



Impact of Knowledge and Attitude on Saudis' Physical Activity Practice and Inactivity Barriers: A Questionnaire-based Study

Naif N. Albalawi¹, Moath M. Alshehri¹, Moshari A. Al-Ghamdi¹, Mohammed A. Alshehri¹, Mohamed S. Abdel-Maksoud², Mohammed M. H. Al-Gayyar^{3,4,5*}

¹PharmD Program, Faculty of Pharmacy, University of Tabuk, Tabuk, Saudi Arabia; ²Department of Pharmacology and Toxicology, Faculty of Pharmacy, University of Tabuk, Tabuk, Saudi Arabia; ³Department of Biochemistry, Faculty of Pharmacy, Mansoura University, Mansoura, Egypt; ⁴Department of Pharmaceutical Chemistry, Faculty of Pharmacy, University of Tabuk, Tabuk, Saudi Arabia; ⁵PharmD Program Coordinator, Faculty of Pharmacy, University of Tabuk, Tabuk, Saudi Arabia

Abstract

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***Correspondence:** Mohammed M. H. Al-Gayyar, Department of Clinical Biochemistry, Faculty of Pharmacy, Mansoura University, Mansoura, Egypt.
E-mail: mhgayyar@yahoo.com

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BACKGROUND: Community participation in physical activity is considered a major public health preference of WHO. Saudi Arabia in the last decades faced many tremendous economic changes leading to adoption of western dietary habits associated with sedentary lifestyle.

AIM: We aimed to study the relationship between both physical activity knowledge and attitude of community to the practice of individuals.

METHODS: We used a questionnaire consists of a mixture of closed-ended questions. Participants were recruited through direct meetings in local markets, schools, and workplaces. Seven hundred and sixty six individuals agreed to participate.

RESULTS: Overall correct answers to questions about importance of physical activity were 76.58%. The predominance of participants' attitude was to establish public places for physical activity in each neighborhood (92.1%). Participants acknowledged that they exercise to improve their health (47.5%). Participants mainly perform light exercises (47.2%) on basis of 1–3 times weekly (48.9%). About 90.8% of participants admitted that they like to increase duration of their physical activity.

CONCLUSIONS: Overall physical activity practice of participants' needs encourage overcoming obstacles that prevent individuals from practicing especially lack of time.

Introduction

Physical activity is defined as any body movement that is produced by skeletal muscles and associated with energy expenditure [1]. It helps in maintaining physical fitness by enhancing muscles movement, as well as mental health fitness by boosting individuals' mode. Physical activity includes playing games, exercise, dance, gardening, walking, or cycling [2]. Motivation and support are highly needed to help people to participate in physical activity [3]. In the last decades, Saudi Arabia faced tremendous economic changes leading to adoption of western dietary habits associated with sedentary lifestyle. All these changes resulted in negative influence on community health and enhance the spread of non-communicable diseases [4].

Physical activity is a powerful public health measure for decreasing many non-communicable chronic diseases such as obesity, diabetes, cardiovascular diseases, metabolic disorders, and cancer risk. In addition, physical inactivity contributes

to risk of developing a number of cancers through its relation to energy balance [1]. Physical inactivity is considered the principal factor in about 30% of ischemic heart disease, 27% of diabetes, and 21–25% of breast and colon cancer [5]. There is a synergistic relationship between overweight or obesity and the physical inactivity in association with the spectrum of cancer prevention and survivorship [6]. Physical activity is also a useful adjunct to improve side effects experienced during cancer treatment. These side effects may include fatigue, muscular weakness, deteriorated functional capacity of, and many others [7]. Exercise has a number of biological effects on the body, including reducing inflammation, improving immune system function, helping to prevent obesity, and decreasing the harmful effects of obesity [1].

It has been reported that about 30% of worldwide adults lack sufficient levels of physical activity [8]. Inactivity and idleness have increased recently due to modern life style, which is characterized by lack of enough time and presence of other motivation that enhance laziness life. Lack of physical activity

is responsible of about two million deaths (6–10%) caused by coronary heart disease, cancer, and diabetes especially and about 2.1% of disability-adjusted life in the low- and middle-income countries [9].

