Health-related behaviors of undergraduate medical students of public sector university, Karachi 2022

Sahar Aijaz (1)
Ali Jawwad Karim (1)
Fatima Abid (2)
Aarfa Azhar (3)
Maha Noor (1)
Summaiya Ali Muhammad (1)

(1) Undergraduate medical student, Sindh Medical College, Jinnah Sindh Medical University, Karachi, Pakistan.
(2) Assistant Professor, Physiology Department, Sindh Medical College, Jinnah Sindh Medical University, Karachi, Pakistan.
(3) Department of Biological and Biomedical Sciences, Aga Khan University Hospital, Karachi, Pakistan

Corresponding author:
Dr. Fatima Abid
Assistant Professor, Physiology Department, Sindh Medical College,
Jinnah Sindh Medical University,
Karachi, Pakistan
Email: Dr.fatimaabid@gmail.com

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Abstract

Objective: to study health-related behaviours of undergraduate medical students of the public sector university of Karachi by analyzing the following aspects :
1. Daily water intake and its importance.
2. Refractive errors and the importance of their correction
3. Sun protection.

Study Design: Cross-sectional randomized study

Methodology: From April 2022 to June 2022, a cross-sectional study was conducted at Jinnah Sindh Medical University considering all ethical values. A sample size of 316, was calculated with an open epi calculator. We collected data through online Google forms and hard copies. SPSS 22 was utilized for data analysis, where the confidence interval was 95% with an error margin of 5%, and a 0.05 p-value.

Results:
Daily Water Intake:
63.9% of participants marked the correct daily water requirement which is 2 liters (8 glasses). Only 50.3% of pupils fall under the category that were consuming the standard daily water intake. The most difficult part of fulfilling the daily water requirement was that they could not remember drinking water.

Refractive errors and the importance of their correction:
94.6% of participants wore spectacles for far vision, highlighting the prevalence of myopia. 81% of pupils had a range of refractive errors between 1-5, reflecting that error ranges are not high. A positive response was recorded busting the myth that spectacles weaken the eyesight when 70.6% of people negated it.

Sun protection:
62.3% of pupils considered UV light harmful. 54.4% stated that their outdoor hours were from 2 to 4 hours. When asked if they check the UV light index before spending a long day outdoors, 78.5% said no. The application of sunscreen when going out was acknowledged by 61.7%. 90.2% responded that they agree to the fact that sunscreens are effective against sun protection.

Abstract
(continued)

Conclusion: With an aspiration to become a nobility amongst doctors, medical students must recognize their responsibility in being the representatives of right and wrong. Thus, the participation of the students in this study provides valuable insight into their health related behaviors portrayed against the risks of sun exposure and the benefits of using sunscreen as a protective measure, along with corrective measures chosen against poor sight such as spectacles, and determining the daily water requirements and their benefits. Findings in this study portray that although it is reassuring that a majority of the medical students know the harmful effects of prolonged sun exposure, a lot still needs to be done on the part of our future doctors in the effective method of application of sunscreens. This study has also shown a generally correct direction towards early treatment and whether wearing spectacles continuously further deteriorates sight. However, there is a considerable notion of dependency upon a certain apparatus ergo a dependent lifestyle comprising issues such as lowered confidence and negative affect on wedding proposals. Further studies should be done with focus on the society's role in adhering to early wearing of spectacles and the issues associated with the habit of wearing them such as rashes, nose spots, headaches and dark circles. This study has also made it significantly apparent that the majority of the medical students still do not have the correct knowledge regarding daily water requirements and their benefits, which needs to be addressed. This will help them learn better habits about drinking water that will benefit their personal and academic lives. They will be able to treat their patients with the correct information as well.

Keywords: health behaviors, medical students, water intake, refractive errors, sun protection.

Introduction

Water intake

Three quarters of the human body is comprised of water, which is necessary for metabolic functions and keeping a homeostatic environment (4). Statistically speaking, the human brain and heart are 73% water, lungs are 83%, skin 64%, muscles and kidneys are 79%, and 31% is bone (7). Therefore, daily consumption and maintaining body water levels is essential for good bodily health (7). Deficiency of required water intake leads to dehydration where the body loses water, not being compensated by intake (1). Clinical symptoms based on the severity of water deficiency are classified as mild, moderate and severe. 1-5% deficiency is mild and causes thirst, tastelessness, dryness, dizziness, the body is warm to touch, passes scanty urine, feels nauseous and unwell, has the inability to focus on work and control emotions. Rising temperature, tachycardia, heavy and difficult breathing, slurred speech, and syncope occur when dehydration reaches 5-10%. More than 10% of water loss is severe, causing CNS symptoms like seizures, delusions, and systemic symptoms such as renal failure, low blood pressure, and low cardiac output (1). Dehydration has been recorded to cause pressure ulcers and thromboembolic events such as stroke in bedridden patients (2). A loss of water of more than 8% can lead to death (8). Impact of water consumption on students is significant. Its inadequacy affects academic performances and cognition (1). Adequate water improves performance in exams (9). WHO defines some baseline terminologies to keep track of water intake and its status in the body, entitled as hydration, which is the standard body water content Hypohydration refers to lower, and hyperhydration means more than required water intake values (6). Apart from decreased water consumption, dehydration can also be triggered by heavy exercises, stress, heat, sweating and taking diuretics (10). Hypohydration seems to be more of a challenge than hyperhydration and simply resolving a single issue could save £0.95 billion English pounds (2). though standards for ranges vary across the globe and from person to person. The European Food Safety Authority (EFSA) recommends 2.0-2.5L of water per day for women and men (2). These ranges originate from research conducted to relate fluid intake and urine osmolality (3). More than fifty percent of children, 40% of men, and 60% of women failed to meet EFSA adequate intake criteria in a study in both developed and developing countries (3). Childhood obesity is on the verge of impacting water concentration in the body. Dehydration in children has increased since the past due to more fat content in the body composition (5). Malaysian adults have found to be obese according to Global Burden of Disease study. Children and adolescents are also following the same trend and adequate water consumption helps in weight reduction (19). Standard water requirement for adults is at 1L per 1000 Kcal of energy expenditure (18). When dehydrated, there are signs of no urine or dark urine, dry mouth, thirst, fatigue or no tears (17). There are many advantages like calorie control, energetic muscles, good looking skin and detoxification (17). Adequate consumption also reduces incidence of urinary tract infection and hyperglycemia (16). Children have more fluid requirements than adults. Therefore, they have more intensity of thirst (15). Total water intake also involves food moisture (14). Water loss occurs through lungs, kidneys, skin, and gastrointestinal tract (13). Mild dehydration having an effect on cognitive performances is an aspect still left to be researched (12). Athletic performance also enhances with adequate hydration and enables recovery from exercise.(11).

