 91.4 |
| | | Single | 3 | 4.3 | 95.7 |
| | | Widowed | 3 | 4.3 | 100 |
| 4 | Level of education | No read and write Illiterate | 32 | 45.7 | 45.7 |
| | | Read & Write | 17 | 24.3 | 70.0 |
| | | Primary school graduate | 7 | 10.0 | 80.0 |
| | | Intermediate school graduate | 6 | 8.6 | 88.6 |
| | | Secondary school graduate | 5 | 7.1 | 95.7 |
| | | Institute | 1 | 1.4 | 97.1 |
| | | College and above | 2 | 2.9 | 100 |
| 5 | Occupation | Employment | 9 | 12.9 | 12.9 |
| | | Unemployment | 6 | 8.6 | 21.5 |
| | | Government officer | 15 | 21.4 | 42.9 |
| | | Housewife | 33 | 47.1 | 90.0 |
| | | Others | 7 | 10.0 | 100 |
| 6 | Environmental of employ | Appropriate | 33 | 47.1 | 47.1 |
| | | Good | 12 | 17.1 | 64.3 |
| | | Bad | 25 | 35.7 | 100 |
| 7 | Residence | Urban | 54 | 77.1 | 77.1 |
| | | Rural | 16 | 22.9 | 100 |
| 8 | Body mass index | Normal Weight (18.5-24.9) | 8 | 11.4 | 11.4 |
| | | Over weight (25-29.9) | 16 | 22.9 | 34.3 |
| | | Obesity (30 & greater) | 46 | 65.7 | 100 |
| 9 | Economic status | Weak | 29 | 41.4 | 41.4 |
| | | Medium | 36 | 51.4 | 92.9 |
| | | Good | 5 | 7.1 | 100 |
| | Total | | 70 | 100 | |

Table 1 shows that the majority (40%) of the age group were more than 60 years old and the mean of age were (54.3) year. Most of the study sample (54.3%) was female. Most of them (91.4%) were married and (45.7%) were no read and write, the majority of the occupation (47.1%) was housewife. Most of the study sample (47.1%) were have appropriate of environmental of employ and (77.1%) living in urban area. Most of them (65.7%) were obese patients and (51.4%) were medium on the economic status.

**Table (2) Contributing factors for adult patients with osteoarthritis.**

| No | Items | Yes | No | M.S | Severity |
|---|---|---|---|---|---|
| 1st | **Congenital defect** | | | | |
| 1 | dislocated hip | 4 | 66 | 1.06 | L |
| 2 | congenital deformities in the bones | 2 | 68 | 1.03 | L |
| 3 | shorter in one leg | 0 | 70 | 1.00 | L |
| 4 | curvature of the spine lead to tendency to one side | 6 | 64 | 1.09 | L |
| 5 | Osteomalacia in the joint bone | 7 | 63 | 1.10 | L |
| 6 | congenital deformity of the feet | 1 | 69 | 1.01 | L |
| 2nd | **Diseases of joint** | | | | |
| 1 | intestinal arthritis (arthritis enteric) | 0 | 70 | 1.00 | L |
| 2 | Gout | 2 | 68 | 1.03 | L |
| 3 | gout false (Pseudo gout) | 0 | 70 | 1.00 | L |
| 4 | psoriatic arthritis (psoriatic arthritis) | 0 | 70 | 1.00 | L |
| 5 | previous injury arthritis bacterial | 0 | 70 | 1.00 | L |
| 6 | injury to the ligaments of the joint | 14 | 56 | 1.20 | L |
| 7 | muscle weakness | 16 | 54 | 1.23 | L |
| 8 | An injury led to the wounding of a nearby joint | 6 | 64 | 1.09 | L |
| 9 | Bone fractures in the joint | 6 | 64 | 1.09 | L |
| 10 | Rheumatoid arthritis | 14 | 56 | 1.20 | L |
| 3rd | **Medical disease** | | | | |
| 1 | Disorders of the thyroid gland | 6 | 64 | 1.09 | L |
| 2 | Hemochromatosis | 1 | 69 | 1.01 | L |
| 3 | Problem with blood clotting disorders led to detailed | 1 | 69 | 1.01 | L |
| 4 | Do not exposed to sunlight | 60 | 10 | 1.86 | H |
| 5 | Hypertension | 27 | 43 | 1.39 | M |
| 6 | Diabetes mellitus | 17 | 53 | 1.24 | L |
| 4th | **Medications** | | | | |
| 1 | Taking steroids Pharmaceuticals | 14 | 56 | 1.20 | L |
| 2 | Taking medical chemotherapy | 5 | 65 | 1.07 | L |
| 5th | **Diet** | | | | |
| 1 | Do not like eat fish oil | 63 | 7 | 1.90 | H |
| 2 | Do not like eat egg yolks | 60 | 10 | 1.86 | H |
| 3 | Do not prefer to eat fish | 54 | 16 | 1.77 | H |