Many factors were reported previously to be barriers of physical activity. They are classified into time, motivation and support, facilities, and personal factor [10]. Many efforts are needed to reduce physical activity barriers such as increasing availability and improving of physical activity-related equipment and facilities [11]. Therefore, we conducted this study to assess the knowledge and attitude of the community and their effect on physical activity practice in Saudi Arabia. Within this context, we want to verify the association of physical activity, sociodemographic characteristics, and health conditions with disease knowledge and attitudes in Saudi population. This helps to direct health recommendation to policy makers for improvement and promote health life in society. In clinical prospect, new health plans will enhance the quality of life and help in reducing the risk of cardiovascular diseases.

Materials and Methods

Study design and settings

This study was a part of a large cross-sectional questionnaire-based study in Saudi Arabia about the effect of life style behavior on participants. It was conducted in the period between December 2018 and June 2019. It depends on both personal face-to-face and online methods.

Study population

The direct face-to-face part was conducted inside the University of Tabuk as well as the local schools, markets and workplaces. The inclusion criteria consists of being 18 years or older, ability to participate in the interview and acceptance to complete the written consent. Socioeconomic characteristics of participants were summarized in Table 1.

Ethical consideration and informed consent

The study protocol was approved by the Local Ethical Committee in University of Tabuk, under number UT-70-22-2018. During the meeting with participants, we discussed the aims of the study. All participants' information was kept confidential and their responses were coded. All participants were aware that they have the full right to refuse participation or quit the study at any time without any type of risk. Written consent

Table 1: Socioeconomic characteristics of participants

Characteristics	Number	Percent
Gender		
Male	572	74.7
Female	175	22.8
Do not want to determine	19	2.5
Age		
<30 years	261	34.1
30–39 years	210	27.5
40–49 years	214	27.9
50–59 years	73	9.5
60–65 years	7	0.9
More than 65 years	1	0.1
Job		
Employee	446	58.2
Employer	34	4.4
Unemployed	116	15.2
Retired	75	9.8
Did not determine	95	12.4
Income		
<5000 SAR	222	28.9
5000–10,000 SAR	146	19.1
10,000–20,000 SAR	280	36.6
More than 20,000 SAR	106	13.8
Did not determine	12	1.6
Accommodation		
Urban	649	84.7
Rural	115	15.0
Did not determine	2	0.3
Education		
Post-graduation degrees	137	17.9
University degree	403	52.6
High and intermediate school certificates	226	29.5
Marital status		
Married	538	70.2
Divorced/widowed	18	2.3
Never married	208	27.2
Did not determine	2	0.3
Family history		
No tumor history	635	82.9
1–2 family members with tumors	123	16.1
More than 3 family members with tumors	8	1.0

was added in the first page of the survey and on the beginning of the electronic one.

Questionnaire development and design

The questionnaire was designed according to the aims of the study and compared with previous published work. Before distribution to participants, the research team revised it for clarity, format, and cultural suitability. In addition, the survey was investigated by ten participants to insure the clarity of its questions, easiness of use, and appropriateness of allocated time. The questionnaire consists of closed ended questions. It was written in both Arabic and English languages (Supplementary). It is divided into four parts. The first part is the sociodemographic characteristics as age, gender, profession, income, accommodation, education, marital status, and anthropometric parameters. The second part assesses the physical activity knowledge of participants. The third part evaluated the participants' attitude regarding physical activity. The fourth part estimated the participants' physical activity practice.

Data collection

Participants, who could participate in the face-to-face questionnaire, were asked to participate on the online version. At the beginning of the questionnaire, participants were asked to sign the consent form. Participants were met privately to explain the aims of

the study. The responses collected from participants were coded and processed confidentially.

Statistical analysis

The results were expressed as percent value and mean \pm standard error. Statistical computations were performed by SPSS program version 25.