Refractive errors

The capacity to see works by light reflected from the environment, and the brain perceiving it into meaningful details. Any damage to this pathway and the individual cannot see, and perform routine functions (23). The fundamental reason for developing refractive error is that the focus of light does not coincide with the fovea of the retina, which can be due to multiple reasons (25). Refractive errors are very common and if left uncorrected, can lead to blindness. However, 80% of blindness worldwide can be prevented by cost-effective means. To alleviate this, the United Nations formed the VISION 2020: The Right to Sight program aiming to obtain information about the epidemiology of eye health care globally for a root cause analysis (34). However, with 6.6 million people deemed blind, and 101.2 million people visually impaired because of uncorrected refractive error, as stated by the Global Burden of Diseases study, the population of Pakistan has yet to benefit from this program (20). Epidemiologically, all ages with equal male and female distribution and all socio-economic classes are involved (20). Topographically, the Chinese adult population prevails (21). Prevalence rates of the refractive errors in adults recorded by National Blindness and Visual Impairment Survey in Pakistan are stated as 36.5% myopic, 27.1% hypermetropic and 37% as astigmatic (26). Research also states that more than 90% of students in universities are myopes (27). More than 80% of medical students in Singapore have been recorded to have myopia (30). Myopia is an endemic in many Asian countries (31). Migration of academic and official activities towards digital media has played a significant role in increasing ocular impairment (24). Any visual impairment can affect the academic performance of students in the field of medicine where book reading is a major component of study strategies. It also impairs the quality of life and results in frustration (20). Social stigmata are the reason why students do not wear their spectacles which leads to the worsening of defects. Misconceptions about this stigma are that the spectacles might break and inflict damage, parents do not like their child wearing spectacles and getting bullied by fellows, and forgetting to wear spectacles regularly (20). These stigmata are affecting the psychological development of children (28). Though opposite to the stigma, wearing spectacles has shown to increase the educational capacity of students and makes it easier for them to learn, showing better academic results (22). Contact lenses provide a refractive correction without affecting the physical aesthetics of the face and, they are more preferred among the young generation in recent years (29). Medical students are an asset to the state, and increasing refractive error among them adds to the economic burden. It is imperative that a thorough search for the risk factors be conducted, that people are educated, and plans to eliminate the risk factors are constructed (30). Females are more affected than men by psychological and social stress in wearing spectacles (32). Presenting oneself as handicapped also makes an individual conscious about wearing spectacles (33). People wearing spectacles also think that their chances of getting married have reduced because they are visually impaired (33). At this young age, the styles of spectacles frames have become a viable concern. Correct numbers are also related to compliance of patients in wearing spectacles. Affordability and expense of spectacle frames are also important. These frames are not expensive, yet, in some parts of the world they are not affordable to date (33).

UV Radiation

New genetic mutations are discovered daily, and the phenomenon of global warming, a direct cause of increased exposure to UV radiation is a major culprit in causing these mutations (44). Topographically, the extreme latitudes are still safer than the hot and humid southern population equatorial latitudes (44). It ought to be mentioned that this discussion concerns the effects of excessive sunlight exposure. Adequate sunlight exposure helps keep a focused mindset by releasing endorphins in the body (35). Vit D3 deficiency causes a heavy burden of structural and functional morbidities, extreme to endemic in some parts of the world (41). The list of risk factors of skin cancers mentions excessive sun exposure at the top, which is an avoidable cause (45). 5.4 million non-melanoma cancers were recorded in the United States in 2017; 75% of all cancers in Australia were skin cancers; 9,730 people died in the USA due to skin cancer; and each year 100,000 new cases of skin cancers are growing throughout Europe (36). The chemical compound in UV light causing these cancer mutations is a cyclobutane pyramid, a dimer produced in the body in response to a radiation of 320nm to 420nm in wavelength (39).The most common variants of skin tumours are titled basal cell carcinoma which penetrates to the basement membranes (48); squamous cell carcinoma which only damages the superficial epidermis, and melanoma which increases melanin production, respectively (42). WHO guidelines mention some measures to prevent sun exposure like covering bodies with light-coloured clothes, use of broad hats, avoiding tanning culture and by keeping ourselves under roofs during peak sunshine hours from noon to afternoon (45). The most effective recommendation is applying sunscreens that have a high SPF score (45). Age is an essential factor as it has been studied that individuals at the highest risk of skin cancers are children and adolescents (35). Statistically one-fifth of sunlight is absorbed during childhood (46). Adding to the irony is that this age group is found not to use any sun protection method (35). If an individual suffers from blistering sunburns more than 5 times in their adult life, they are at two times the risk of developing skin cancer than those who do not (43). The developed habits of adult life such as smoking, alcohol consumption, sedentary lifestyle, obesity, and stress are additional environmental factors in developing cancers (43). The ingredient used in sunscreens, which is TiO2, works as a UV filter (38) and makes them effective in reducing the incidence of skin cancers (37). The culture of skin tanning, and counting it as a beauty standard has caused some severe sunburn lesions and avoidance needs to be counselled (47). Medical students as future physicians must have firm and convincing knowledge about sun protection methods, to be able to convey it to their patients, effectively (40) and also to their colleagues during educational events and through social media (45).

Objective

To study health-related behaviors of undergraduate medical students of the public sector university of Karachi by analyzing the following aspects:
1, Daily water intake and its importance.
2, Refractive errors and the importance of their correction
3, Sun protection.

Methodology

From April 2022 to June 2022, a cross-sectional study was conducted at Jinnah Sindh Medical University considering all ethical values. A sample size of 316, was calculated with an open epi calculator. We collected data through online Google forms and hard copies. SPSS 22 was utilized for data analysis, where the confidence interval was 95% with an error margin of 5%, and a 0.05 p-value.

Results

BIO DATA:
Ages of participating students were, 50%(n=158) in 18-21 years, 45.6%(n=144) in 22-24 years and 4.4% (n=14) in 25-27 years.

Gender distribution found to be females was 83.5%(n=264) and males were 15.8%(n=50) whereas 0.6%(n=2) preferred not to mention their gender.

All five years of MBBS participated according to the ratios of 11.7% (n=37) from 1st year, 14.6% (n=46) from 2nd year, 21.5% (n=68) from 3rd year, 44.3% (n=140) from 4th year and 7.9% (n=25) from final year.

91.8%(n=290) students lived at home and 8.2% (n=26) lived at a hostel.

Financial sources of students were stated as 82.3% (n= 260) were totally dependent on family, 13.3% (n=42) were family + self-dependent and 4.4% (n=14) were totally self-dependent.

Daily Water Intake:
When participants were asked about if they know about the standard daily water requirements of an adult, 8.2% (n= 26) marked 1 liter (4 glasses), 63.9%(n=202) marked 2 liters (8 glasses), 20.3% (n=64) marked 3 liters (12 glasses), 5.7% (n=18) marked 4 liters (16 glasses), 1.3%(n=4) marked 5 liters (20 glasses) and 0.6% (n= 2) said they do not know.

