

Beliefs regarding knee pain in Indian adults: A knowledge, attitude and practice (KAP) survey

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Abstract

Background: Belief along with habits and personality acts as important force guiding human behaviour. Health education can modify irrational beliefs and help people adopt healthy behaviour. The aim of this study is to know the existing beliefs among individuals regarding knee pain, its aetiology, and their most effective treatment modality. The study also explores the sources of healthcare information across different age groups that can be utilized for education and creating public awareness. This study also explores the different reasons why individuals do not prefer to attend a health care facility for their knee pain.

Methods: A questionnaire based cross sectional study was designed to assess individuals beliefs and modes of treatment of knee pain, the accessibility to healthcare and the factors responsible for non attendance of healthcare facility. The likely source of health information and use of internet and smart-phones for acquiring health related information was enquired.

Results: 'Ageing', 'Obesity', 'Overactivity', 'Sports and recreation', 'Hereditary', were among the most commonly believed causes of knee pain. Some irrational beliefs like association with food items, fate etc were also known. Internet and smart phones remain the most accessible and used source of health information among the age group of <20 years and 20-40 years. Health professionals were more trusted for information in the age group of 40-60 and above 60 years.

Conclusions: Regulated health information through widely available medium like internet and smartphones can effectively tweak the false beliefs in the community and help to develop healthy behaviour.

Keywords: Beliefs, Traditions, Education, Aarogya Setu, Physiotherapy, Health information, Internet and health care, Smart phones and health care, Osteoarthritis, Knee pain, Indian beliefs

Introduction

Chronic knee pain remains one of the disabling, yet under-reported, under-treated and under-addressed musculoskeletal problems. Most of the patients suffering from knee pain underplay its impact on daily life. Despite its high prevalence and associated disability, a very small proportion of patients seek treatment from conventional healthcare providers. In a culturally diverse country like India, the treatment behaviour of individuals is highly driven by beliefs. A large

proportion of people still believe that knee pain is inevitable and is a part of ageing [1]. The cloud of persistent pessimistic belief makes the symptomatic people reluctant in seeking treatment.

Belief acts as an invisible force that guides human behaviour. Education helps in rationalizing the belief and development of an insight.

It helps inculcating healthy behaviour.

The aim of this study was to know the existing beliefs among the individuals regarding knee pain, its aetiology and its treatment modalities. The awareness about osteoarthritis among the people and their source of healthcare information was also explored in this study. By investigating the accessible source of healthcare information, implement able measures can be taken to fill the gaps in knowledge and tweak

the existing beliefs to help individuals adopt healthy practices.

Material and methods

Study Design:

A cross-sectional study using an online questionnaire was designed to assess the knowledge, attitudes and practices in a community with reasonable access to smart mobile phones and internet.

A questionnaire was designed to assess the demographics, people's beliefs and understanding about the cause of their knee pain and the different treatment modalities adopted by them to relieve their knee pain. The study was performed in accordance with the declaration of Helsinki with online informed consent. The anonymity of participants was maintained during the process of data collection and analysis. Questions that could possibly reveal the

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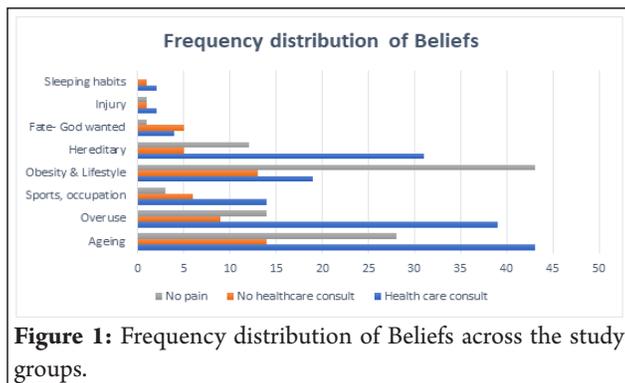


Figure 1: Frequency distribution of Beliefs across the study groups.

