

REVIEW ARTICLE

Knowledge, Attitude and Practice (KAP) Regarding Non-Surgical Intervention Among Osteoarthritis Patients: A Review

Ying Qian Ong¹, Sakinah Harith¹, Mohd Razif Shahril¹, Norshazila Shahidan²

¹ School of Nutrition and Dietetics, Faculty of Health Sciences, Universiti Sultan Zainal Abidin, Gong Badak Campus, 21300 Kuala Nerus, Terengganu, Malaysia

² School of Food Industry, Faculty of Bioresources and Food Industry, Universiti Sultan Zainal Abidin, Besut Campus, 22200 Besut, Terengganu, Malaysia

ABSTRACT

Treatment effectiveness depends on the knowledge, attitude, and practice (KAP) of osteoarthritis (OA) patients towards their assigned treatment. This study aimed to explore the KAP towards non-surgical intervention among OA patients. A methodological framework proposed by Arksey and O'Malley (2005) was implemented. An electronic database search of English-language academic articles was conducted using PubMed and ScienceDirect databases encompassing 1998 to 2018 period of time, resulting in a total of 26 studies. OA patients were knowledgeable about the disease and exercise management. However, they were lack of knowledge on drug therapy and complementary strategies. The attitude towards non-surgical interventions was ambivalence. Lastly, the practice section mainly focused on patients' compliance and behaviour towards different conservative managements, namely physiotherapy, medications, and complementary and alternative medicines (CAMs) which influenced by both knowledge level and attitudes. In conclusion, a higher knowledge level and positive attitude will result in good practice.

Keywords: Knowledge, Attitude, Practice, Osteoarthritis, Non-surgical intervention

Corresponding Author:

Sakinah Harith, PhD

Email: sakinahharith@unisza.edu.my

Tel: +609-6687979

INTRODUCTION

Osteoarthritis (OA) is defined as a progressive joint problem that is attributed by biochemical or genetic factors, affecting people globally and leading to physical and psychosocial consequences (1). OA is described as the degeneration and damage of articular cartilage along with synovial inflammation, followed by pain (2). It is the most predominant type of arthritis (3) and a major contribution towards disability worldwide (4). It can occur in various joints, such as hip, knee, and hand, with knee osteoarthritis (KOA) being more common (5).

The incidence of OA is becoming more prevalent and rising due to the increasing number of elderly and obesity cases (6). A study reported that a 5 kg/m² increase in body mass index (BMI) was associated with an increase likelihood of OA by 32% (7). This has been verified by a systematic review, which reports that an increased risk of knee pain is observed in those who are overweight or obese (8). According to Woolf and Pfleger (2003), 9.6% men and 18.0% women aged 60 years and above experienced symptomatic OA, with 25% of them

unable to carry out routine daily activities (9). Therefore, this issue needs to be addressed immediately as it affects the quality of life (10).

Currently, OA cannot be healed and therefore the treatment so far is mainly focused on symptomatic relief (11). Typical non-surgical management includes education and advice, exercise, weight control, physiotherapy, occupational therapy, drug therapy, and supplementation (1). Surgical intervention (i.e. joint replacement) is the last choice of treatment if such interventions fail to alleviate symptoms and influence patients' daily living activities significantly (12).

The National Public Health Agenda for Osteoarthritis (2010) has outlined nine priority policies of urgent tasks (13). The third priority policy, which is 'Increase early access to evidence-based interventions' has indicated actions that needed to be taken to increase OA awareness and knowledge among OA patients and caregivers. This is particularly crucial as the provision of knowledge may delay the disease progression. Besides, previous research works have demonstrated that a patient's belief about the effectiveness and safety of medications influence their decisions to consume medications and their choices of medications (14). Therefore, an assessment on the patient's belief and attitude towards the side effects and effectiveness of various kinds of treatments used may

influence their treatment choices and compliance (15).

Previously, a qualitative study has investigated the perceptions of living with this disease and towards conservative management (12). However, no study has been carried out to explore the knowledge, attitudes, and practices towards non-surgical intervention among OA patients. Additionally, a recent systematic review has indicated that these patients prefer surgical treatment more and have a negative belief about the efficacy of conservative management (12). Hence, this review aimed to explore in detail about the knowledge, attitudes, and practices towards non-surgical intervention among OA patients to enhance their compliance with conservative treatment options.