Results

After inviting more than one thousand individuals, only 860 agreed to participate. However, only 766 individuals completed the whole questionnaire.

Physical activity knowledge of participants

Overall correct answers to questions about health importance of physical activity were 79.5%. In addition, the correct answers of questions about psychological effects of physical activity were 73.7%.

Physical activity attitude of participants

There are four major barriers of physical activity; time, motivation and support, facilities, and personal factors [10]. The participants' choice concentrates on overcoming the major four barriers. The predominance of participants' attitudes was to establish a place for physical activity in each neighborhood (92.1%) to overcome the barrier of facilities. Second, they suggest including at least 30 min daily exercise (81%) to overcome the personal factors. Third, participants suggest to make physical activity obligatory in workplaces (75.2%) to overcome the barrier of time. Finally, they vote to keep constant level of exercise through life (60.7%) to overcome the barrier of motivation and support. The least suggestions were limiting sedentary habits as sitting long hours at the computer or television (48%) and decreasing waistline circumference as one grows older (38.3%) (Figure 1).



Figure 1: Physical activity attitude of participants

Physical activity practice of participants

Participants acknowledged that they exercise to improve their health (47.5%). Participants mainly perform light exercises (47.2%) on basis of 1–3 times weekly (48.9%). About 90.8% of participants admitted that they like to increase duration of their physical activity. However, only 21% were considered perform physically active with about 30 min more than 3 times weekly. On the other hand, 44.6% of participants admitted that they did not have enough time to perform regular exercises (Figure 2).

Effect of gender on physical activity practice

As shown in Figure 3, the gender did not affect the physical activity in the study group. The results are the same in both genders.

Effect of education level on physical activity practice

About 41.5% of participants with intermediate and high school education were inactive. This considered high as compared with those with college degree or postgraduate studies with inactive individuals 24.8% and 28.5%, respectively. According to the reason of practicing, most admitted they practiced to improve their health with different percent according to education, 53.4% in those with postgraduate studies, 49.9 for college studies, and 37.2% in those with intermediate or high school education. All other practice was almost the same in participants without any effect of education level (Figure 4).

Effect of income on physical activity practice

According to Figure 5, all participants practice was not affected by income level except for the need of more exercise. About 96% of participants with the highest income admitted that they need more practice. Regarding the reasons for inactivity, participants with high income admitted that they did not have enough time (57%).

Discussion

Regular physical activity among all ages produces both physical and mental benefits including improvement of life quality, sleep and stress management, and enhancement of social relationships [12]. Physical inactivity is one of the most important risk factors for developing chronic diseases and increasing morbidity