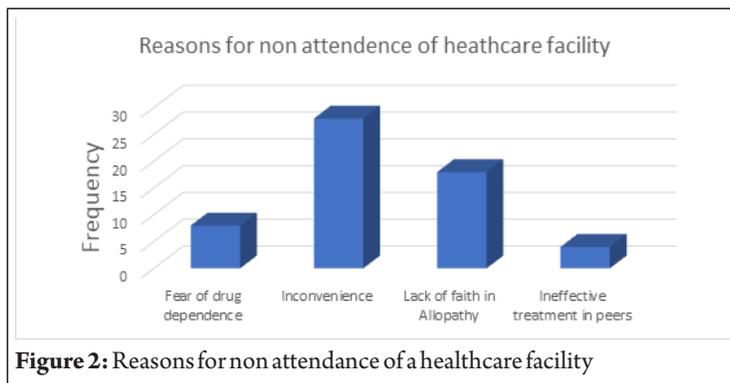


Figure 2: Reasons for non attendance of a healthcare facility

identity and personal details were avoided.

A series of questions were asked to the participants through the questionnaire. A snow ball sampling technique [2] was set in place where the existing study subjects recruited the future subjects among their acquaintances. The questions were framed into 3 regional languages to avoid misunderstanding of the facts.

Questionnaire development:

The questionnaire was developed by the author and reviewed by 3 other orthopedic surgeons to ensure content validity and to identify and correct questions that would be culturally sensitive. Additionally, questions that would be mis-interpreted were reframed. The same questions were re-framed into 3 regional languages to ensure wider participation. This approach helped to ensure that all questions were appropriate and culturally relevant.

Questionnaire description:

The questionnaire was divided into five sections: Demographic data, disability, belief, treatment and self-evaluation. The

Questionnaire comprised of a combination of multiple-choice multiple answer questions and open-ended questions.

The 'Demography' section included questions regarding the age and gender. To evaluate 'Disability', the presence or absence of long-standing knee pain, duration of the pain, the side of affection, type of lifestyle, functional limitations and disabilities were the parameters assessed. 'Belief' section covered questions about the patient's understanding of the causes of knee pain, reasons for not accessing healthcare facility for the knee pain. Additionally, participants were asked if they were aware about osteo-arthritis as a cause of knee pain and the source of healthcare information that they felt most convincing. Regarding treatment, questions were asked regarding the accessibility, affordability, different treatment modalities used and successful pain relief as well as satisfaction regarding information provided by health care provider. Also, the modalities effective for individuals who did not approach any health care facility were evaluated. The

participants who did not have any knee pain were redirected to Section 5, where in their knowledge about osteoarthritis and the likely risk factors was evaluated. They were asked to self-evaluate and check if they had risk factors of developing osteoarthritis in the near future.

Data collection:

The data was collected after informed consent from the participants. Being an electronic form-based data, the completeness of data was ensured. All the participants were recruited by the internet-based questionnaire sent to 600 members of a community in the author's metropolitan city.

Analysis:

The Questionnaire comprised of a combination of multiple-choice multiple answer questions and open-ended questions.

Open ended questions were analyzed based upon content-based analysis technique. Dominant themes were identified from the sentences and those sentences representing the same idea were grouped together and labelled.

Descriptive statistics for continuous variables are presented as means with standard deviations and categorical variables are presented as proportions.

The association of treatment seeking behavior with the different parameters was also evaluated.

Results

Out of the 600 invites, 210 participated in the survey.

Three sub groups a) Absence of Knee pain b) Painful knee without healthcare consultation. c) Painful knee with healthcare consultation, were considered for analysis.