MATERIALS AND METHODS

The present study was designed as a review that outlined the knowledge, attitudes, and practices regarding non-surgical intervention among OA patients. A five-stage methodological framework outlined by Arksey and O’Malley (2005) was used as a guideline for the review. It consisted of: 1) identifying the research questions; 2) identifying relevant studies; 3) study selection; 4) charting the data; and 5) collating, summarising, and reporting the results (16). A Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram illustrates the sequence of articles from the initial search towards their final selection as shown in Fig. 1 (17).

Identifying the research questions

The review questions are as follows:

(1) What is the knowledge regarding osteoarthritis and non-surgical intervention among osteoarthritis patients?

(2) What is the attitude regarding non-surgical intervention among osteoarthritis patients?

(3) What is the practice regarding non-surgical intervention among osteoarthritis patients?

Identifying relevant studies

Academic journals of English language published from the year 1998 to 2018 were identified by conducting an electronic database search and incorporating PubMed and ScienceDirect. All types of studies were included in the search, except systematic reviews or review papers. The titles, abstracts, and keywords were examined independently for eligibility by the researchers. Consequently, 26 articles were included in this review out of 780 articles identified through the electronic database search. Key search terms used to search the articles are displayed in Table I.

Table I: Key search terms in the review

| |
|---|
| • Knowledge AND Attitude AND Practice AND Intervention AND Osteoarthritis |
| • Understanding AND Attitude AND Practice AND Intervention AND Osteoarthritis |
| • Awareness AND Attitude AND Practice AND Intervention AND Osteoarthritis |
| • Knowledge AND Belief OR Perception AND Behavior AND Intervention AND Osteoarthritis |
| • Understanding AND Belief OR Perception AND Behavior AND Intervention AND Osteoarthritis |
| • Awareness AND Belief OR Perception AND Behavior AND Intervention AND Osteoarthritis |
| • Knowledge AND Attitude AND Practice AND Treatment AND Osteoarthritis |
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| • Awareness AND Belief OR Perception AND Behavior AND Treatment AND Osteoarthritis |

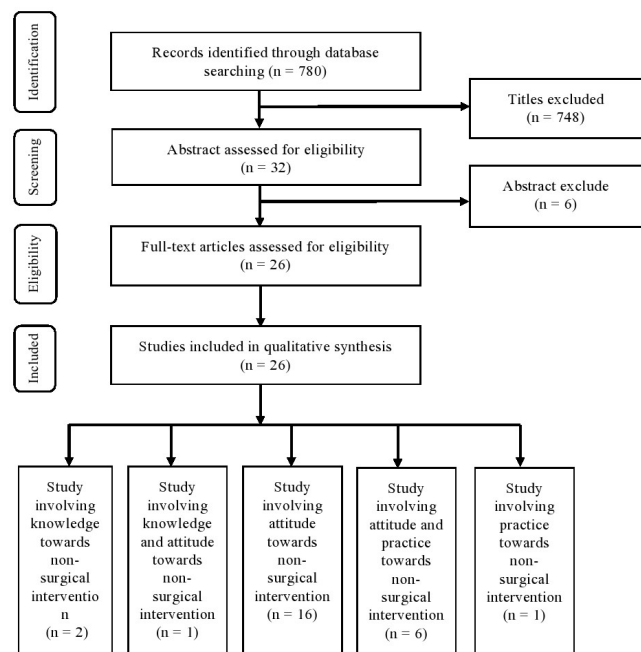


Figure 1: Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) flow diagram of study selection

Study selection

The studies that supplied information on: (1) characteristics of participants (i.e. gender, age, and osteoarthritis patient); (2) knowledge regarding OA and non-surgical intervention; (3) attitude regarding non-surgical intervention; and (4) practice regarding non-surgical intervention were thus included in this review.

Charting the data

Data pertaining the author(s), year of publication, country(ies), study design, participants’ characteristics, method of data collection, categories, domains, and findings relevant to the review are summarised in Tables II.

Collating, summarising and reporting the results

The findings of the review on the knowledge, attitude, and practice regarding non-surgical intervention among OA patients are shown in Tables II.

