

AWARENESS OF VITAMIN D AND ITS DEFICIENCY AMONG BURQA CLAD WOMEN IN NAVI MUMBAI, INDIA

Physiotherapy

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ABSTRACT

Vitamin D is an essential fat soluble vitamin which plays an important role in calcium homeostasis and remodeling of bone. This study aimed to find the levels of awareness of Vit D deficiency among burqa clad women who seem to be at a greater risk of developing the deficiency. 220 women who regularly wear burqa while going out were administered a questionnaire to ascertain the levels of their awareness regarding vitamin D and its deficiency. The answers obtained were analyzed using simple graphs and percentages. 80% of the participants were aware of the terminology vitamin D, 46% participants said that always being fully covered can be the cause of vitamin D deficiency whereas about 12% participants did not know any cause. Awareness about vitamin D and its sources was found to be good, but awareness about the causes of vitamin D deficiency was found to be limited.

KEYWORDS:

Vitamin D, deficiency, awareness, burqa clad,

INTRODUCTION

Vitamin D is a fat soluble vitamin that regulates calcium homeostasis and is vital for bone health^[1] Vitamin D is synthesized in the human skin upon exposure to ultraviolet B (UVB) radiation from sunlight^[2]. Very few foods naturally contain vitamin D, and foods that are fortified with vitamin D are often inadequate to satisfy either a child's or an adult's vitamin D requirement.

Vitamin D deficiency has now been recognized as a pandemic all over the world.^[3] Vitamin D deficiency is on a rise as a major public health problem in India too. There was disbelief that vitamin D deficiency is uncommon in India as majority of its population is believed to live in area receiving ample of sunlight throughout the year.^[4] However from the data available in the published literature, vitamin D deficiency is very common in India across age groups among both the sexes.^[5,6,7]

Vitamin D deficiency prevails in epidemic proportions all over the Indian subcontinent, with prevalence of 70% to 100% in general population.^[8] Skin complexion, poor sun exposure, lower intake of vitamin D fortified foods, socio religious and cultural practices could be attributed to high prevalence of Vitamin D deficiency in India.^[9]

Various studies have revealed that a large proportion of adults are suffering with low serum Vitamin D levels. In a study conducted among adult males and females residing in both rural and urban areas the prevalence of Vitamin D deficiency estimated in urban population was 62 % in male subjects and 75 % in female subjects, while the prevalence of Vitamin D deficiency was slightly lower in rural area as 44 % in males and 70 % in females. This indicates that the prevalence of Vitamin D deficiency was more in females than males in both rural and urban areas.^[10]

Research has been able to find that the major cause of vitamin D deficiency is lack of appreciation that sun exposure in moderation is the major source of vitamin D for most humans. Anything that diminishes the transmission of solar UVB radiations into the skin will affect the cutaneous synthesis of vitamin D^[11,12] The common causes of vitamin D deficiency are melanin pigmentation, sunscreen application, sun exposure, covering the skin, aging, etc.

Melanin is extremely efficient in absorbing UVB radiation and thus increased skin pigmentation markedly reduces vitamin D synthesis.^[13] Sunscreen application with sun protection factor of 15 absorbs 99% of the incident UVB radiation and thus when topically applied properly will decrease the synthesis of vitamin D in the skin by 99%.^[14] All these factors explain why even in the sunniest areas of the world vitamin D

deficiency is very common in both children and adults^[15,16]. No one is immune from vitamin D deficiency, it includes both children and adults living in India, Asia, Australia, United States of America, Europe and the Middle East.^[15-24]

One more important cause of this deficiency could be practice of purdah, whereby all the skin is covered and prevented from being exposed to sunlight.^[15,16] According to Esubalew Alemu and Robert Varnam et.al, it was found that people wearing concealing clothes and people with dark skin have deficient vitamin D in their system. Hence the ethno cultural environment and genetic factors appear to increase the risk of vitamin D deficiency^[25]. According to one of the study it has been found that due to cultural tradition in Islamic communities' women avoid body exposure to sunlight^[26,27]. As the Muslim women observe burqa they are chronically deficient in vitamin D due to lack of skin exposed to UVB light^[28]

Vitamin D deficiency could lead to many ailments such as various types of cancer^[29,30,31], coronary heart disease^[32], Type 1 and Type 2 diabetes^[33,34,35], Multiple Sclerosis^[36], Rheumatoid Arthritis, Hypertension and Alzheimer's Disease^[29,37].