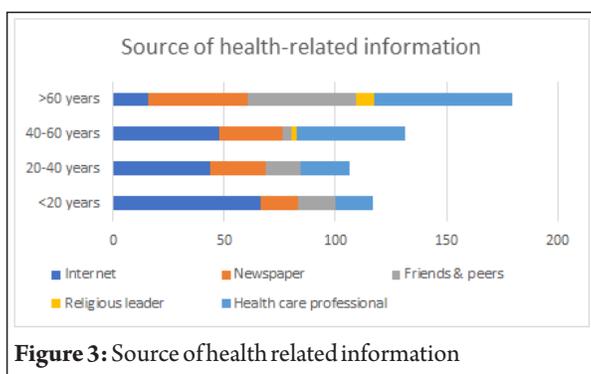


Figure 3: Source of health related information

years did not have any knee pain. (Table 1: Demographic details of the participants of the study)

Belief regarding Etiology of Knee pain:

An open-ended question regarding the individual's belief regarding the cause of knee pain was asked to the three sub groups of participants. The responses were interpreted from the text by 2 independent well trained researchers and the sentences representing the similar idea were grouped together and labelled into a single variable. An individual's idea was represented among different variables.

Ageing, Obesity, Overuse, Hereditary, Sports related activities and Fate were the most commonly believed causes of chronic knee pain. (Table 2: Existing Beliefs behind the etiology of knee pain). A participant mentioned "Ageing. it is just the part of being old"; "I find it frustrating at times, but I think I am just growing old." commented another participant. Among the participants with knee pain, 'Ageing' was believed to be the most common causative factor for knee pain. The belief was more prevalent among the group who did seek an health care professional consultation (40.57%), than the one who did not (31.82%). Among the participants with knee pain who did seek healthcare professional consultation for their complains, 'Over-activity" (36.79%) followed by 'Hereditary' (29.25%), 'Obesity and food habits' (17.92%), and 'Indulgence in sports related activities in the

Demographics:

The median age of the participants was 53 years (Range-19 to 82years) of which 56.19% were men and 43.8% were women.

71.4% of participants had chronic knee pain. 36.6% of them had pain for less than a year duration, 22% had pain for 1-3 years and 41.3% had pain for more than 3 years duration. Pain was restricted to a single knee in 14.6% individuals, bilateral in 85.4% individuals with 59.3% of them complaining of pain more in one limb than the other. Among the individuals with knee pain, 73.3% had a lifestyle with moderate levels of daily activity, 11.3% had high level activity and 15.3% had a sedentary lifestyle.

Only 33.3% of individuals could continue to squat normally, 22.6% could

squat with difficult and 44% could not squat. 71% of these patients were bothered by severe pain, 28.3% of which had associated difficulties in doing day to day activities.

28.5% participants did not have knee pain. On the basis of age, 87.5% aged 20-40 years, 10.8% aged 40 to 60 years and 13.5% of the participants more than 60

Age groups	Total(n=210)	Knee pain present (n=150)	Knee pain absent (n=60)
<20	12	0	12
20-40	32	4	28
40-60	92	82	10
Above 60 years	74	64	10
Gender	Total(n=210)	Knee pain present (n=150)	Knee pain absent (n=60)
F	92	70	22
M	118	80	38
Affected side	No. of Participants	% of participants with knee pain	
Single knee	22	14.66	
Both knees equally painful	39	26	
One more than another	89	59.33	
Total (n=150)			
Duration of pain	No. of Participants	% of participants with knee pain	
Less than 1 year	55	36.66	
1-3 years	33	22	
More than 3 year	62	41.33	
Total (n=150)			
Ability to Squat	No. of Participants	% of participants with knee pain	
No	66	44	
Yes	50	33.33	
Occasional	34	22.66	
Total (n=150)			
Bothering symptom	No. of Participants	% of participants with knee pain	
Pain	111	71.61	
Pain+ disability	44	28.38	
Total= 150			
Physician-consult.	No. of Participants	% of participants with knee pain	
Yes	106	70.66	
No	44	29.33	
Total= 150			

