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Association of Physical Activity and Obesity in Health Care Professionals of Karachi

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ABSTRACT

Obesity is a major health problem worldwide. The worldwide prevalence rate of obesity is about 13% of adults are obese, and 39% of adults are overweight. Globally, found that 1 out of every 5 children is overweight and faces many complications. **Objective:** To determine the relation of physical activity and obesity in health care professionals of Karachi. **Methods:** A cross-sectional survey was done on 543 healthcare professionals of various domains selected from the hospitals of Karachi according to the division of seven districts (Central, East, Kemari, Orangi, Malir, South, West). The evaluation of the study was done through three weight measurement tools (BMI (body mass index), Waist circumference, waist-hip ratio) and two questionnaires: a self-administered and an international physical activity questionnaire. The data were analyzed by SPSS version 23.0. **Results:** There were 543 healthcare professionals extracted from seven districts of Karachi, Out of which 310 performed more than 3 hours, 181 performed less than 3 hours per day, and 52 were not sure about their level of moderate activities in daily routine While 146 healthcare professionals performed more than 3 hours per day, 283 performed less than 3 hours per day, and 114 were not sure about their level of vigorous activities in their daily routine. **Conclusions:** Our study concluded that the frequency of obesity is less in healthcare professionals as compared to the general public.

INTRODUCTION

The deposition of uncontrolled fatty tissues in a person's body that produces a negative impact on an individual's health is called obesity [1]. It is a major health problem worldwide. While having a meal we intake a larger amount of energy than we spend the energy during the performance of activities in daily living [2]. The worldwide prevalence rate of obesity is about 13% of adults are obese, and 39% of adults are overweight. Globally, found that 1 out

of every 5 children is overweight and faces many complications [3]. It is the major cause of morbidity and is an important health issue that can affect the physical, mental, and psychosocial aspects of well-being. Mostly the normal capacity of a person to perform their activities of daily living is decreasing day by day due to obesity [4]. The death rate in the U.S. is approximately 325,000 per year and the reason is overweight [5]. According to the study,

obesity can cause various diseases like; diabetes, hypertension, cancer, stroke, cardiopulmonary diseases, anxiety depression, as well as the capacity of a person's physical activity and endurance can also be affected by obesity. Furthermore, around 3 lacs 25 thousand deaths in the U.S. per year among non-alcoholic and non-smokers are due to Obesity [6]. Physical activity plays a vital role in the prevention of obesity. According to the American Heart Association guidelines for physical activity, an adult person must do 2 hours and 30 minutes of moderate OR 1 hour and 15 minutes of vigorous aerobic activity in a week to maintain a healthy lifestyle, Around two days of muscle strengthening is recommended in a week [7]. Should avoid a sedentary lifestyle by spending less time sitting, Should perform physical activity five hours a week, should increase the level of activity in slow to moderate to high levels. Unfortunately according to a study conducted in 2015, only 18 percent of obese persons met the guidelines of Physical activity [8]. Another research reported if little variation in the physical activity status of a person occurs it causes a huge reduction in the prevalence of Obesity [9]. A study states that the healthy weight of a person could be maintained by a physically active individual. Furthermore, it can promote healthy lifestyle modification in all age groups and cause a reduction in the prevalence of obesity [10]. The study reported, that there is a negative correlation between physical activity and obesity. Although physical has a vital role in the maintenance of weight and lifestyle modification separately it cannot control the risk factors of obesity [11]. According to the study, Obesity is proven to be a more influencing factor for the health, finances, activity, and productivity of an employee in comparison to non-obese employees at the workplace [12]. However, it has been reported In a study that the workplace also plays a vital role in the prevalence of Obesity because the contribution of working conditions; (timings, workstation, work stress) and job description of an employee describes the employee's physical activity status during working hours [13]. Healthcare professionals are the most common population who face these working conditions at the workplace. Healthcare professionals (HCPs) are the main leaders in decreasing the ratio of health diseases by giving information related to their health status, and guidelines for serving a healthy and comfortable lifestyle, and also guiding people about their body weight which is suitable according to their age domain [14]. There is a general perception about healthcare professionals that they are the personalities who play a vital role in the community to promote healthy lifestyles [15]. Some studies found the stats of obesity are lower in HCP as compared to other people. In the study of the USA healthcare professionals are proved to have the lowest obesity rate in female HCPs as compared to male HCPs [16]. The study in South Africa researched that the health care professionals 73.5 percent were obese, and around 56 percent of health care professionals were fully satisfied with their body weight

[17]. In our study, we are determining the prevalence of obesity in healthcare professionals and the association of physical activity with obesity.