RESULTS

Study characteristics

A breakdown of the selected 26 studies revealed that three studies assessed the knowledge, 23 studies examined the attitudes, and eight studies evaluated the practices regarding non-surgical intervention among OA patients. These information are further summarised in Tables II. The total number of respondents was 6832, whereby they were aged 29 years old and above. In total, 4611 female and 2221 male respondents participated, while gender data was missing in one study (18). A majority of the studies recruited participants with knee OA (n = 13, 48%) (19-31), six studies involved those with either knee or hip OA (32-37), while only one study engaged participants with knee, hip, spine or hand OA (37). Seven studies did not state the affected OA region at all (18, 39-44).

A total of 18 studies (67%) were conducted in Europe (19, 20, 22-23, 27-33, 35-38, 40-41, 44); four in Australia (25, 39, 42, 43); three in North America (18, 24, 34); and two in Asian countries (21, 26). More than half of the studies included were qualitative studies (n = 18, 67%) (18-22, 24, 27-28, 30, 32-38, 42-43), while four studies were cross-sectional design (23, 26, 39-41); three studies were survey type (25, 29, 44) and one study was randomized controlled trial (RCT) (31). Next, 18 studies used the interview method to collect data (18-21, 24, 27-28, 30, 32-38, 42-44), whereas four studies collected data using a questionnaire (25-26, 29, 39-41).

In contrast, one study gathered data using focus group (22), interview and questionnaire (23), and interviews and participant diaries (31), respectively.

Knowledge towards non-surgical interventions

A variety of categories is identified with different domains and findings or themes as presented in Tables II for the knowledge, attitudes, and practices towards non-surgical intervention. For the knowledge part, three studies were identified. Victor et al. (2004) reported that the mean knowledge of arthritis was 15 scores out of 20 scores, with 67% of the participants who realised the causes of arthritis (31). Another study reported 19 knowledge scores out of 30 scores using OA patient knowledge questionnaire (PKQ-OA). It showed that 68% of them achieved correct answers for disease process domain, 72% for exercise and rest domain, 55% for drug therapy domain, and 42% for joint protection and complementary therapies domain (41). Meanwhile, a study on the non-steroidal anti-inflammatory drugs (NSAIDs) demonstrated that only 35.5% of the participants were aware of the side effects of NSAIDs (44). In brief, the OA patients were knowledgeable about the disease and exercise management. However, they were lack of knowledge on drug therapy and complementary strategies.

Attitude towards non-surgical interventions

On the other hand, 23 studies investigated the attitude towards non-surgical interventions, whereby only two studies provided quantitative data. The rest of the studies provided qualitative data. Nine studies investigated attitudes towards medications (18, 25, 27-28, 33-34, 39, 42-43) and eight studies for treatment in general (19, 21, 24, 29, 31-32, 35-36), respectively. Meanwhile, six studies examined the attitudes towards exercise or

Table II: Knowledge, attitudes and practices towards non-surgical intervention

| Author, year | Country | Study design | Participants' characteristics | Knowledge | | | |
|---------------------|---------|------------------------------------|---|-----------------------------------|--|--|-----------------|
| | | | | Method of data collection | Categories | Domains | Findings |
| Victor et al., 2004 | UK | RCT | n = 170 (124F, 46M); median age (range) = 63 years old (45-90 years old); OA region affected = knee | Interview and participant diaries | - | Knowledge score of arthritis | 15 (range 0-20) |
| | | | | | | Causes of arthritis | 67% |
| Yilmaz et al., 2005 | Turkey | Epidemiological surveillance study | n = 3,755 (2816F, 939M); age = 35% over 65 years of age; OA region affected = n/s | Interview | - | Awareness of side effects of NSAIDs | 35.5% |
| Hill et al., 2007 | UK | Cross sectional | n = 83 (61F, 22M); median age (range) = 62 years old (29-84 years old); OA region affected = n/s | Self-administered questionnaire | - | PKQ-OA | 19 (range 8-26) |
| | | | | | Disease process | Etiology, symptoms and diagnostic tests | 68% |
| | | | | | Exercise and rest | Suitable exercise techniques and approaches to have a good night's sleep | 72% |
| | | | | | Drug therapy | Effects of commonly took medications, their side effects and how to consume them | 55% |
| | | | | | Joint protection and complementary therapies | The most suitable ways of joint protection and energy conservation, pain alleviation and knowledge of proven complementary therapies | 42% |

Continue.....