	Total frequency	Belief frequency						
		% of participants (n=210)	HC	% of participants (n=106)	NHC	% of participants (n=44)	NP	% of participants (n=60)
Ageing	80	38.09	43	40.57	14	31.82	28	46.67
Overuse	76	36.19	39	36.79	9	20.45	14	23.33
Sports, occupation	21	10	14	13.21	6	13.64	3	5
Obesity & Lifestyle	75	35.71	19	17.92	13	29.55	43	71.67
Hereditary	48	22.85	31	29.25	5	11.36	12	20
Fate- God wanted	10	4.76	4	3.77	5	11.36	1	1.667
Injury	4	1.9	2	1.88	1	2.273	1	1.667
Sleeping habits	3	1.42	2	1.88	1	2.273	0	0

HC- Individuals who consulted health care professionals, NHC- Individuals who did not consult any health care professional, NP- Individuals with No knee pain.

Table 3: Reason for non-attendance of an health care facility for knee pain**Reason for non-attendance of an health care facility**

	Frequency	% of Participants
Fear of drug dependence	8	18.18
Inconvenience	28	63.63
Lack of faith in Allopathy	18	40.9
Ineffective treatment in peers	4	9.09

Table 4**Accessibility of a health care professional (TOTAL n=106)**

	No of participants	% of participants
1 EASY	23	21.69
2	14	13.2
3	50	47.16
4	5	4.71
5 DIFICULT	14	13.2
Out-patient Waiting Time		
Out-patient Waiting Time	No. of participants	% of participants
<10min	18	16.98
10-30 mins	28	26.41
30 mins to 1 hr	37	34.9
>1 hr	23	21.69
5 Day treatment cost		
5 Day treatment cost	No. of participants	% of participants
Free	13	12.26
<500	18	16.98
500-1000	40	37.73
>1000	35	33.01
Provision of satisfactory health care information by the professional		
	No. of participants	% of participants
Yes	60	56.6
No	16	15.09
Partially	30	28.3
Relief of pain from a health care consultation		
Relief of pain	No. of participants	% of participants
No	25	23.58
Yes	33	31.13
Momentarily	48	45.28

youth'(17.92%) were believed to be the other causes of chronic knee pain. The belief was slightly different in the group who did not seek any medical consultation. These participants considered 'Obesity' as the second most

common reason for their knee pain (29.55%) after ageing. The group of people without any knee pain believed 'Obesity and food habits' to be the most likely cause (71.67%) behind chronic knee pain.

A few participants attributed the knee pain to food habits, "Consumption of sour food items like lemons and refined flour", Some attributed it to "Unhealthy eating habits, fried food items".

A group of participants attributed their knee pain to excessive overuse of the knee joints in their day to day activities. A participant attributed it to "Iv played a lot of football back then, may be that is why I have it", another participant attributed it to "I had to walk Long distances to work all my life."

Interestingly a small group of participants did attribute it to "Fate, God wanted me to have this pain".

Age-wise analysis showed that, ageing was commonly considered to be an important cause of the knee pain among all the age groups. However, Obesity was reasoned to be an important cause by all the participants under 20 years of age, but only by 22.8% in the age group of 40-60 years and 27.02% above age of 60 years. Fate was still considered as the reason for knee pain in the elderly as all the responses were obtained from individuals above 60 years of age. [Fig 1: Depicting the frequency distribution of the beliefs]

Healthcare seeking behavior:

29.33% of the individuals having knee pain did not obtain any healthcare consultation during their disease period, 50% of them having pain for less than a year, 20.45% having for 1-3 years and 29.54% having pain for more than 3 years. [Table 1]

"Inconvenience and longer waiting time" (63.63%) was considered to be the most common reason among the group that did not seek healthcare. It was followed by "Lack of faith in allopathy" (40.90%), "Fear of drug dependence and side effects related to medications" was the third most common reason (18.18%). A small number of participants also attributed it to the "ineffectiveness of the treatment" among the peers and a "sheer waste of money" (9.09%). (Table 3-