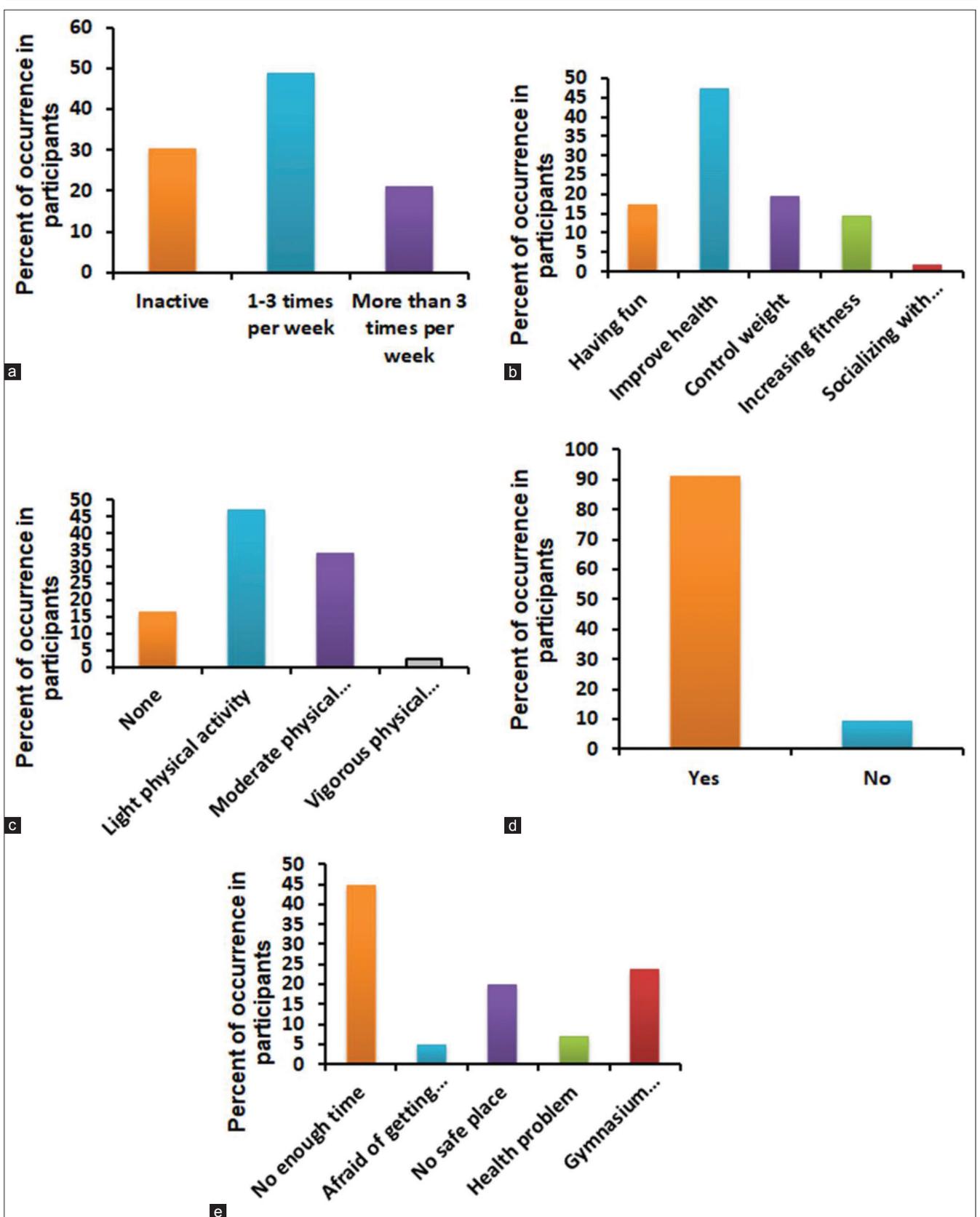


Figure 2: Physical activity practice of participants regarding physical activity level (a), reasons for exercise (b), types of physical activity (c), need for increasing the level of exercise (d), and reasons for not practicing (e)

and mortality [13]. In particular, physical inactivity has major effects on the incidence of coronary heart disease, type 2 diabetes and cancer, specifically breast and

colon cancers [9]. According to WHO Country profile 2016, 52.1% of Saudi males and 67.7% of females did not fulfill the international recommendation of physical