METHODS

This study was done on healthcare professionals of various domains and was a cross-sectional survey after the issuance of ethical approval from the competent authority of AORC medical center and institute with ref no: BASAR/No.053260/physio, date: 11 May 2023, The study was conducted between May to October 2023 followed by a non-probability purposive sampling technique. The sample size of the study was calculated through Raosoft.com software with a hypothesized 50% population of healthcare professionals. Statistical conditions were a 99% confidence interval and 1 % margin of error. The estimated sample size calculated from the software was 543 participants selected from the hospitals of Karachi according to the division of seven districts (Central, East, Kemari, Orangi, Malir, South, West) The inclusion criteria were healthcare professionals (Physicians, Physical Therapists, Nurses, Pharmacist, Supporting staff, Technicians) working in Clinical environment, the age group from >20 years and above were included. Healthcare professionals who were working in an academic environment and who were not willing to participate were excluded from this study. The evaluation of the study was done through three weight measurement tools(BMI, Waist circumference, waist-hip ratio) and two questionnaires: a self-administered and an international physical activity questionnaire [18]. The data were analyzed by SPSS version 23.0.

RESULTS

There were 543 healthcare professionals extracted from seven districts of Karachi were analyzed through an International physical activity questionnaire, a self-administered questionnaire, and weight measurement tools (BMI, waist circumference, and waist-hip ratio) The status of participants co-morbid like DM, HTN, and exercise was collected from research participants is shown in Table 1.

Table 1: Characteristics of research participants

Characteristics	Male N=275(%)	Female N=268(%)	Total N=543(%)
Professionals			
Physicians	31(11.27)	23(8.58)	54(9.94)
Physical Therapists	73(26.54)	81(30.22)	154(28.36)
Nurses	69(25.0)	73(27.23)	142(26.15)
Pharmacist	49(17.81)	33(12.31)	82(15.10)
Supporting staff	31(11.27)	43(16.0)	74(13.62)
Technicians	22(8.0)	15(5.59)	37(6.81)
Age			
20-29	37(13.45)	35(13.05)	72(13.25)
30-39	87(31.63)	83(30.97)	170(31.30)

40-49	79(28.72)	81(30.22)	160(29.46)
50-59	33(12.0)	39(14.55)	72(13.25)
>59	39(14.18)	30(11.19)	69(12.70)
Body Mass Index (BMI)			
Underweight (<18.5)	19(6.90)	37(13.80)	56(10.31)
Normal (18.5-24.9)	176(64.0)	141(52.61)	317(58.37)
Overweight (25.0-29.9)	69(25.09)	77(28.73)	146(26.88)
Obese (≥30)	11(4.0)	13(4.85)	24(4.41)
Waist Circumference (cm)			
Normal	239(86.90)	211(78.73)	450(82.87)
High (Obese)	36(13.09)	57(21.26)	93(17.12)
Waist-Hip Ratio			
Normal	261(94.90)	221(82.46)	482(88.76)
High (Obese)	14(5.09)	47(17.53)	61(11.23)
Diabetes			
Yes	27(9.81)	23(8.58)	50(9.20)
No	248(90.18)	245(91.41)	493(90.79)
Hypertension			
Yes	41(14.90)	27(10.07)	68(12.52)
No	234(85.09)	241(89.92)	475(87.47)
Exercise			
Yes	239(86.90)	210(78.35)	449(82.68)
No	36(13.09)	58(21.64)	94(17.31)
Duration of Exercise			
Adequate	219(79.63)	197(73.50)	416(76.61)
Inadequate	56(20.36)	71(26.49)	127(23.38)

Health care professionals working in seven districts of Karachi are Central 107, East 21, Kemari 27, Korangi 73, Malir 23, South 193, and 99 from West as shown in Figure 1.