Table 5: Age wise distribution of source of health information

Age wise distribution of source of health information					
(%frequency)	Internet	Newspaper	Friends & peers	Religious leader	Health care professional
<20 years	66.66	16.66	16.66	0	16.66
20-40 years	43.75	25	15.62	0	21.87
40-60 years	47.82	28.26	4.34	2.17	48.91
>60 years	16.21	44.59	48.64	8.1	62.16

Table 6: Effective non pharmacological modalities

Effective non pharmacological modality				
	HC n=106	NHC n=44	Total Knee pain n=150	% of total knee pain participants (n=150)
MASSAGE	33	27	60	40
PHYSIOTHERAPY	53	0	53	35.33
HEAT	24	25	49	32.66
SOFT SHOE	25	16	41	27.33
KNEE CAP	32	0	32	21.33
YOGA	22	0	22	14.66
WEIGHTLOSS	17	0	17	11.33
LIFESTYLE MODIFICATION	15	0	15	10
AYURVEDIC	4	2	6	4

HC- Individuals who consulted health care professionals, NHC- Individuals who did not consult any health care professional

Reason for non-attendance of an health care facility for knee pain) (Fig.2: Reason for non-attendance of an health care facility for knee pain)

Physician's accessibility & treatment:

On enquiry regarding the ease of accessibility of a physician to be rated from 1 to 5 (1=easiest, 5=most difficult), 47.16% of patients rated it to be borderline '3', and 21.69% rating it to be easy '1'. 34.90% patients reported an average waiting time of 30 mins to 1 hour for the physician consultation with an approximate 5-day cost of treatment costing in the range of INR 500 to INR 1000. (37.73%). After the treatment course, only 31.13% of these patients had complete relief of pain, majority (45.28%) of them had partial relief and 23.58% had no relief from pain. (Table 4: Accessibility of a healthcare professional). Among the treatment modalities that resulted in pain relief, 'Massage' was most effective resulting in pain relief in 40% individuals. , 'Physiotherapy' and knee exercises were attributed to be the single most effective

modality (50%) in individuals who resorted to healthcare professionals for their pain , followed by Massage (31.13%), use of Knee cap (30.188%), use of a soft footwear (23.58%), Heat (22.64%). A change in lifestyle (14.15%) and weight loss (16.03%) were not popularly effective in causing short term pain relief. [Table 6: Effective non pharmacological modalities]

Treatment resorts of the non-healthcare seeking groups:

50% of participants (22 out of 44) who did not seek treatment for their chronic knee pain had pain relief over a period of time.

Massage (61.36%) was considered the most commonly used modality followed by Heat (56.81%), Yoga (50%) and use of a soft foot wear (36.36%). "Massaging with camphor oil gives extreme relief, yet to recur in a couple of hours".

Source of information:

This was an internet-based questionnaire. Presuming that all these participants had access to internet, the

contribution of internet as a source of information and mode of education was surveyed. (Table 5= Age wise distribution of source of health information).

Age wise categorization revealed that, Internet was the commonest source of healthcare information for that age group <20 years (66.66%) and 20-40 years (43.75%)

Healthcare professionals formed the predominant source of information among the age group of 40-60 years (48.91%) and more than 60 years (62.16%). Internet was the second commonest source of information among the 40-60 years (47.82%).

Friends and peers were a major source of information in the elderly more than 60 years (48.64%) followed by Newspaper and media (44.59%). Information from religious leaders was significant only in the age group of more than 60 years (8.10%). (Fig.3: Source of healthcare information)

Personal Insight:

Among the individuals who did not have any knee pain, a question was asked self-evaluating the risk factors of osteoarthritis in the future. 63% of individuals did believe to have risk factors for developing osteoarthritis in the future.

Discussion

The patient's perspective regarding knee pain was explored through this questionnaire-based study. The gap in the present knowledge and the existing beliefs regarding knee pain, predominantly osteoarthritis was explored in this community-based study.

Belief:

'Belief' according to Oxford reference is "Any proposition and firmly held opinion that is accepted as true on the basis of inconclusive evidence [3]. Belief acts as an invisible force that guides human behaviour. Belief along with

habits and personality acts as an important force guiding human behaviour.