Table II: Knowledge, attitudes and practices towards non-surgical intervention (Continued)

| Attitudes | | | | | | | |
|---------------------------|-------------|------------------------|---|------------------------------------|--|--|--|
| Author, year | Country | Study design | Participants' characteristics | Method of data collection | Categories | Domains | Findings |
| Kee, 1998 | USA | Phenomenological study | n = 20 (17F, 3M); age range = 62-92 years old; OA region affected = knee | Interview | - | Managing OA | Pragmatism toward treatment strategies |
| Tallon et al., 2000 | UK | Survey | n = 96 (51F, 41M, 4n/s); mean age = 61 years old; OA region affected = knee | Questionnaire | Helpfulness of interventions (extremely helpful) | Tablets Physical therapy | 24% 15% |
| Campbell et al., 2001 | UK | Qualitative study | n = 20 (14F, 6M); age = ≥45 years old; OA region affected = knee | Interview | Compliance with physiotherapy | Initial compliance Continued compliance | Loyalty to the physiotherapist Willingness and ability to accommodate exercises within everyday life, the perceived severity of symptoms, attitudes towards arthritis and comorbidity and previous OA experiences. |
| Victor et al., 2004 | UK | RCT | n = 170 (124F/46M); median age and range = 63 years old (45-90 years old); OA region affected = knee | Interviews and participant diaries | - | Individual goals desired from treatment | Pain management, improvement in mobility or functional ability |
| Bower et al., 2006 | Canada | Qualitative study | n = 16; OA region affected = n/s | Interview | - | Medication options | Family physicians' recommendation, fear of side effects, distribution of free samples |
| Hendry et al., 2006 | UK | Qualitative study | n = 22 (16F, 6M); age range = 52-86 years old; OA region affected = knee | Focus group | - | Exercise behaviors | Physical capacity, beliefs about exercise, motivational factors (enjoyment, social support) |
| Rosemann et al., 2006 | Germany | Qualitative study | n = 20 (12F, 8M); median age and range = 56.2 years old (40-78 years old); OA region affected = knee | Interview | - | Pain treatment | Ambivalent attitude towards NSAIDs and opiates. |
| Sale et al., 2006 | Canada | Qualitative study | n = 19 (10F, 9M); age range = 67-92; OA region affected = hip, knee | Interview | - | Adherence to pain medication | Perceptions and attitudes to pain |
| Thorstenson et al., 2006 | Sweden | Qualitative study | n = 16 (6F, 10M); median age and range = 56.6 years old (39-64 years old); OA region affected = knee | Interview | Exercise perception | To become healthy To gain motivation To feel the need for support To confront resistance | Experience coherence, experience well-being, to be in control, experience improved physical functioning, experience symptom relief Experience inspiration, to be prepared to persevere, experience the need to exercise To have structure, receive guidance, devote time To hesitate, deprecate |
| Veenhof et al., 2006 | Netherlands | Qualitative study | n = 12 (8F, 4M); median age and range = 69.8 years old (51-80 years old); OA region affected = hip, knee | Interview | - | Factors relating to exercise adherence | Initial motivation to reach goals, active involvement in the intervention |
| McHugh et al., 2007 | UK | Qualitative study | n = 21 (16F, 5M); median age and range = 65 (48-86); OA region affected = hip or knee | Interview | OA management | Use of services and treatments | Experience, attitude to services and treatments, concerns of medication side-effects |
| Parsons et al., 2009 | UK | Phenomenology study | n = 6 (3F, 3M); median age and range = 69.5 years old (60-76 years old); OA region affected = hip or knee | Interview | Coping with pain | Analgesic medication consumption | Side effects, trying not to dependent on medication |
| Petursdottir et al., 2010 | Iceland | Phenomenological study | n = 12 (9F, 3M); median age and range = 67 years old (50-82 years old); OA region affected = hip, knee, spine, hands, other | Interview | Facilitators and barriers to exercising | Internal factors External factors | Individual attributes, personal experience Social environment, physical environment |
| Alami et al., 2011 | France | Qualitative study | n = 81 (59F, 22M); age range = 45-80 years old; OA region affected = knee | Interview | - | Drug therapy Dietary supplements Local treatments, non-pharmacological treatments, alternative therapies | Fear and avoidance, side effects Positive effects on pain, absence of side effects, curable effect Positive effects and efficacy |
| Chan and Chan, 2011 | Hong Kong | Qualitative study | n = 20 (13F, 7M); mean age±SD = 57.05±10.79 years old; OA region affected = knee | Interview | - | Health-seeking behaviors | Perception of the problem, concern and expectations from treatment |
| Milder et al., 2011 | Australia | Qualitative study | n = 15 (8F/7M); age range = 65-89 years old; OA region affected = n/s | Interview | - | Perception of risk of the use of NSAIDs | Transference of responsibility, general vs specific risk, personal immunity |
| Milder et al., 2011 | Australia | Qualitative study | n = 15 (8F/7M); age range = 65-89 years old; OA region affected = n/s | Interview | Selection of analgesic | Reliance | Strongly relied on NSAIDs but less relied on paracetamol |