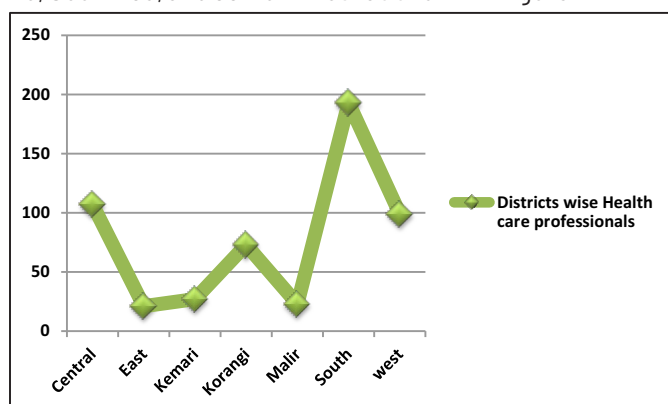


Figure 1: Districts wise research participants

Out of 543 research participants, 310 (57.09%) performed more than 3 hours per day, 181 (33.33%) performed less than 3 hours per day, and 52 (9.57%) were not sure about their level of moderate activities in daily routine as shown in Figure 2.

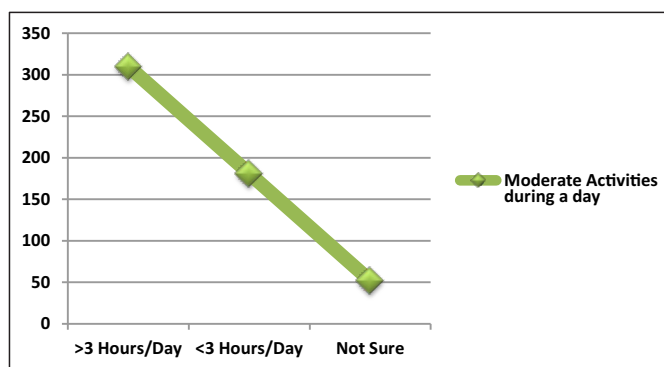


Figure 2: Moderate activity status

Out of 543 research participants 146 (26.88%) performed more than 3 hours per day, 283 (52.11%) performed less than 3 hours per day, and 114 (20.99%) were not sure about their level of vigorous activities in their daily routine as shown in Figure 3.

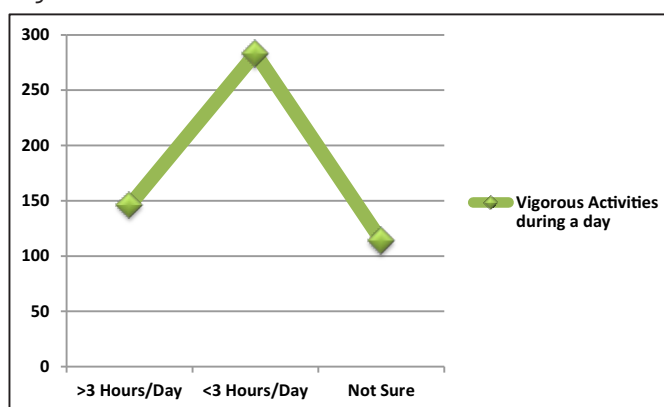


Figure 3: Vigorous activity status

DISCUSSION

Healthcare professionals are the representatives of healthy lifestyles because of the knowledge and skills they have related to health and preventive measures to reduce unhealthy activities from their lives due to their healthcare experiences [19]. As the trend of high cholesterol diet intake and sedentary lifestyle are increasing in Pakistan in terms of junk foods, artificial intelligence equipment, etc. the association of Physical activity with weight affects the weight of an individual [20]. Another study by Sadaf also studied environment, personal, religious, cultural, and socioeconomic factors in increasing obesity rate [21]. Our study provides useful data related to the frequency of obesity among healthcare professionals. The prevalence of overweight healthcare professionals according to BMI was 26.88% while the obese group was 4.41% which is lower than the national prevalence found by Kasu et al., in 2015 [22]. This shows that healthcare professionals are usually concerned about their health and fitness of their own with their heavy long schedule of daily work routines. A study conducted in Zimbabwe revealed that Female healthcare