People's belief regarding the health problems, perception of the treatment benefits and the mental barriers to action explain the health-promoting behavior of the people [4,5]. For example, people's belief regarding OA have an influence upon their lifestyles, routine activities, habits and participation in leisure activities [6,7].

Improved understanding of these beliefs and factors influencing them can enable clinicians to devise means to positively influence individuals to adopt health seeking behavior.

A healthy behavior is adopted only when there is felt need for it. As rightly quoted by Tuckett, 'Recognition, that there is a problem' is the first stage of becoming a patient. [8] The importance of 'recognition of symptoms' in help seeking behaviour was well highlighted by Mechanic [9] and Zola [10].

With the increasing burden of osteoarthritis, the importance of preventive healthcare behavior should not be understated.

In this community-based survey, different belief patterns were identified. These patterns differed on the basis of age, education and socio-cultural upbringing.

Among the various popular beliefs, Ageing was believed to be the cause of knee pain in a large proportion of the individuals (47.5% of those without knee pain and 36.18% with knee pain). It was believed to an extent that it was considered to be an inevitable part of getting old dissuading the individuals from accessing healthcare for the same. The belief of ageing as a cause of knee pain was driven largely by their contacts with peers and older relatives. A participant reported "I saw my mother being crippled with arthritis; I knew I would get it sometime in my life". 2 participants with early onset knee pain reported "I never expected arthritis at

such an age, I thought it only happened to old people". According to the literature, ageing is one of the major risk factors for osteoarthritis, as the ageing chondrocytes are unable to maintain homeostasis in the joint cartilage. However, the morphological differences between an ageing joint and an arthritic joint proves that aging by itself does not mean osteoarthritis, like any other risk factor it increases the susceptibility of an individual to develop osteoarthritis in presence of other risk factors [11]. The belief regarding ageing is partly valid, however the disease should not be considered inevitable.

Activity related to sports, recreation, lifestyle and occupation was attributed as the second most important cause of knee pain. 36.7% of individuals who reported to health care for their knee pain and 20.4% who did not visit any professional, did believe overuse of their knee joints to be an attributable cause of their ailments. 10% of the participants, commonly younger men, attributed their knee pain to sporting activities, daily walking activities to work and active lifestyle. These findings suggest that participants attributed causality to their personal biography (work, sports, occupations). According to the literature, individuals may be at a higher risk with excessive participation in contact sports or if they have abnormal joint anatomy, alignment and imbalance. Besides micro-trauma may also increase the risk of osteoarthritis. However, there is enough evidence to state that individuals of all ages can tolerate moderate amount of exercises without increasing risks for osteoarthritis [12]. The belief that physical activity results into acceleration of the knee pain and joint degradation dissuades individuals to accept the literature that exercises improves cartilage volume and improves pain and function in patients with osteoarthritis [13,14]. This gives a reason to question the belief that moderate activity or sports are responsible for chronic knee pain and

osteoarthritis.

22.85% individuals blamed hereditary factors to be the cause of their problems. A participant's statement "I saw my mother being crippled with arthritis; I knew I would get it sometime in my life" Interestingly this belief was more common in elderly above 60 years (64%). The prevalence was much lesser in the young. Literature supports the genetic predisposition of an individual for osteoarthritis. The gene responsible is not identified, yet it is clear that besides the genetic predisposition, the interaction of the genes and environment (obesity, joint articulation and other risk factors) are much more critical in the expression of the disease. The belief regarding its hereditary nature is thus true to an extent.

Obesity was identified as the cause of knee problems by 35.71% (75) individuals. The awareness of weight as a cause of knee pain and osteoarthritis was present in 100% of those <20 years and 68% of 20-40-year-old. Large population-based studies support the association of obesity with knee osteoarthritis [15]. Reduction in the body weight not only has a preventive role, but also in relieving pain in the patients suffering from osteoarthritis. Each pound of weight lost results in a 4-fold reduction in the per step load exerted on the knee [16]. Presence of this belief in the community is important as it can promote adoption of healthy dietary habits and reduce the large number of problems associated with obesity, osteoarthritis being one of them.