Answering about their own daily intake of water, 28.8% (n= 91) responded 0.5-1 liters, 50.3% (n=159) responded 1-2liters, 14.9% (n=47) responded 2-3 liters, 3.2% responded 3-4 liters and 2.8% (n=9) responded 4.5 liters.

Figure 1

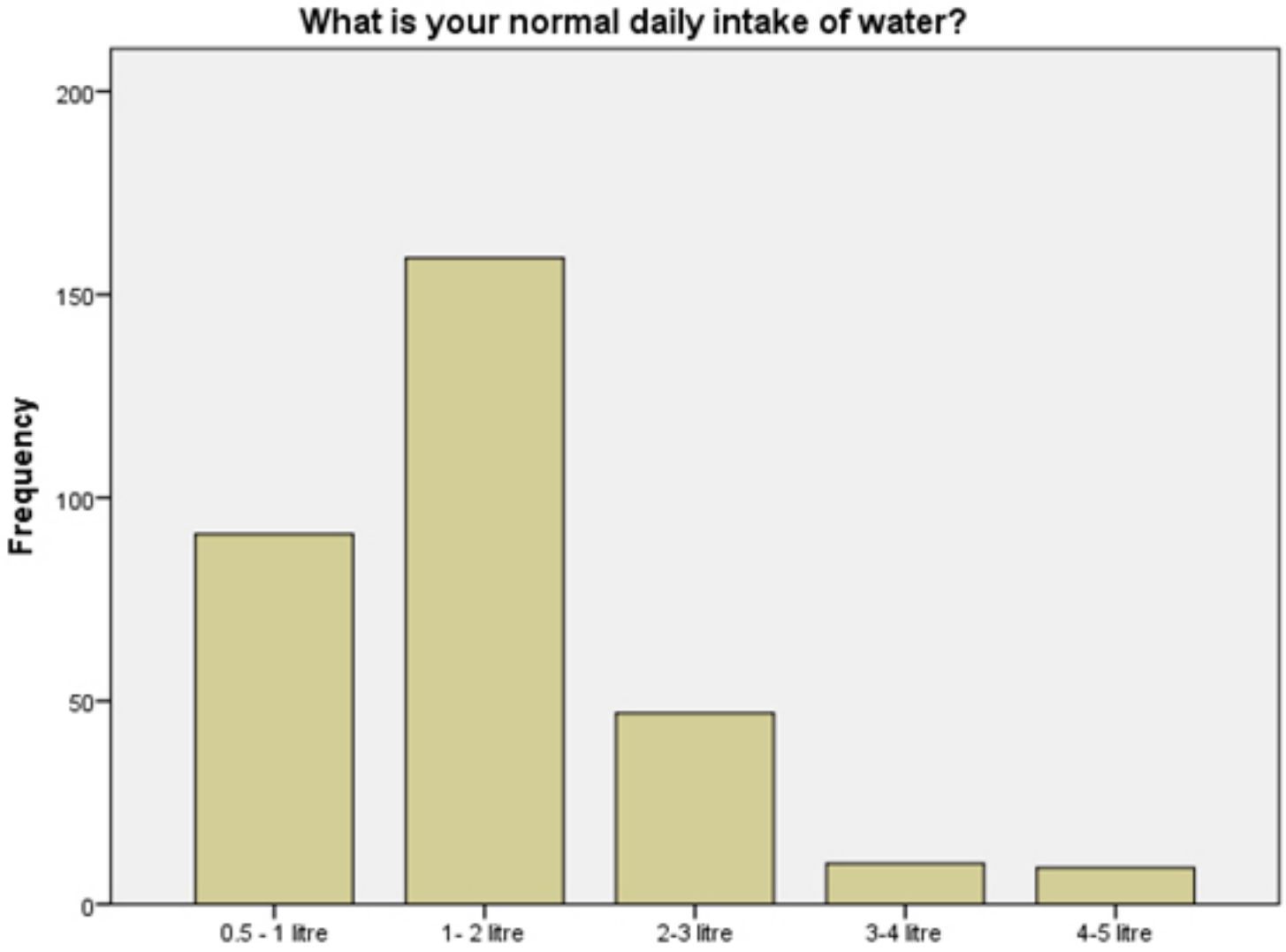

Figure 1 shows 28.8% (n= 91) responded 0.5-1 liters, 50.3% (n=159) responded 1-2litres, 14.9% (n=47) responded 2-3 liters, 3.2% responded 3-4 liters and 2.8% (n=9) responded 4.5 liters as their daily water intake

The most difficult part in taking daily water requirements came out as 23.4%(n= 74) said carrying the water bottle everywhere, 3.8% (n=12) said they always want cold water, 4.7% (n=15) said they cannot drink much water, 37.3% (n = 118) said they do not remember drinking water, 19.9% (n=63) said they need to urinate often, and 10.8%(n=34) said they do not face any problems at all.

50.6%(n=160) participants claimed that they take most of their water in the afternoon, 26.6(n=83) claimed to be consuming most water in the evening and 22.8% (n=72) claimed that they take most of their water in the morning.

People prefer different beverages on a daily basis. Participants were given multiple options to choose about their preferred drinks and 91.8% (n=291) responded that they prefer plain water, 22.3%(n=71) responded that they also prefer milk daily, 29.5% (n=94) included juices in their preference, 15.3%(n=49) included soda and 2.1%(n=7) preferred diet soda too.

If students believe that daily water intake has any effect on their academic performances, 19.0% (n=60) responded no, and 81.0%(n=256) responded yes.