Continue.....

Table II: Knowledge, attitudes and practices towards non-surgical intervention (Continued)

| Attitudes | | | | | | | |
|-------------------------|-------------|-----------------------|---|---------------------------------|--------------------------------|--|--|
| Author, year | Country | Study design | Participants' characteristics | Method of data collection | Categories | Domains | Findings |
| Holden et al., 2012 | UK | Cross sectional study | n = 1276 (727F, 549M); mean age±SD = 66±10 years old; OA region affected = knee | Questionnaire and interview | - | Attitude and beliefs about the role of exercise for knee pain | Doubt about the role of exercise and physical activity, concern over pain, positive view |
| Laba et al., 2013 | Australia | Survey | n = 188 (52F, 48M); mean age±SD = 62±8.5 years old; OA region affected = knee | Questionnaire | - | Medication adherence | Side effects, out-of-pocket costs, mode of action, treatment timetable |
| Basedow et al., 2014 | Australia | Cross sectional study | n = 435 (309F, 126M); median age (age range) = 69 years old (68-70 years old); OA region affected = n/s | Self-administered questionnaire | Belief about CAMs | Safety Effectiveness Curable Helpfulness | 67% agreed or strongly agreed that CAMs are safe to use. 33% believed that CAMs were effective in reducing pain. 4% believed that CAMs would cure their conditions. 29% rate CAMs to be 'very helpful' or 'extremely helpful'. 12% regard CAMs as 'totally useless'. |
| Pouli et al., 2014 | UK | Qualitative study | n = 24 (17F, 7M); mean age±SD = 62±7; OA region affected = knee | Interview | - | Belief about medication | Pain relief, worries about medication, ambivalence |
| Selten et al., 2016 | Netherlands | Qualitative study | n = 24 (16F, 8M); median age and range = 59 years old (35-78 years old); OA region affected = knee, hip | Interview | Reasons for treatment options | Treatment characteristics Personal investment Personal circumstances Support and advice | Effectiveness, fear of risks, personalized treatment, accessibility Money and time Age, body weight, comorbidities and previous experience with a treatment Patient's social environment and healthcare providers |
| Selten et al., 2017 | Netherlands | Concept mapping study | n = 36 (26F, 10M); mean age±SD = 65.6±6.6 years old; OA region affected = knee, hip | Interview | - | Reasons for treatment choices | Disadvantages, outcome expectations and personal life outcomes |
| Practices | | | | | | | |
| Author, year | Country | Study design | Participants' characteristics | Method of data collection | Categories | Domains | Findings |
| Tallon et al., 2000 | UK | Survey | n = 96 (51F, 41M, 4n/s); mean age = 61 years old; OA region affected = knee | Questionnaire | Treatments used | Analgesics Physical therapy Aids and adaptations | 53% "often" or "very often" 16% "often" or "very often" 27% often" or "very often" |
| Campbell et al., 2001 | UK | Qualitative study | n = 20 (14F, 6M); age = ≥45 years old; OA region affected = knee | Interview | Compliance with physiotherapy | Initial compliance Continued compliance | 13 compliant, 7 partially compliant 7 compliant, 1 partially compliant, 11 non-compliant, 1 equivocal |
| Hendry et al., 2006 | UK | Qualitative study | n = 22 (16F, 6M); age range = 52-86 years old; OA region affected = knee | Focus group | - | Exercise behaviors | Long-term sedentary Long-term active Retired from exercise Converted to exercise |
| Sale et al., 2006 | Canada | Qualitative study | n = 19 (10F, 9M); age range = 67-92; OA region affected = hip, knee | Interview | Pain medication Supplements | Consumption Behaviors Consumption | 4 participants took their pain medications as prescribed, the remaining participants took it in a lower dose or frequency than prescribed A participant recorded every plain Tylenol she took on paper. 18 of the 19 participants were taking at least 1 herbal remedy and/or vitamin. |
| Blamey et al., 2009 | UK | Cross-sectional study | n = 216 (71F, 29M); mean age±SD = 55±14.8 years old; OA region affected = n/s | Questionnaire | - | Analgesic use | 77% patients in serious pain reported always consume their analgesics everyday |
| Milder et al., 2011 | Australia | Qualitative study | n = 15 (8F/7M); age range = 65-89 years old; OA region affected = n/s | Interview | - | Analgesic consumption Supplements consumption | For some patients, taking an NSAID was a comfortable daily They also had become accustomed to taking glucosamine, chondroitin and/or other CMs every day. |
| Basedow et al., 2014 | Australia | Cross sectional | n = 435 (309F, 126M); median age (age range) = 69 years old (68-70 years old); OA region affected = n/s | Self-administered questionnaire | - | CAMs used | 69% had tried CAMs. 39% used one CAM 33% used two CAMs 27% used three or more CAMs |
| Nik Shafii et al., 2018 | Malaysia | Cross sectional | n = 214 (142F, 72M); mean age = 60.8±9.2 years old; OA region affected = knee | Self-administered questionnaire | - | TCMs used | 57.9% used TCMs |