| | | | | | |
|---|---|---|---|---|---|
| 4 | Does not want to drink milk | 65 | 5 | 1.93 | H |
| 5 | Do not like eat cheese | 61 | 9 | 1.87 | H |
| 6 | Do not best eat food of plant origin | 68 | 2 | 1.97 | H |
| 7 | Eat the red meat | 45 | 25 | 1.64 | M |
| 8 | Eat white meat | 68 | 2 | 1.97 | H |
| 9 | Do not best eat beans | 61 | 9 | 1.87 | H |
| 6th | **Exercise and habits** | | | | |
| 1 | play basketball | 0 | 70 | 1.00 | L |
| 2 | play of football | 4 | 66 | 1.06 | L |
| 3 | play boxing | 0 | 70 | 1.00 | L |
| 4 | Play Wrestling game | 0 | 70 | 1.00 | L |
| 5 | Ride a bike | 0 | 70 | 1.00 | L |

Table 2 shows that the mean of score are high on items [3$^{rd}$ (4), 5$^{th}$ (1, 2, 3, 4, 5, 6, 8, and 9] and moderate on the items ( 3$^{rd}$ 5, and 5$^{th}$ 7) and low on the remaining items.

**Table (4) Correlation coefficient between (age, gender, marital status, educational level, occupation,) with contributing factors for adult with osteoarthritis**

| Correlation | Age | Gender | Marital | Education | Occupation |
|---|---|---|---|---|---|
| Age | 1 | - | - | - | - |
| Gender | .118 | 1 | - | - | - |
| Marital | .017 | .158 | 1 | - | - |
| Education | -.421$^{**}$ | -.252$^{*}$ | .047 | 1 | - |
| Occupation | .081 | .479$^{**}$ | .195 | -.065 | 1 |
| Environment | -.049 | -.243$^{*}$ | .034 | -.215 | -.059 |
| Residence | .093 | -.183 | .014 | -.189 | -.095 |
| BMI | -.080 | .414$^{**}$ | -.081 | -.056 | .112 |
| Economic | -.117 | .096 | .153 | .264$^{*}$ | -.204 |
| Joint | -.012 | .014 | -.109 | -.136 | -.294$^{*}$ |
| Surgery | .007 | -.131 | -.033 | -.018 | -.034 |
| Factors | -.031 | -.097 | .240$^{*}$ | .024 | .132 |

**\*\*. Correlation is significant at the 0.01 level (2-tailed).**

**\*. Correlation is significant at the 0.05 level (2-tailed).**

Table 3 shows that there is moderate negative relationship between age with educational level (r=-.421$^{**}$ ) and moderate positive relationship between gender with [occupation (r=.479$^{**}$) & BMI(r=.414$^{**}$)]. There is moderate positive relationship between marital status with contributing factors(r=.240$^{*}$) and there are weak relationship between contributing factors with other variable and no relationship between the remaining variables. There were significant relationship between occupation and gender, environment and gender.

## DISCUSSION:

The findings of the study sample shows that the majority (40%) of the age group were more than 60 years old and the mean of age were (54.3) year. Most of the study sample (54.3%) was female. Most of them (91.4%) were married and (45.7%) were no read and write. (Table 1). These finding were in good agreement with that obtained by other researcher who found osteoarthritis is the most common joint disorder, and there is evidence that a majority of individuals over the age of 65years[11].Another study supported the result who stated that the prevalence of symptomatic and radiographic hip osteoarthritis in a multiregional sample in France, estimated that hip osteoarthritis prevalence according to age class ranged from 0.9% to 3.9% for men and 0.7% to 5.1% for women[9].These result were similar to those result obtained by other researcher which stated that evidence of knee osteoarthritis, and especially of symptomatic knee osteoarthritis is more common in women than in men[12].This result agrees with that of other researcher who found that married are exposed to osteoarthritis more than non-married [13]. The findings of the study sample show that the majority (47.1%) of the occupation were housewife. Most of the study sample (47.1%) were have appropriate of environmental of employ and (77.1%) living in urban area. Most of them (65.7%) were obese patients and (51.4%) were medium on the economic status.( Table 2).These finding were agreement with obtained by other researcher who found that occupation involving squatting or kneeling, housewife more than two hours daily were associated with knee osteoarthritis [14]. These result were similar to those result obtained from other researcher which stated that The association between heavy manual work and an increased risk of radiographic hip osteoarthritis has been demonstrated in several cross-sectional studies (77.1%) patient were living in urban area According to the findings of the researcher [15]. These finding were in good agreement with obtained by other researcher who found that the Population-based studies of osteoarthritis consistently have shown that overweight people are at greater risk of developing knee osteoarthritis than average- weight controls. Obese women are four to five times more likely to have knee osteoarthritis than persons of average weight. Weight reduction is likely to lessen the symptoms of knee osteoarthritis [16]. The finding of table (3) indicated that there was a high severity between do not like exposed to sunlight for patients with osteoarthritis, this means that not expose to sunlight an effect on the patient. A study conducted in Australia found that higher vitamin D levels may be associated with less cartilage loss in the knee over a three-year period, included 880 randomly selected men and women between ages 51 and 79. To check for osteoarthritis, the researchers how much sun they got, as vitamin D can be manufactured by the skin after exposure to sunlight [17]. Another study stated that both sunlight exposure and vitamin D levels were associated lower knee cartilage volume loss, suggesting that maintaining a robust vitamin D level may help to prevent the progression to osteoarthritis[18] .These finding were similar to those obtained from the other researcher who found that sunlight exposure and higher vitamin D levels are both associated with decreased knee cartilage loss in patients with knee osteoarthritis [19]. These findings were an agreement with obtained by other researcher who found that the Omega-3 fatty acids, such as fish oil, 1-2 capsules. Daily Oil, to help in decrease inflammation. Higher doses may be used by health care providers [20].Another study indicated that the synovial fluid is an egg yolk-like liquid within the cavities of the synovial joints, which serves to reduce friction between articular cartilage during movement. In knee osteoarthritis, a condition that afflicts 1 in 2