Figure 2

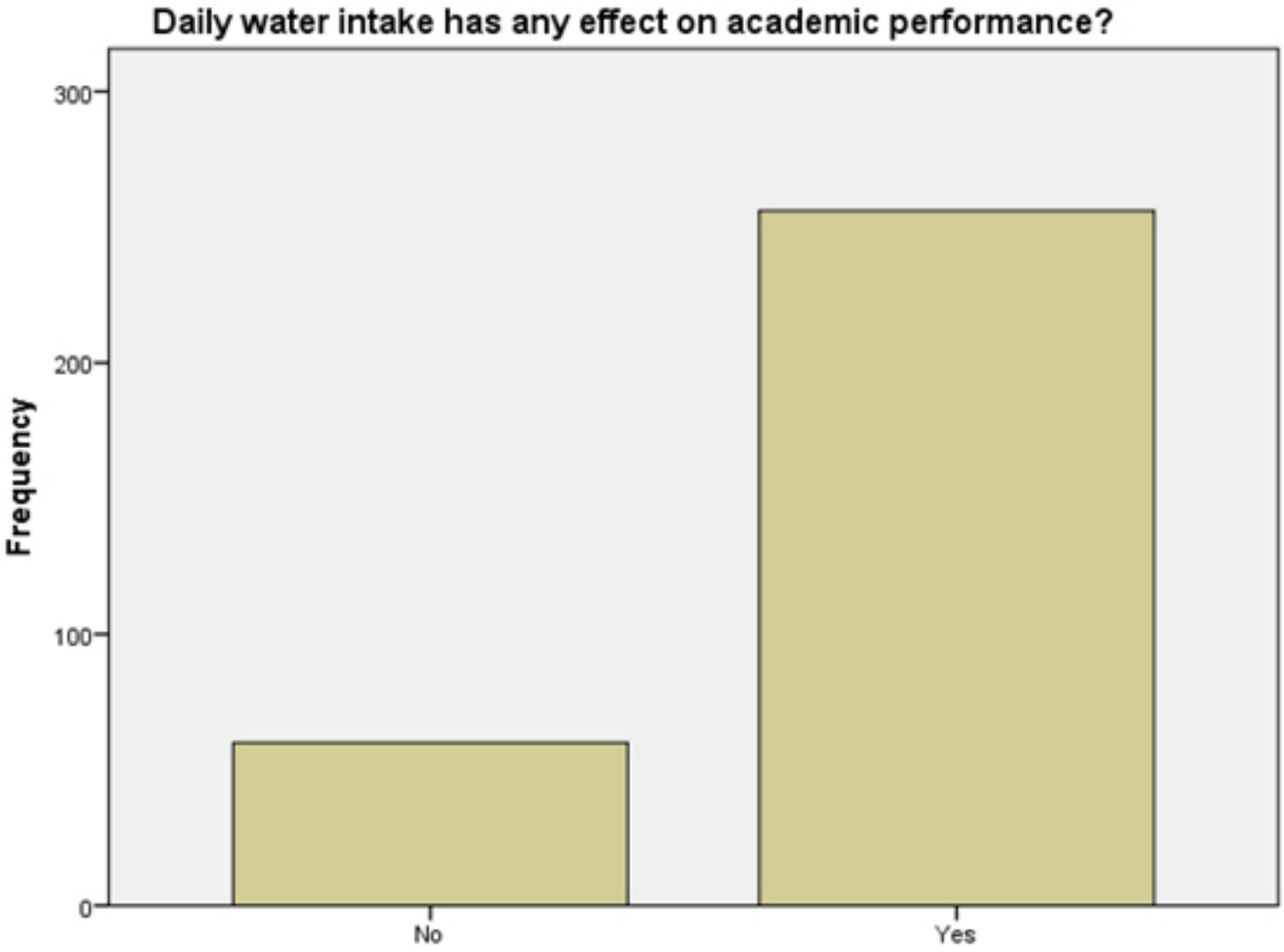

Figure 2 shows the response of participants when asked about daily water intake has any effects on their academic performances, 19.0% (n=60) responded no, and 81.0%(n=256) responded yes.

There are different sources of drinking water in our status quo, the most common among students was 41.5%(n=131) mineral water, 5.1%(n= 16) tap water, 35.8(n=113) filtered water, 17.1%(n=54) boiled water and 0.6%(n=2) alum water.

Most of the students, 72.8%(n=230), said that they do not add any refreshments to their daily drinking water like lemons and mints while 27.2%(n=86) said they add refreshments.

When questioned about the benefits of water, 67.5% (n=214) replied that it eliminates toxins, 65.7% (n=208) thought it is needed for homeostasis, 83.4%(n=264) stated it keeps the skin healthy, 50.5%(n=160) said that it provides electrolytes, 74.8%(n= 238) replied it prevents kidney stones and 34.2%(n= 109) said that it reduces hunger.

In the end after filling out the questionnaires, participants had a positive response that 77.2% (n=244) were motivated to keep a record of daily water intake and 22.8%(n=72) responded negatively that they were not motivated.

Refractive Errors and the Importance of their Correction:
Out of the 316 participants, 7.3%(n=23) of the students belonged to the range of 1-5 years of age with respect to the age they began wearing spectacles, 25.6%(n=81) students were from the 5-10 years of age range, 33.2%(n=105) were from the 10-15 years of age range, and 29.4%(n=93) belonged to the range of 20-25 years of age.

Precisely 94.6 %(n=299) wore spectacles for far vision, compared to only 4.3%(n=13) and 1.3%(n=4) students wore spectacles for near vision and other reasons respectively.