professionals were more proved to be obese as compared to males due to multiple factors like household, individual, social, and community factors which cause an increase in the risk of multiple diseases [23]. However, weight circumference is the measurement of fat in the middle region of the body. This composition of fat is prone to spread in the surrounding human organs which causes increased blood pressure, fat profile, and diabetes in a person [24]. A study conducted in Europe stated that the frequency of obesity and waist circumference is shown in individuals from their childhood aged 7 years which causes problems in their lives related to metabolic complications of the cardiac system [25]. Whereas, From our study, Waiste circumference findings show 17.12% (Females: 21.26%, Males: 13.09%) obese. Waist Hip ratio is the circumference of the waist to the hip in non-dimension form [25]. According to WHO, the average waist-hip ratio of a healthy person should be ≤ 0.85 in females and ≤ 0.9 , in males [26]. The study reported, waist to waist-to-hip ratio and waist circumference both are the variables of measurement of weight and are directly associated with each other and used as a tool for obesity but are also not very good options for the older population [27]. But in our study, the frequency of obesity among healthcare professionals was 17.12 (Females: 17.53%, Males: 5.09%). Generally the body mass index, waist circumference, and waist-hip ratio all are used to evaluate the prevalence of obesity among both genders [28]. A study shows health care professionals working in non-clinical environments were more obese than clinical professionals showing the strong prevalence of physical activity and obesity [29]. Another study done in Kenya among healthcare professionals showed there was no difference between the findings of obesity among clinical and non-clinical healthcare professionals [30]. However in our study the highest values of Body mass index were found to be more in the normal category at 58.37%. There are some limitations of our study. Firstly, the research participants were recruited from a single city Karachi Pakistan however the frequency of healthcare professionals is different in every city of Pakistan. That's why the conclusion cannot be generalized to the other cities. Secondly, the diet factor has not been considered as a dependent variable however it has a vital influence on the higher levels of Body mass index.

CONCLUSIONS

It has been observed that the rate of obesity is lower among healthcare professionals as compared to the general public. Additionally, our studies also highlighted the dependent variables of obesity like physical activity, BMI, weight circumference, and waist-hip ratio evaluated by healthcare professionals. There is a need for lifestyle

modification that can promote a healthy weight and healthy lifestyle to healthcare professionals which reflects a positive impact on society.

Authors Contribution

Conceptualization: MN, MF

Methodology: SURB, MTA

Formal analysis: SB

Writing-review and editing: MN, MF, SB, SURB, AD, SRB

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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REFERENCES

- [1] Blüher M, Aras M, Aronne LJ, Batterham RL, Giorgino F, Ji L, Pietiläinen KH, Schnell O, Tonchevska E, Wilding JP. New insights into the treatment of obesity. *Diabetes, Obesity and Metabolism*. 2023 Aug; 25(8): 2058-2072. doi: 10.1111/dom.15077.
- [2] Hampl SE, Hassink SG, Skinner AC, Armstrong SC, Barlow SE, Bolling CF, et al. Clinical practice guideline for the evaluation and treatment of children and adolescents with obesity. *Pediatrics*. 2023 Feb; 151(2): e2022060640. doi: 10.1542/peds.2022-060640.
- [3] Wahabi H, Fayed AA, Shata Z, Esmail S, Alzeidan R, Saeed E, et al. The impact of age, gender, temporality, and geographical region on the prevalence of obesity and overweight in Saudi Arabia: Scope of evidence. *Healthcare*. 2023 Apr; 11(8): 1143. doi: 10.3390/healthcare11081143.
- [4] Nagy É, Cseh V, Barcs I, Ludwig E. The Impact of Comorbidities and Obesity on the Severity and Outcome of COVID-19 in Hospitalized Patients—A Retrospective Study in a Hungarian Hospital. *International Journal of Environmental Research and Public Health*. 2023 Jan; 20(2): 1372. doi: 10.3390/ijerph20021372.
- [5] Ford JH, Lage MJ, Boye KS, Bae JP, Terrell KA, Bunck MC. Five-year morbidity and mortality rates in a US population with obesity with and without prediabetes. *Journal of Diabetes and its Complications*. 2023 May; 37(5): 108454. doi: 10.1016/j.jdiacomp.2023.108454.
- [6] Adair T. Premature cardiovascular disease mortality with overweight and obesity as a risk factor: Estimating excess mortality in the United States during the COVID-19 pandemic. *International Journal*