people by the age of 85 years, the immune cells known as monocytes express increased inflammatory COX-2 enzyme activity within the synovial fluid [21]. Another study indicated that the milk consumption itself was responsible for slowing the joint space narrowing. There could be something about the people who drank milk – other than that dietary habit – that made their OA progress more slowly [22]. Another study concluded that a diet that is generally low in essential nutrients has been shown to contribute to the development or progression of osteoarthritis. Basically, this translates to a diet high in refined products like white rice, white bread, white pasta, and saturated and trans-fats, and low in nutrient-rich foods like vegetables, fruits, legumes, fish, whole grains, and lean meats [23]. These findings were an agreement with obtained by other researcher who found in the study that the percentage of 41.1% osteoarthritis patients reported meat to be major food item which aggravates the symptoms of pain and swelling. Since meat gives rise to free radicals due to iron-catalyzed oxidative reaction and have been shown to exacerbate the synovial inflammation [24]. These findings were an agreement with obtained by other researcher who found that the Poorly planned vegan diets may be low in vitamin $B_{12}$, omega-3 fatty acids, vitamin D, calcium, iron, zinc, riboflavin (vitamin $B_2$), and iodine may be lead to the incidence of osteoarthritis[25]. These results were similar to those results obtained from other researcher which stated that the food is fight inflammation such as (beans and legumes) [26]. These findings were an agreement with obtained by other researcher which stated that the Osteoarthritis and hypertension often coexist, since both conditions are age related. It has been reported that approximately 50% of patients with osteoarthritis suffer from hypertension [27]. Table (4) indicated that there was a moderate positive relationship between gender with (occupation and body mass index).These finding were similar to the result obtained from other researcher who stated that the Some occupational have been recognized a heaving greater risk these include shipyard, carpenters, miners, construction workers, cleaners, agricultural worker and rock workers[6]. These finding were supported by other researcher who reported that a strong positive relationship between work related knee bending exposure and knee osteoarthritis The evidence between work related exposure, farming in particular, and hip osteoarthritis. is consistently positive but weak[28].Second study done by other researcher who reported that the risk of knee osteoarthritis accumulates from exposure to high body mass index through adulthood [29].According to the findings of the study moderate negative relationship between age with educational level. The majority of the samples were weak level of learning towards our patient. These finding were similar to the result obtained by result agrees with other researcher who found that married are exposed to osteoarthritis more than non married because of the most of the people appointed were married and the nature of the work as a housewife and effort placed on herself which helps to disease osteoarthritis [14].

## CONCLUSIONS:

Based on the results of the study, the researcher concluded the following:
1- Most of the study samples were obese that is very important factors for osteoarthritis.
2- Most of the study sample injured joint are (knee, hip and ankle joints) and duration of injured less than two years.
3- The first important contributing factors were the adult patient does not best eat food of plant origin, not want to drink milk and do not like eat fish oil, do not like eat

cheese, does not best eat beans and do not exposed to sunlight and do not like eat egg yolks and does not prefer to eat fish.

4- Findings of the study indicated that there is relationship between gender with occupation (housewife) and BMI (obese)

## RECOMMENDATIONS:

Based on the conclusions, the study recommended the following:-

1- Checking and follow-up of adult with increase aging for osteoarthritis.

2- Maintained and control of weight especially with women.

3- Food is the fundamentals of the developing osteoarthritis and it must be focus on eating the following materials such as ( food of plant origin, drink milk, eat fish oil, eat cheese, eat beans, eat egg yolks, and prefer to eat fish).

4- Sunlight is necessary factors to maintain strength bone and protect it from inflammation and it must be exposed to sunlight for long enough.

5- Heath education should be given to patient and his family about detecting signs and symptoms to adjust and to cope with their problems.

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