In one of the study of Floor T.E. Christle and Linda Mason they explored on Knowledge, attitude and practice regarding vitamin D deficiency, among Islamic female students of Saudi Arabia following their traditional practice of burqa. The study concluded that all the participants there were limited in their knowledge about vitamin D and its deficiency. It also reported that limited sun exposure due to intense heat, cultural reasons for covering the body and their infrastructure that made sun exposure difficult.^[38]

In India the cultural practice differs from that of women in Saudi Arabia. Their way of living differs from the people of India and also their level of literacy differs. From the population of about 21.5 million in Mumbai 20% of them are Muslims. Majority of the women follow their cultural practice of being fully covered while going outside.

In spite of maintaining their tradition they should be able to take care of vitamin D deficiency. This study aims to ascertain the level of knowledge about vitamin D, its deficiency, consequences and its prevention.

Methodology

Study design: Cross sectional study

Study setting: Mumbai

Population of study: Females wearing Burqa on regular basis

Sample size: 220
Duration of study: 2 months

Inclusion criteria:

Women following their tradition of wearing Burqa on regular basis
Age between 15 to 40 yrs.

Exclusion criteria:

Women wearing coloured burqa.
Material used: Validated questionnaire
Ethical approval: The study was approved by Institutional Ethics and Research committee of D. Y. Patil University. Written informed consent was taken from all subjects and their identification information which was collected during has been kept strictly confidential.

Procedure: Ethical Approval: The study was approved by the Institutional Ethics & Research Committee at D.Y. Patil University. Written informed consent was obtained from all the subjects. Information regarding their identification obtained during the study has been strictly kept confidential.

A validated questionnaire was used to evaluate the common practices associated with wearing Burqa. It also included questions to evaluate awareness about vitamin D & its deficiency among females wearing them regularly.

The Questionnaires were administered to 220 women using burqa in their daily lives by Face to face administration. The information obtained from the questionnaire was analyzed using simple percentages and graphs.

Results

This study included a total of 220 participants. The sample consisted of women in the age group 15 to 40 yrs. 45% participants started wearing between the age of 11 to 15 yrs and 47 % participants between the age of 16 to 20 yrs. 47% women were nulliparous and 53% were parous females.

The participants wore different kind of burqa which include burqa (5%), niqab (53%), hijab (35%) and chador (7%). 27% of the participants even covered their hands and feet with gloves and socks.

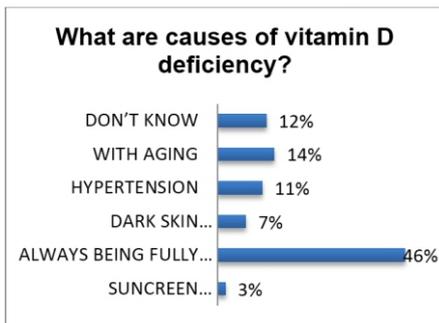


Fig 1. Awareness about Causes of Vitamin D deficiency

80% of the participants were aware of the terminology vitamin D, 46% participants said that always being fully covered can be the cause of vitamin D deficiency whereas about 12% participants did not know any cause.

84% participants were aware that sunlight encourages vitamin D formation by their skin. 57% participants knew about all the dietary sources of vitamin D. They reported to be eating all of them on regular basis.

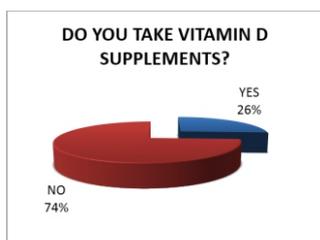
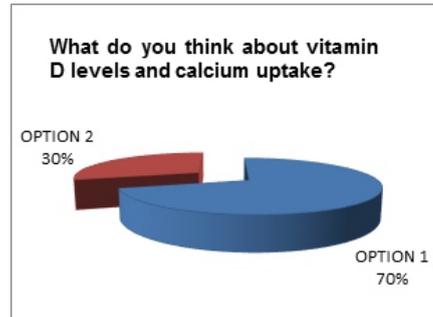


Fig 2: Use of Vitamin D supplements

26% participants used to take supplements vitamin D whereas 74% participants did not. But 74% of study subjects were found to be taking calcium supplements.