A few beliefs that were not supported by literature were the association of food items with knee pain and 'fate' resulting into knee pain. Though there is evidence supporting dietary habits leading to obesity and osteoarthritis, direct correlation between the food items and knee pain have not been established. Healthy balanced dietary practices can help in overall well-being, prevent obesity and may indirectly prevent accelerated joint

degeneration. The myths co-relating the food items like tomatoes, citrus fruits and dairy products etc to arthritis should be reconsidered.

Health related information

Internet:

Internet can be an important source of health information in the present day and age. According to a report 'Digital India - Technology to Transform a Connection Nation' by McKinsey; India had 560 million internet subscribers in 2018 [17]. Information from the internet can increase an individual's knowledge, competency, and complement the information provided by the health care professionals. However, the unregulated nature of information and lack of deeper knowledge may mislead individuals into taking wrong decisions. People may even develop false beliefs which may interfere with their treatment compliance [18].

From our study it was found that all the participants had access to internet and smartphone service, however not everyone found it as a reliable source for healthcare related information. The use of internet as a means for health related information was popular among the young less than 20 years old (66.66%) lesser in 20-40 year old (43.75%) and 40-60 years (47.82%) and even lesser in the age group of more than 60 years, who still considered information from health care professionals and friends (peers) more reliable.

Recently the government of India launched a smartphone application named 'Aarogya setu' meaning 'Health bridge'. The purpose of this app was to spread awareness and determining individual's risk for Covid-19 [19,20].

The mobile application crossed 5 million downloads within 3 days of its launch with more than 50million active subscribers [21]. Such platforms can be converted into a potential health encyclopaedia where regulated and verified health related information may be made accessible to the people. Internet and smartphones can be used as valuable means for providing health education. Valuable audio-visual information through the medium of internet can affect individuals beyond the barriers of illiteracy and languages.

In our study, the individuals of age group of 40-60 years (48.91%) and more than 60 years (62.16%) did consider the health information provided by the health care professionals more reliable and satisfactory.

However, owing to the increasing number of waiting patients, the per patient consultation time has reduced to a great extent leading to dis-satisfaction and incomplete patient education. Studies have proven that there is a direct co-relation between the patient satisfaction and treatment compliance with the consultation time [22-24]. Clinicians must consider the importance of spending adequate amount of time talking to the patient regarding their illness. The waiting time in the out-patient can be effectively utilized by providing patient education brochures and audio-visuals in the waiting area.

In our study it was found that the healthcare facilities were moderately accessible with average waiting time of 30 mins to 1 hour and a five day cost of treatment amounting to INR 500-1000. It is also studied that only 60% of individuals consulting an health care

professional were fully satisfied with the information provided to them. It is also found that the most common reason for not seeking help from a health care professional was

'Inconvenience'(63.33%), followed by 'fear of the side effects of allopathic drugs' (40.90%) and 'drug dependence'(18.18%).

The wrong notion that medications are the only form of treatment for osteoarthritis should be addressed. People should also be made aware about the importance of non-pharmacological means like physiotherapy, heat, massage, yoga and wherever necessary, surgery, in relieving the knee pain.

There are a few limitations in this study. The sample size was limited. There may be an element of selection bias due to the survey title being 'Survey evaluating the individual perspective for knee pain' resulting in recruitment of a larger proportion of symptomatic individuals as compared to the asymptomatic individuals.

Clinical relevance

Beliefs do play an active role in guiding human behaviour. Knowledge and health related information can be translated into healthy behaviour, only if it can tweak the existing wrong beliefs. 'Internet' and 'Smart phones' can be used as an effective medium for health education, if regulated and verified health information is made available to all the individuals.

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