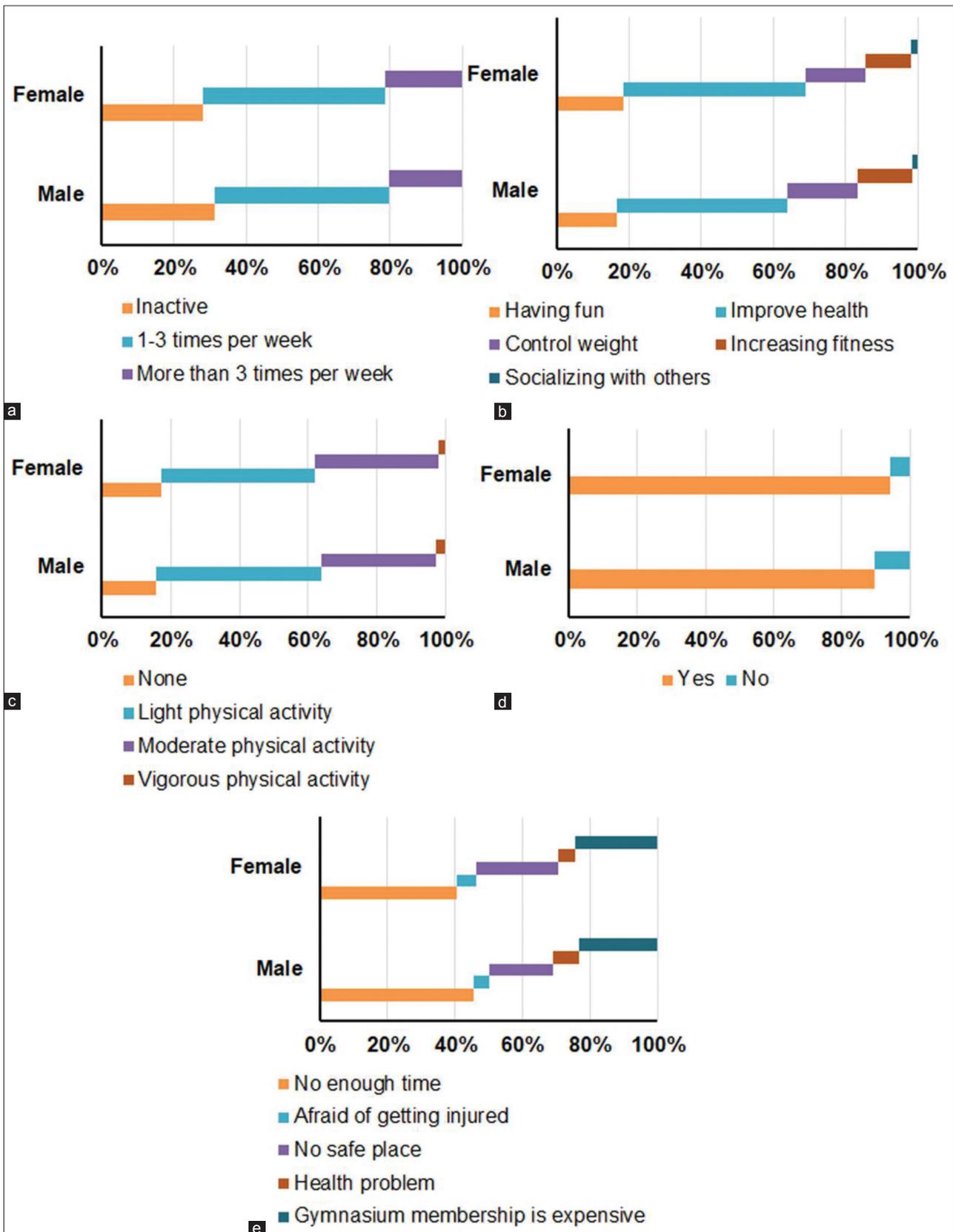


Figure 3: Effect of gender on physical activity practice of participants regarding physical activity level (a), reasons for exercise (b), types of physical activity (c), need for increasing the level of exercise (d), and reasons for not practicing (e)

activity levels. This illustrated a big public health issue [14]. Therefore, this study was designed to explore the relationship between physical activity knowledge,

behavior, and practice with cancer. In part, this study helped people to improve their practice by alarming them about the dangerous effects of their behavior.