70% participants said that vitamin D is very important for calcium uptake absorption but, 30% participants said that vitamin D levels and calcium uptake are not relevant.

48% participants were aware that symptoms which may be a consequence of/ aggravated by vitamin D deficiency.



OPTION 1: Vitamin D is very important for calcium uptake absorption; OPTION 2: Vitamin D levels and calcium uptake are not relevant.

Fig 3: Perception about Vitamin D levels and calcium uptake

66% participants said that they plan to visit their physician to evaluate Vitamin D levels whereas 34% participants gave a negative response

DISCUSSION

This study explored the awareness about vitamin D, its deficiency among women who wear burqa. It included a total no. of 220 participants. The sample consisted of women in the age group 15 to 40 yrs

The participants were found to be wearing different kind of burqa. This included burqa, niqab, hijab and chador. Majority of the participants wore Niqab (52 %). It is a veil covering a women face, the niqab leaves only her eyes visible. 27% of the participants even covered their hands and feet with gloves and socks. Exposure to sunlight can be expected to be even lesser in those participants.

80% of the participants were aware about the terminology vitamin D. Probable reason for this awareness could be the fact that the present study was carried out in an urban area. Additionally most of the participants were found to be in the age group of 18 to 25 yrs. Most of them were either students or working women, which constitutes the educated class, indicating representation of a better informed class of population.

Though participants were aware of the terminology vitamin D, only 46% participants were aware that the probable cause could be being always fully covered. Awareness about the other causes of vitamin D deficiency was found to be very limited. 3% participants said sunscreen application, 7% participants said dark skin complexion, 14% participants said with aging. 11% participants said due to hypertension, 12% participants did not know the causes.

Most of the participants were aware that sunlight encourages vitamin D but only a few participants exposed their body to sunlight. As the participants follow their tradition of being fully covered limits the opportunities to uncover and experience sun exposure. Many of the women came from lower socio- economic status where they live in houses that don't have outside areas/terrace where they could uncover. Some of the participants lived in smaller, crowded houses where sunlight does not penetrate.

Research has shown that the appropriate time and essential duration for the sun exposure is necessary to produce beneficial effects to the human body^[39]. The ideal duration of effective sun exposure estimated to be 15-20 minutes. The ideal time of effective sun exposure is estimated to be between 10am to 2 pm. Most of the participants were

aware that ideal duration and time for sun exposure that will help in vitamin D synthesis. As most of the participants were college going students (40%) and working women (8%) they must be travelling during the ideal time of sun exposure. While travelling they are fully covered, limiting their chances of sun exposure.

There is a strong link between maternal vitamin D levels and breastfeeding^[40,41]. As 49% of participants were nulliparous so it could be the reason they were not aware that prolonged breast feeding without any supplementation or dietary intake or the babies born to vitamin D deficient mothers are prone to serious complications such as seizures (fits), growth retardation, muscle weakness, weak bones and fractures. According to Urvashi Mehlawat, et al; a study was conducted among the pregnant mothers in India which reported that 74% of the mothers had Vitamin D deficiency.^[42]

It was observed that, there were some prevalent myth, about vitamin D intake, and supplements, 83% participants said that, "My body can produce Vitamin D on its own, so I don't need it external source ever". 26% Participants said that, "I eat healthy food, so I don't need vitamin D". This myth could be interfering with the further, interest in gaining knowledge about Vitamin D.

Participants were aware of the food sources which were rich in vitamin D. Most of our participants included these food products in their meals. But, fortification of staple foods with vitamin D is a viable strategy to target an entire population^[43]

A positive attitude towards their health was noted in this study as 66% participants responded of planning to visit their physician and get their Vitamin D levels evaluated.

Conclusion

Awareness about vitamin D and its sources was found to be good, but awareness about the causes of vitamin D deficiency was found to be limited. Close to 50% of subjects were found to be aware about the fact that completely covering themselves thus limiting the sun exposure could lead to vitamin D deficiency.

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