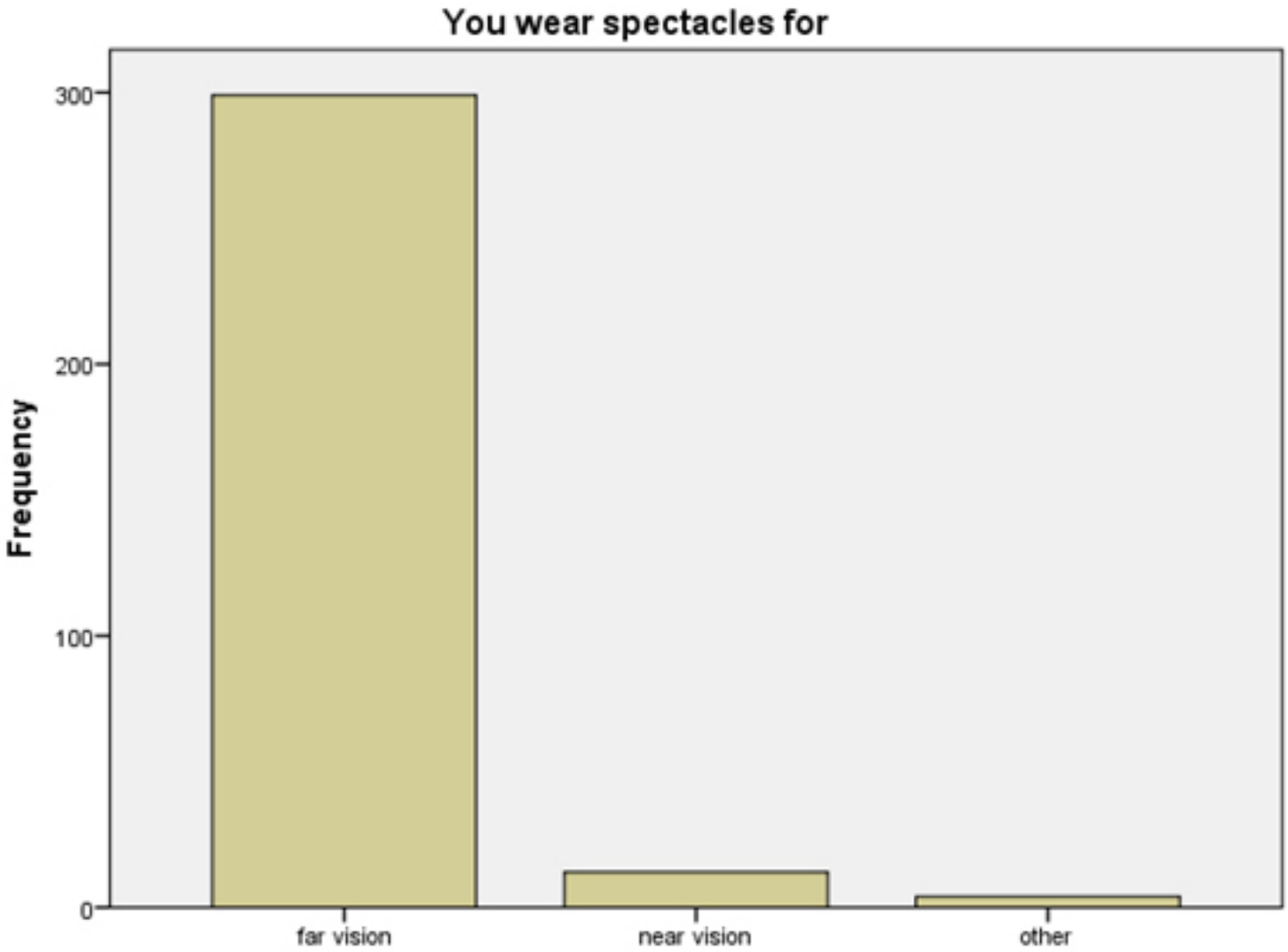

Figure 3 shows that 94.6 %(n=299) wore spectacles for far vision, compared to only 4.3%(n=13) and 1.3%(n=4) students who wore spectacles for near vision and other reasons respectively.

To understand the ranges of spectacle numbers in the 316 participants, it came to be that 81.0%(n=256) had spectacles of numbers ranging from 1-5, 17.75(n=56) wore spectacles of numbers ranging from 5-10, and only 1.3%(n=4) of the students owned spectacles of numbers ranging from 10-15.

Major differences were seen in the time of day chosen by these participants to wear spectacles, specifically, 75.6%(n=239) students had the habit of wearing them all the time, while 11.4(n=36) wore them only during the time they spent out of the house, 2.5%(n=8) wore them when doing any fine work, and 10.4%(n=33) wore them while reading or writing only.

With regards to the presumption whether wearing spectacles further weakens the eyesight, 10.4%(n=33) of the participants chose the answer as “I’m not sure”, whereas 70.6%(n=223) chose “No”, and 19.0%(n=60) chose “Yes”.

A disparity emerged between students when the question of confidence arose, where 76.3%(n=241) felt less confident and 23.7%(n=75) felt otherwise.

Those who chose “Yes” as their answer to the aforementioned query, were further required to choose from an open multiple choice question all the reasons as to why they felt less confident, in which 9.1%(n=31) answers inclined towards “I fear that it will break”, 13.1%(n=42) responses were “I have to clean it again and again”, 4.5%(n=15) were “cannot put eye makeup”, 5.8%(n=18) were “my eyes look smaller”, 10.1%(n=28) were “I feel dependent”, 4.3%(n=14) were “I feel disabled”, and 19.7%(n= 44) were “it changes my facial features”.

Owing to the question of whether wearing spectacles affects the possibility of getting wedding proposals, 13.3%(n=42) of the students were not sure, 73.1%(n=231) selected “No”, and 13.6%(n=43) chose “Yes”.

To investigate the students’ beliefs in the relation between getting early spectacles and stopping eyesight from getting worse, 21.2%(n=67) students were not sure, 16.8%(n=53) students selected “No” as their answer while 62.0%(n=196) students believed “Yes” to be the answer.

In elaboration of the previous question, students were asked to mark all answers relevant to the issues faced by them when they wore spectacles in an open multiple choice question. To which their answers sided towards “dark circles” by 32.3%(n=110), “headaches” by 36.2%(n=114), “rash around the ears” by 26.9%(n=93), “nose spots” by 65.2%(n=214).

With the intention to rule out a family history, students were asked if their family members also shared weak eyesight, to which 15.8%(n=50) of the students responded No”. In contrast, 84.2%(n=266) of the students confirmed as “Yes”.

As a solution to their weakened eyesight, the students were offered multiple corrective measures from which 13.0%(n=41) participants chose “contact lenses”, while 36.7%(n=116) chose “laser surgery” and 50.3%(n=159) chose “spectacles”.

Finally, our society’s attitude towards spectacle wearers was studied on the participants out of whom 15.8%(n=50) believe that “it is a fashion statement” while 16.8%(n=53) believed that “it is a serious disability” and 67.4%(n=213) believe that “it is not that significant”.