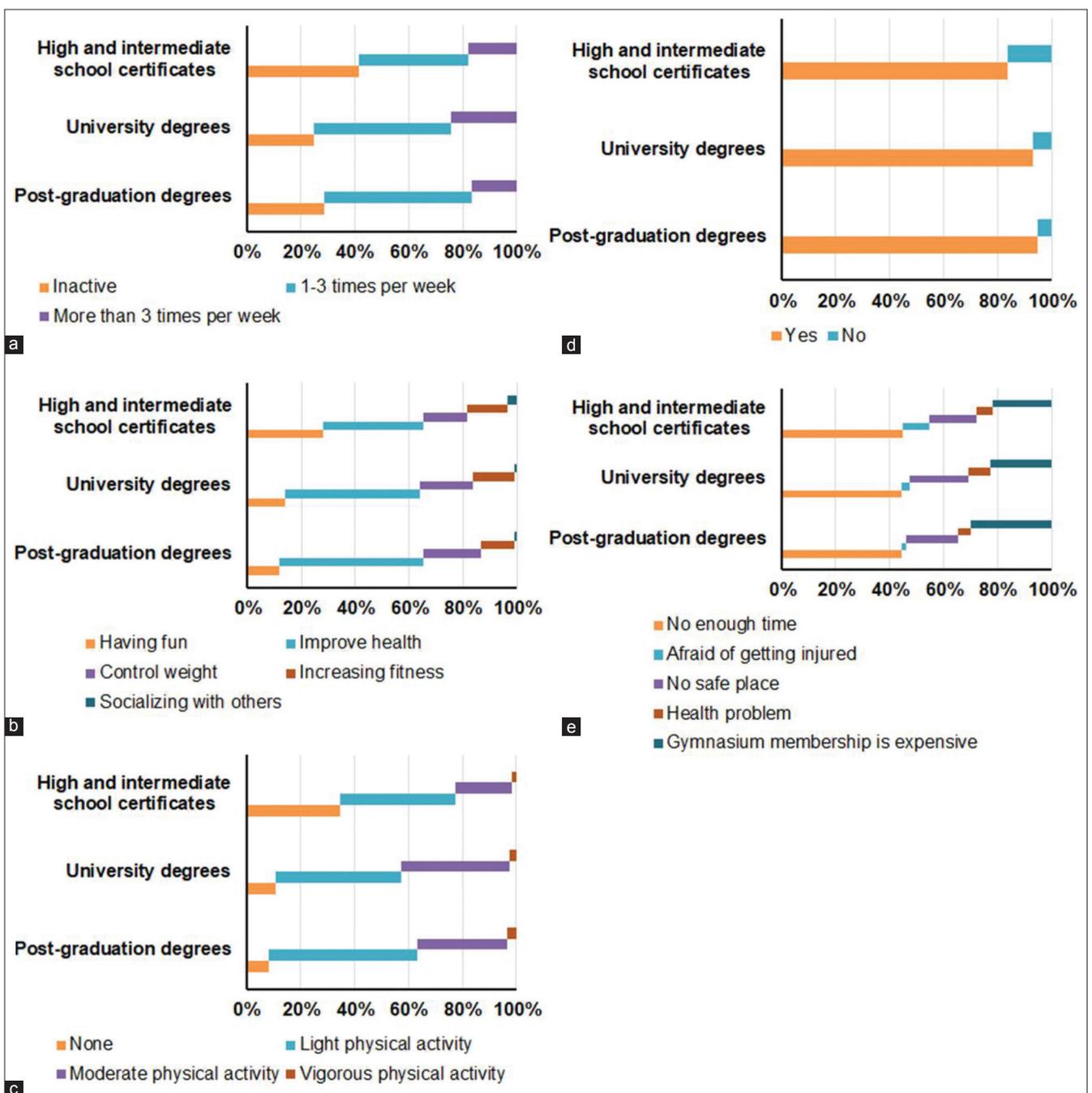


Figure 4: Effect of education level on physical activity practice of participants regarding physical activity level (a), reasons for exercise (b), types of physical activity (c), need for increasing the level of exercise (d), and reasons for not practicing (e)

Participants have good knowledge about both the health and social effects of physical activity. Most of them linked the health effects of physical activity with protection from cancer. However, there is a strong relationship between the lack of physical activity and cancer. There is substantial evidence that higher levels of physical activity are linked to lower risks of several cancers [15]. Colon cancer is one of the most extensively studied cancers in relation to physical activity. A 2009 meta-analysis of 52 epidemiologic studies that examined the association between physical activity and colon cancer risk found that the most physically active individuals had a 24% lower risk of colon cancer than those

who were the least physically active [16]. American guidelines recommend that cancer survivors engage in 150 min per week or more of moderate physical activity [17]. This protection can take place through multiple mechanisms such as reducing adiposity, improving insulin resistance, enhancing immunity, and attenuation of inflammation [18].