RCT: randomized controlled trial; F: female; M: male; OA: osteoarthritis; n/s: not stated; NSAIDs: non-steroidal anti-inflammatory drugs; PKQ-OA: osteoarthritis patient knowledge questionnaire; CAMs: complementary and alternative medicines; TCMs: traditional and complementary medicines

physiotherapy (20, 22-23, 30, 37-38).

OA treatments

A study showed that 22 participants (24%) think that tablets was extremely helpful in improving their pain and disability, while 13 participants (15%) felt that physical therapy was extremely helpful in improving their pain and disability (29). In terms of qualitative outcomes, the attitude towards the treatments depends on the expectations from the treatment such as effectiveness in improving pain, mobility or functional ability, previous experience in receiving the treatment, concern such as perception of the problem, disadvantages, fear of risk, accessibility, money and time as well as support and advice from healthcare providers.

Medications and complementary and alternative medicines (CAMs)

Most of the patients had ambivalence attitude towards NSAIDs and opiates consumptions. Laba et al (2013) reported patients were strongly dependent on NSAIDs but less relied on paracetamol (25). This can be attributable to several reasons such as fear and worry about the side effects, doctors' recommendation, perceptions and attitudes to pain, trying not to rely on medications, out-of-pocket costs, treatment schedule and efficacy.

Next, Basedow et al. (2014) undertook a research on CAMs' belief, which demonstrated that 67% of the participants agreed or strongly agreed that CAMs were safe to use. The remaining 33% believed that CAMs were effective in alleviating pain, while 4% believed that CAMs would heal their conditions. In terms of helpfulness, 29% rated CAMs to be 'very helpful' or 'extremely helpful', while 12% regarded CAMs as 'totally useless' (39).

Physiotherapy and exercise

By looking at physiotherapy and exercise, the initial compliance was mainly attributed to the loyalty to the physiotherapist (20). Meanwhile, continued compliance was influenced by several factors such as willingness and ability to engage in exercise in daily life, perceived symptoms severity, concern over pain, attitudes towards OA, previous OA experiences, motivational factors like enjoyment and social support, belief about the role of exercise and positive effects of the treatment.