Figure 4

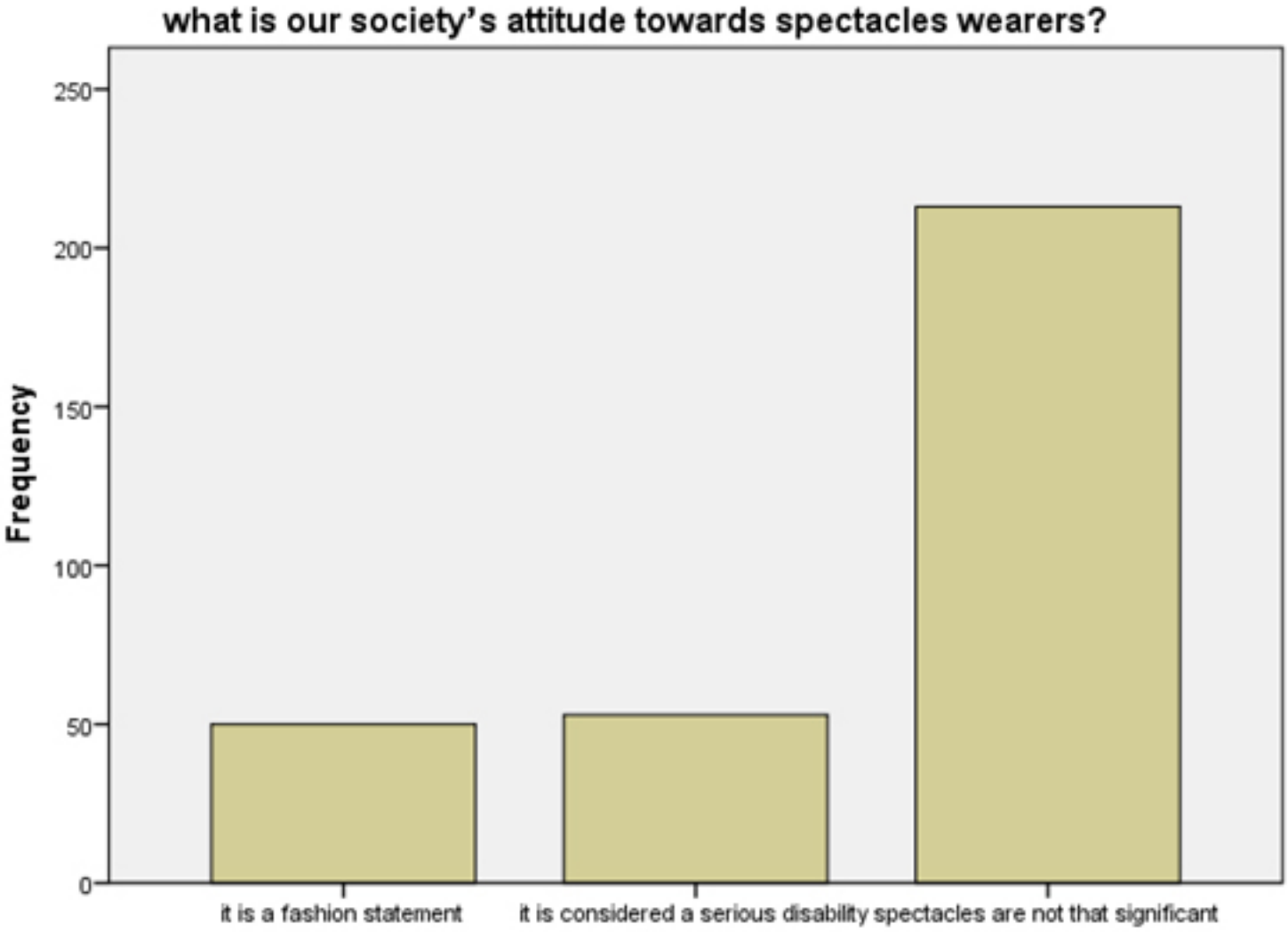

Figure 4 shows our society’s attitude towards spectacle wearers wherein 15.8%(n=50) of the participants believe that “it is a fashion statement” while 16.8%(n=53) believed that “it is a serious disability” and 67.4%(n=213) believe that “it is not that significant”.

Sun Protection:
An interesting variation was seen in the number of hours spent outdoors since 54.4%(n=172) mentioned spending 2 to 4 hours' outdoors, 37.3%(n=118) spent 4 to 8 hours, 7.9%(n=25) spent a time period of 8 to 12 hours, while 0.3%(n=1) of the participants mentioned more than 12 hours spent outdoors.

Knowledge about the range of UV light considered as harmful was represented by 37.7%(n=119) of them responding with "No", and 62.3%(n=197) responding with "Yes".

Inquiring about attention to UV index levels on local weather forecasts before spending long hours on a typical summer day revealed that 78.5%(n=248) responded with a "No" while 21.5%(n=68) responded with a "Yes".

Regarding whether their skin burns easily, out of the 316 participants, 35.4%(n=112) stated that it depends on the weather, while 32.6%(n=103) responded with a "No" and 32.0%(n=101) responded with a "Yes".

38.3%(n=121) said "No" while 61.7%(n=195) said "Yes" concerning if they used sunscreen before going outdoors or not.

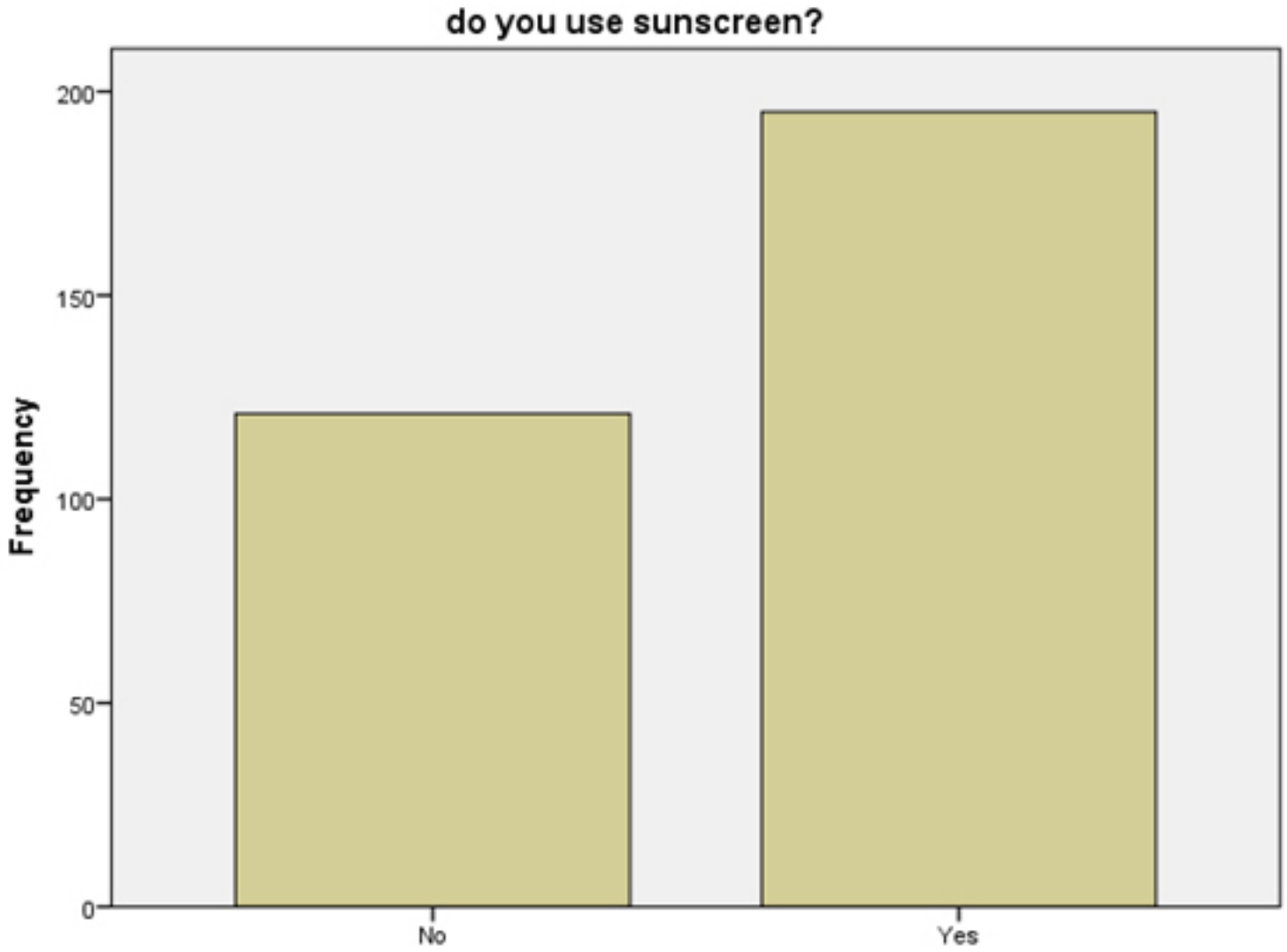

Figure 5 describes the results when the participants were asked if they use sunscreens, 38.3%(n=121) said "No" while 61.7%(n=195) said "Yes".