We examined the attitude of participants against the external barriers. Most of the external barriers are developed in the participants in their early life. Participants usually focus on the academic life instead of physical activity under encouragement of their parents and teachers planning for future financial

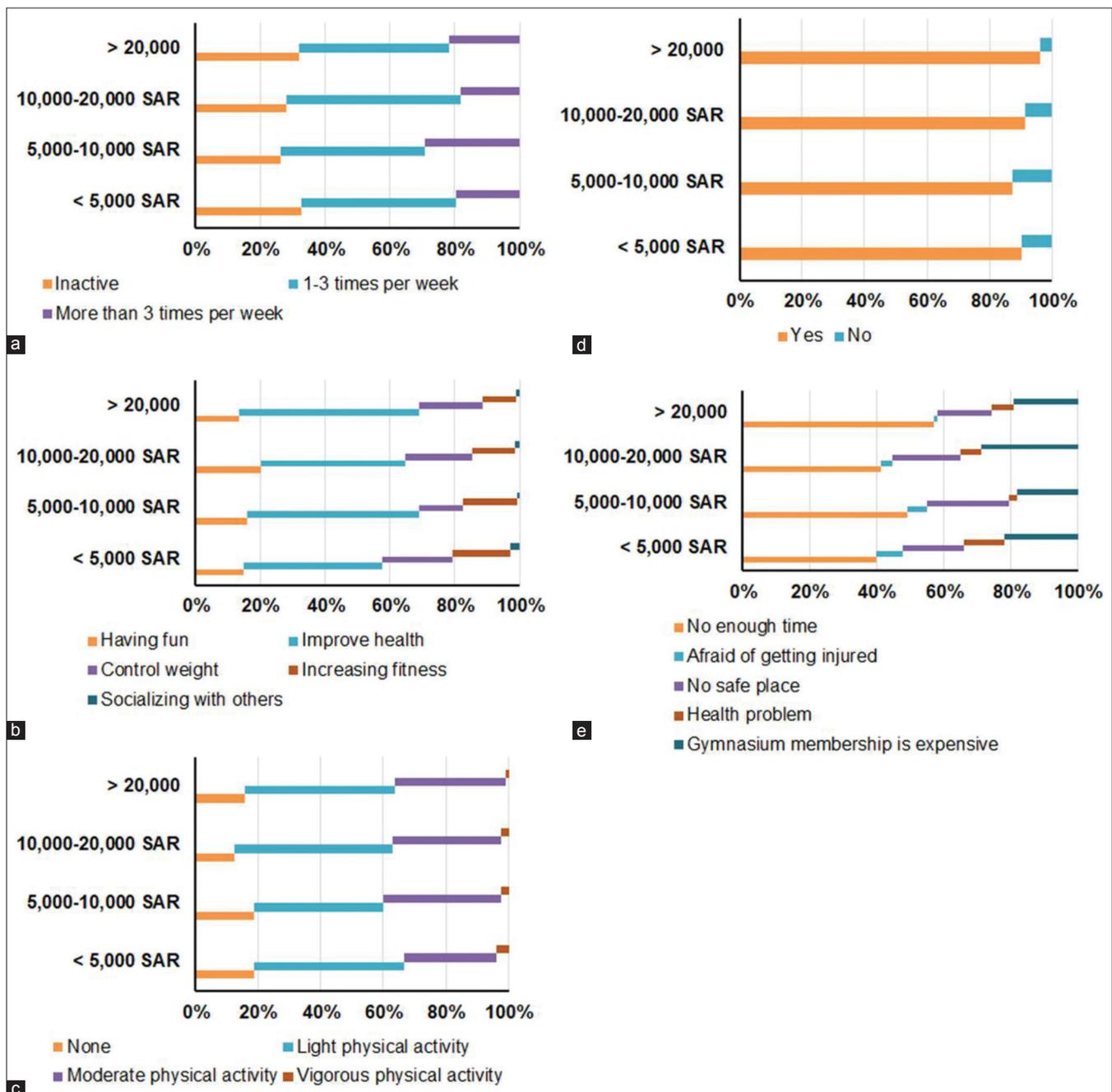


Figure 5: Effect of income on physical activity practice of participants regarding physical activity level (a), reasons for exercise (b), types of physical activity (c), need for increasing the level of exercise (d), and reasons for not practicing (e)

stability. Later, in their life, they develop the concept physical activity is less important than their career achievement. Therefore, self-efficacy is important in adopting physical activity behaviour [19]. In addition, cognitive control has greater influence in adopting physical activity in life [20]. All these negative concepts were promoted into internal barriers later in their lives and many shares similar socio-cultural beliefs. Participants' suggestion for overcoming these barriers gave the highest percent of vote to elimination of barrier of facilities by suggesting establishment of a place for physical activity in each neighbourhood. Next, they vote for elimination of internal personal barriers by suggesting inclusion of at least 30 min daily exercise.

The third position was to overcome the barrier of time by making physical activity obligatory in workplaces. Finally, participants vote to eliminate the barrier of internal motivation and support by supporting constant levels of physical activity throughout life.

We found that 30% of the participants are physically inactive. However, only 21% of participants were considered physically active with 30 min more than 3 times weekly. Our results are consistent with a previous study in Saudi Arabia [21]. In addition, 30% of participants admitted that they are physically inactive. It is previously estimated that about 20% of world's population are physically inactive [22]. A high percent of

participants did not practice because they did not find enough time. Therefore, we compared our study with other cross-sectional survey among Riyadh city, which illustrated the main reason for not engaging in physical activity was lack of time (58.1%) followed by work duties (22.5%) [23]. Although, our result show considerable amount of knowledge of participants in physical activity and we found more than 80% of them know both health and social effects physical activity. However, only few of them practice in regular basis blaming the lack of enough time.