Practice towards non-surgical interventions

Next, eight studies explored the practices regarding non-surgical interventions. Five studies investigated attitudes towards medications and CAMs (26, 34, 39, 40, 42) and two studies for physiotherapy and exercises (20, 22), respectively. Meanwhile, only one study examined the attitudes towards treatment in general (29).

OA treatments

Tallon et al. (2000) found that 53% of the participants used analgesics 'often' or 'very often', followed by aids

and adaptations (27%) and physical therapy (16%) (29). Next, Campbell et al. (2001) reported that 13 participants (65%) were compliant with physiotherapy initially, which were later reduced to seven participants (35%) by the end of the therapy (20).

Medications and CAMs

A study done on pain medication demonstrated that 15 out of 19 participants (79%) took the medication in a lower dose or frequency than prescribed. Besides, some participants rationed their medication regularly, especially when the amount of medication was significantly low. Concurrently, almost all participants (n = 18, 95%) took at least one supplement (34). Another study reported that 77% of participants in extreme pain took their analgesics every day, while 83% of participants who did not experience pain at one point of time and had only taken analgesics when the pain was too severe. Furthermore, 34% of those in moderate pain consumed analgesics pre-exercise, whereas 53% of those in extreme pain consumed them before going to bed (40).

Milder et al. (2011) showed that only two out of 13 participants took paracetamol at the maximum dose (i.e. six or eight tablets per day). Meanwhile, the consumption of glucosamine, chondroitin or other complementary medicines (CMs) became a daily routine for some of the participants (43). Other than that, a study revealed that 69% of the participants tried CAMs, whereby 39%, 33%, and 27% of them used one, two, and three or more CAMs, respectively (39). Last but not least, a study carried out by Nik Shafii et al. (2018) stated that 57.9% of Malaysians used traditional and complementary medicine (TCMs) (26).

Physiotherapy and exercise

Next, Campbell et al. (2001) reported that 13 participants compliant with physiotherapy initially and reduced to seven participants at the end of the therapy (20). According to Hendry et al. (2006), four types of exercise behaviours were recognised, namely long term sedentary, long term active, retired from exercise, and converted to exercise (22).

DISCUSSION

Knowledge, attitudes and practices (KAP) emerged as three factors that are interrelated to each other dynamically and uniquely (45). Wan (2014) highlighted that improved knowledge strengthened self-care practice, polished attitude, and enhanced practice, which resulted in better outcomes (46). Hence, knowledge and attitude regarding non-surgical intervention are essential in predicting patient's compliance to a prescribed regimen (47). Subsequently, patients' willingness to give cooperation and commitment to the treatments received can ensure long-term effective management (41). A previous study claimed that OA patients had knowledge

deficits in terms of the causes and management of the disease. This could result in reduced involvement and adherence to certain interventions, as well as increased chances of misunderstanding and mismanagement (31). Failure of compliance to treatments implied that they might experience lower symptom alleviation and induce personal, health, and economic expenses (48).

In terms of individual intervention, a study reported that medical professionals' failure in delivering clear information regarding the pharmacological properties of medications encompassing usage guidelines, indications, contraindications, and adverse effects might cause patients to adhere poorly to the drug therapy (49). Besides the medical staff, drug information could be obtained from drug package, internet, newspaper, and colleagues accordingly (44, 49). Next, a study proposed that patients could achieve greater satisfaction when they received more information regarding their medications (50). Yilmaz et al. (2005) also emphasised that improved awareness about NSAIDs' drawbacks could result in better knowledge of the medication (44). Additionally, inadequate awareness that paracetamol could serve as a long-term therapy hindered its usage (51). Another study identified factors that influenced NSAIDs utilisation in terms of dosage and duration, which included awareness of the NSAIDs, their side effects, and perceived efficacy (49).