Furthermore, in response to the most important reason as to why they use sunscreens, 2.5%(n=8) stated that the reason is to avoid wrinkles, 18.0%(n=57) stated that the reason is to avoid premature aging, while 79.4%(n=251) stated the reason is to avoid sunburns.

With the climate conditions in which to apply sunscreen in mind, students were asked when sunscreens are needed, to which 30.4%(n=96) of the participants said that it is needed all the time, 36.4%(n=115) responded that it is needed when going out, 23.1%(n=73) said it is needed when it is very sunny, 10.1%(n=32) said that it is needed when going for sports or beaches.

About the most important factor considered whilst choosing a sunscreen, 5.4%(n=17) of the participants, chose conventional(price), 11.4%(n=36) chose format (cream, powder. lotion, gel), 14.6%(n=46) had no particular preference, and 68.7%(n=217) chose the SPF range of the sunscreen.

The question of reading labels on the sunscreens before their purchase resulted in 22.2%(n=70) of the 316 participants mentioning that they did not use sunscreen, 14.6%(n=46) mentioning “No”, and 63.3%(n=200) mentioning “Yes”.

Investigation of knowledge regarding the method of applying sunscreen has shown that 53.5%(n=169) chose “I don’t know”, 12.3%(n=39) chose “No” and 34.2%(n=108) chose “Yes”.

Lastly, they were asked whether they think sunscreens work or not, to which 9.8%(n=31) responded with “No” whereas 90.2%(n=285) responded with “Yes”.

Figure 6

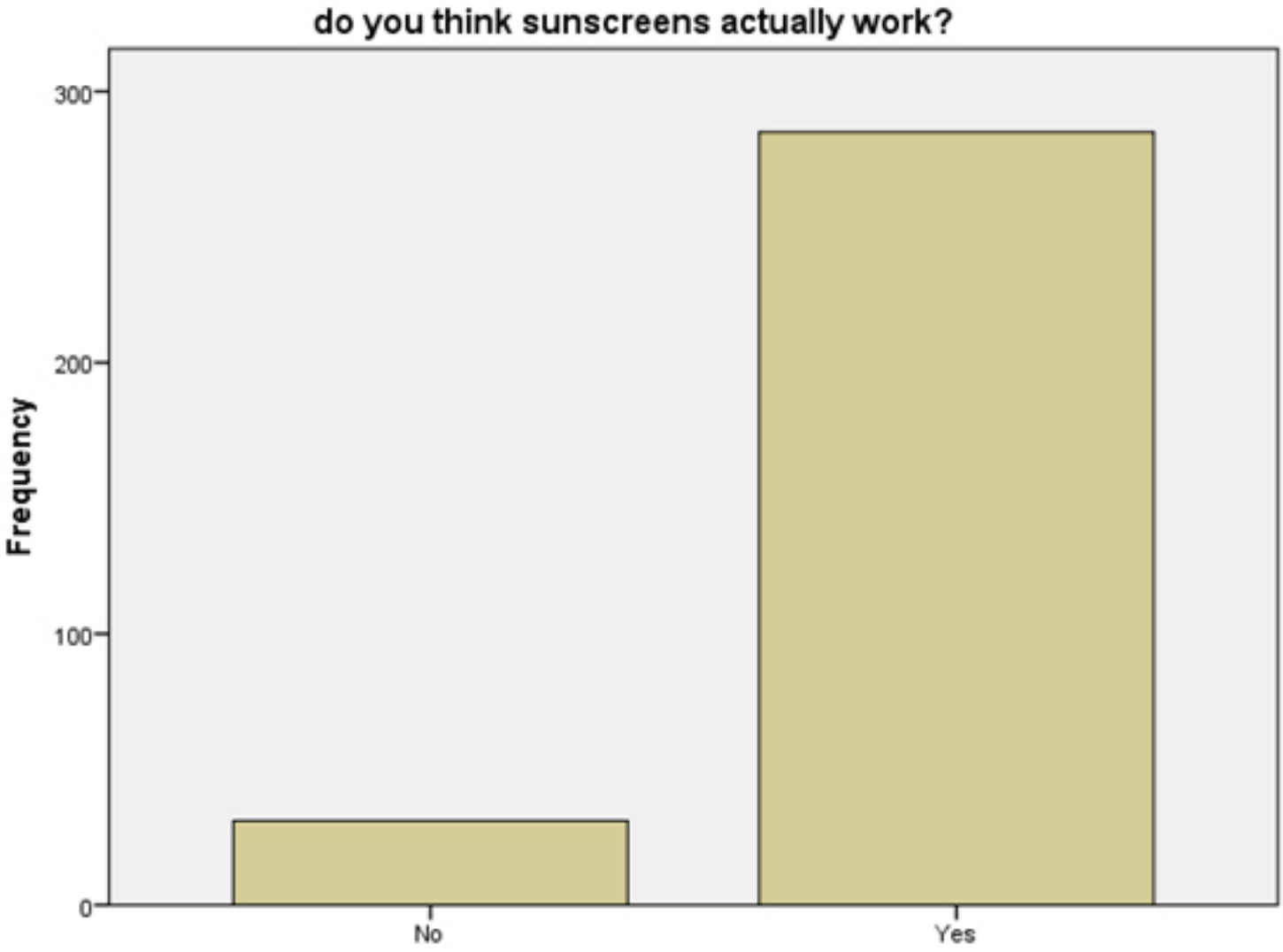

Figure 6 describes results in which the participants were asked whether they think sunscreens work or not, and 9.8%(n=31) responded with “No” whereas 90.2%(n=285) responded with “Yes”.

Discussion

According to a study done among medical students at the University of Benghazi, Libya, 40% of students were taking 0.25-1liters of milk daily which is double the ratio of our study where only 22.3% of students preferred to have milk in their daily life [7]. Included within the same study was the fact that 88% of total fluid intake was plain water, similarly, 91.8% of pupils at Jinnah Sindh Medical University preferred plain water as well [7].

Medical students of Palembang Indonesia have been noted to drink water daily on an average scale of 1,789ml i.e. 1.7 liters, akin to the daily water consumption of the students of JSMU, i.e. 50% of students take 1-2liters of water daily [1].

The standard recommended value for the daily consumption of water as 2 litres was known by only 63.9% of pupils in this cross sectional study, just as 67% of primary physicians in the UK, portrayed unsatisfactory rates of knowledge in both countries [3].