Gender is an important factor in determining the physical activity level. It has been reported previously by some studies in Saudi Arabia that women are less active than men [4], [24]. However, in the present study, we found that the physical activity practice is the same in both genders without any variation, which can be attributed to social changes in the community and the increased role of Saudi government to enhance women physical activity in schools and special designed areas. However, the differences in body composition between male and female regarding the highest amount of muscle mass in male as well as the cardiac size and mechanical efficiency is better in males [25].

We found that participants with high education levels were more physically active. These results are consistent with previous studies [26], [27]. However, persons with highest education levels were engaged in jobs with longer sitting times but on other hand, the increased levels of physical activity are mainly associated with enhancing satisfaction of body image. In parallel, we did not find any relationship between physical activity and income level except for feeling for the need of more physical activity with blame on no enough time in participants with the highest income level. Many studies around the world found that individuals with high income featured higher physical activity in US [27] and Korea [28]. However, some studies conclude that there was relationship between physical activity and income [29].

Conclusion

Participants have good knowledge about importance of physical activity in daily life. Moreover, attitudes of participants were directed towards increasing public places for physical activity and to make it obligatory. Finally, overall physical activity practice of participants' needs encourage to overcome obstacles that prevent individuals from practicing especially lack of time. Therefore, we can conclude that participants had good knowledge and attitude about the physical activity easing the implementation of new plans to promote the health of population.

Ethical Approval

The work is approved the Local Research Ethics Committee in University of Tabuk (UT-70-22-2018).

Authors' Contributions

MAA helped in the idea, collected data, and helped in manuscript writing. MMA collected data, helped in design of the work and drafting of the manuscript. NNA collected data, helped in statistics and drafting of manuscript. MAA collected data and helped in the manuscript writing. MSA helped in the idea and performed the statistics. MMHA suggested the idea, wrote the manuscript, and supervised all the work. All authors have approved the final manuscript.

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