Self-efficacy is patients' perception of their ability to manage the disease's symptoms, which is vital to ensure better compliance with analgesics. The belief that regular analgesics consumption will result in tolerance to the medications also reduces patients' adherence (40). Similarly, fear is an emotional response that plays a role in influencing medication adherence in two different ways. First, patients might fear the side effects of the medication and thus stopping their consumption. In contrast, the fear of worsening the condition might cause them to refuse any drug therapy changes (18). Other than that, fear of addiction due to long-term symptom management (34), previous drug effectiveness, and the disease stigma indicated by increased pill loads (42) might lead to a situation where patients purposely reduced the dosage and rationed the medications. Consequently, they achieved suboptimal pain relief only (34). In addition, ambivalence also exists among OA patients; they need to count on medications due to the extreme pain, but they also wish to reduce the usage and find other solutions to control pain due to dependency or side effect concerns (27). In short, the evidence established that patients had specific reasons for poor medication compliance (52).

Moreover, CAMs users believed that they are safer compared to conventional medical approaches due to their naturalness (53). The perceived effectiveness of CAMs is taken into consideration when choosing them (54), with the users normally taking the products

regularly (every day) and most of them adhering to the supplement regimes for many years. Therefore, it can be said that supplementation is a habit that is maintained and sustained consistently throughout the years (55). A study reported that the use of CAMs was prevalent among patients with a better understanding of their conditions and higher self-rated health condition due to their easy approachability and perceived safety values (56). This was supported by another study carried out in Malaysia, which reported that more than half of CAMs users possessed higher educational level background (56).

Apart from that, research suggested that the attitudes and beliefs of the elderly with knee pain were the key determinants of their exercise and physical behaviour (57, 58). A study asserted that exercise adherence was not satisfactory despite the proven benefits in improving pain and function (59). Campbell et al. (2001) further reported that long-term physiotherapy exercise adherence was affected by a positive attitude to exercise, perceived exercise effectiveness, perceived causes of OA, and perceived symptoms severity (20). Similarly, a study demonstrated that some patients stopped exercising due to their symptoms, believed that exercising damaged their joints, and had not adapted their exercise habits. On the contrary, some patients continued to exercise due to beliefs that exercise would improve their symptoms (22).

Furthermore, a study by Petursdottir et al. (2010) examined various internal and external factors affecting exercise behaviours. Motivation is one of the most vital internal factors in which motivation by enjoyment and motivation by results of exercise both positively influence exercise behaviours. It also revealed that people who succeeded in the past would result in greater self-efficacy in the present. Therefore, for those who lack the readiness to modify their lifestyle, they are the most difficult to motivate due to low self-efficacy (38). Meanwhile, attitude and support of the closest family members are the external factors that play a role in influencing exercise behaviours (60). More interestingly, the evidence hypothesised that people who started exercising (e.g. gym) for the first time in their later life would result in a higher level of satisfaction (20). Moreover, perceived advantages of exercise were a crucial predictor of exercise involvement (61). By providing individually constructed exercise programmes with a supervised scheme, exercise compliance can be more promising (62). More importantly, improving the patients' knowledge and understanding regarding OA as a disease and current research promoting exercise as a therapy option may alter their attitudes and beliefs on the activity, subsequently producing positive exercise behaviours (23). Last but not least, this review noted very limited amount of study that explored the knowledge, attitudes, and practices toward non-surgical intervention in Asian countries. Hence, future researchers need to

collaborate and address the identified gap by examining KAP towards non-surgical intervention among Asian populations.

To the best of our knowledge, this is the first review assessing the KAP on non-surgical interventions among OA patients. Therefore, it can shed light regarding better KAP understanding and ensuring more fruitful and desirable outcomes among OA patients. However, there were some drawbacks of this review, such as only English-language and full texts were included, and the literature search was limited to two electronic databases. Therefore, a more thorough search should be conducted to obtain more related articles. Besides, systematic review and meta-analysis as well as articles with Clinical Practice Guidelines can be included in order to increase the quality of this manuscript.

CONCLUSION

Overall, the KAP regarding non-surgical intervention among OA patients are poor. The level of knowledge on exercise management is tolerable but knowledge about the medication and CAMs were inadequate. The attitude towards non-surgical interventions was ambivalence in which the treatments compliance was mainly influenced by several factors. Subsequently, the practice was also affected. To sum up, a higher knowledge level and positive attitude will result in good practices. In a nutshell, this study findings might help to ensure treatment effectiveness and patient's compliance by understanding their KAP towards non-surgical interventions.

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