Multiple studies have expressed valuable insight unto the relation between body composition changing along with water intake; they have also depicted a major deficit in the knowledge of the general population of this fact, as comprehensively mentioned in our study that only 50% of the participating students in Karachi were meeting the standard criteria, which is alarming as low water intake is associated with obesity [10].

A study was done among school children in Cairo in which 68% of them were found to be dehydrated. One of the main reasons contributing to the percentage was the water structure of the school. The school had one large basin with three fountain taps which is an architectural design inviting over-crowdedness. This large basin was in close proximity to a washroom, a contaminated environment not meant to be next to a drinking water source ideally. Comparing this to our study, in which participants were adults, the major reason for the difficulty in water consumption was to remember to drink water and carry the water bottle everywhere [9].

81% of the participants agreed that hypohydration has deteriorating effects on academics which is slightly lower than the percentage found in Cambridgeshire among physicians which was 96% [3].

As supported by multiple studies worldwide, such as one in rural China, 56.0% of adolescents who wore spectacles held the attitude that visual acuity worsens with the use of spectacles. Such is the result presented in our study where 19.0% participants chose “Yes’’ as the answer to whether visual acuity weakens with spectacles use or not (21).

The overall prevalence of myopes provides an interesting insight into the refractive errors leading to reduced visual acuity as our study clearly defines as 94.6% of our participants having the aforementioned refractive error. This is consistent with studies conducted in Nepal as well where the rate of simple myopia was 64.81% and that of high myopia was 3.7% (31).

Fortunately, it is widespread knowledge that wearing spectacles early in time preludes better improvement of visual acuity, as 62.0% of our students believe so, just as 55.0% of the various high-school students and their parents in the state of South Darfur, Sudan (32).

A growing awareness of the medical sciences seems to be apparent as 73.1% of our participants believe that wearing spectacles does not affect the possibility of getting wedding proposals. However, there still is a strong interplay of societal norms into the medical sciences in the Pakistani and Indian populations, affecting many households nationwide. This is evident unfortunately amongst 13.3% of the students who were not sure of the answer to the aforementioned query and 13.6% students agreed. Parents are key role-players in building such societal norms as is shown by the same study in Bangalore, India stating that 11.4% female participants and 4.2% male participants did not wear spectacles due to parent disapproval with the fear of affecting their children’s marriages (20).

Owing to such limitations, students of our study were offered to choose between alternative methods of vision correction or sticking to the spectacles they currently wore, from which 13.0% participants chose contact lenses, while 36.7% chose laser surgery and 50.3% chose to stick to spectacles. The close proximity of students choosing laser surgery and sticking to spectacles is reflected in the quality of life assessed in myopic patients who in a study conducted by Shams Nastaran et al showed a standard deviation of 86.98 ± 4.73 in those who underwent refractive surgery and a standard deviation of 78.30 ± 9.21 in those who used spectacles and contact lenses (23).

As family history plays a fundamental role in early age spectacle owners, such as adolescents in schools and medical students, our study displays congruence with a study in 2020 by Sushree Priyadarsini Satapathy et al where 66.92% had a parental history of refractive errors, shared by 84.2% of our medical students at Jinnah Sindh Medical University (30).

It is apparent that a majority of the participants have expressed the correct prior knowledge as to why sunscreen is mostly used. More precisely, 2.5% of the participants stated that the reason is to avoid wrinkles, 18.0% stated that the reason is to avoid premature aging, while 79.4% stated the reason is to avoid sunburn, as was the consensus of the first-year medical students from a Peruvian university in September 2016 wherein 97.0% of the participants knew about the relationship between sun exposure and skin cancer (35).

The SPF range of each sunscreen product seems to be the single most important factor before its purchase around the world since our study shows 5.4% of the participants chose conventional (price), 11.4% chose format (cream, powder, lotion, gel), 14.6% had no particular preference,

and 68.7% chose the SPF range of the sunscreen, as is the case with medical undergraduates at the International Islamic University Malaysia where 33% of medical students chose their sunscreens based on the SPF value (39).

Reassuringly enough, there is a dichotomy between medical students across the world such as in a university in the south-eastern United States, and medical students of JSMU concerning the fact that there is a greater perception of the benefits of applying sunscreens. More accurately, 9.8% responded with "No" whereas 90.2% responded with "Yes" when asked if they think sunscreens work or not. This would suggest a high likelihood of adopting sun-protective behaviors amongst medical students who spend a major period of their day outdoors (6).

A contradictory detail was noted in this study regarding the frequency of sunburn where out of the 316 participants, 35.4% stated that it depends on the weather, while 32.6% responded with a "No" and 32.0% responded with a "Yes". This reflects a spectrum of weather conditions in Pakistan which is a major determinant of sunburn occurrence, resulting in a majority of the respondents not experiencing a sunburn despite the long hours of exposure whereas amongst 5th, 8th, and 11th grade students from the 18 public schools in La Chaux-de-Fonds, the third biggest city in western (French-speaking) Switzerland, 60.2% of children reported at least one episode of sunburn, 30.1% at least two, 11.2% at least three and 43.2% at least one occurrence of severe sunburn over the preceding year (2013) (13).

There is a major misunderstanding around the use of sunscreens in various weather conditions. Although 36.4% of our participants did answer correctly that it is needed when going out, 30.4% of the participants said that it is needed all the time, 23.1% said it is needed when it is very sunny, and 10.1% said that it is needed when going for sports or beaches, contrasting with Peruvian University students where only 23.1% students said that it is needed on a cloudy day, 5.7% did not know, and 71.2% responded with "No". (1)

Conclusion

With an aspiration to become a nobility amongst doctors, medical students must recognize their responsibility in being the representatives of right and wrong. Thus, the participation of the students in this study provides valuable insight into their health related behaviors portrayed against the risks of sun exposure and the benefits of using sunscreen as a protective measure, along with corrective measures chosen against poor sight such as spectacles, and determining the daily water requirements and their benefits. Findings in this study portray that although it is reassuring that a majority of the medical students know the harmful effects of prolonged sun exposure, a lot still needs to be done on the part of our future doctors in the effective method of application of sunscreens. This study has also shown a generally correct direction towards early treatment and whether wearing spectacles continuously further deteriorates sight. However, there is a considerable notion of dependency upon a certain apparatus ergo a dependent lifestyle comprising issues such as lowered confidence and negative affect on wedding proposals. Further studies should be done with focus on the society's role in adhering to early wearing of spectacles and the issues associated with the habit of wearing itself such as rashes, nose spots, headaches and dark circles. This study has also made it significantly apparent that the majority of the medical students still do not have the correct knowledge regarding daily water requirements and their benefits, which needs to be addressed. This will help them obtain better habits about drinking water that will benefit their personal and academic lives. They will be able to treat their patients with the correct information as well.

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