- [7] of Obesity. 2023 Apr; 47(4): 273-9. doi: 10.1038/s41366-023-01263-y. Den Uijl I, van den Berg-Emons RJ, Sunamura M, Lenzen MJ, Stam HJ, Boersma E, et al. Effects of a Dedicated Cardiac Rehabilitation Program for Patients With Obesity on Body Weight, Physical Activity, Sedentary Behavior, and Physical Fitness: The OPTICARE XL Randomized Controlled Trial. *Physical Therapy*. 2023 Sep; 103(9): pzad055. doi: 10.1093/ptj/pzad055.
- [8] Kraus WE, Bittner V, Appel L, Blair SN, Church T, Després JP, et al. The National Physical Activity Plan: a call to action from the American Heart Association: a science advisory from the American Heart Association. *Circulation*. 2015 May; 131(21): 1932-40. doi: 10.1161/CIR.000000000000203.
- [9] Lee S, Patel P, Myers ND, Pfeiffer KA, Smith AL, Kelly KS. A systematic review of eHealth interventions to promote physical activity in adults with obesity or overweight. *Behavioral Medicine*. 2023 Jul; 49(3): 213-30. doi: 10.1080/08964289.2022.2065239.
- [10] Cheung NW, Thiagalingam A, Smith BJ, Redfern J, Barry T, Mercorelli L, et al. Text messages promoting healthy lifestyle and linked with activity monitors stimulate an immediate increase in physical activity among women after gestational diabetes. *Diabetes Research and Clinical Practice*. 2022 Aug; 190: 109991. doi: 10.1016/j.diabres.2022.109991.
- [11] Pojednic R, D'Arpino E, Halliday I, Bantham A. The benefits of physical activity for people with obesity, independent of weight loss: a systematic review. *International Journal of Environmental Research and Public Health*. 2022 Apr; 19(9): 4981. doi: 10.3390/ijerph19094981.
- [12] Menon K, de Courten B, Ademi Z, Owen AJ, Liew D, Zomer E. Estimating the benefits of obesity prevention on productivity: an Australian perspective. *International Journal of Obesity*. 2022 Aug; 46(8): 1463-9. doi: 10.1038/s41366-022-01133-z.
- [13] Mänty M, Kouvonon A, Nordquist H, Harkko J, Pietiläinen O, Halonen JI, et al. Physical working conditions and subsequent sickness absence: a record linkage follow-up study among 19-39-year-old municipal employees. *International Archives of Occupational and Environmental Health*. 2021 Oct; 95: 489-97. doi: 10.1007/s00420-021-01791-y.
- [14] Koetsier LW, van den Eynde E, Van Mil EG, van der Velde M, De Vries R, Baan CA, et al. Scoping literature review and focus groups with healthcare professionals on psychosocial and lifestyle assessments for childhood obesity care. *BMC Health Services Research*. 2023 Dec; 23(1): 1-6. doi: 10.1186/s12913-022-08957-5.
- [15] Van der Voorn B, Camfferman R, Seidell JC, Puhl RM, Halberstadt J. Weight-biased attitudes about pediatric patients with obesity in Dutch healthcare professionals from seven different professions. *Journal of Child Health Care*. 2023 Mar; 27(2): 13674935221133953. doi: 10.1177/13674935221133953.
- [16] Hassan S, Gujral UP, Quarells RC, Rhodes EC, Shah MK, Obi J, et al. Disparities in diabetes prevalence and management by race and ethnicity in the USA: defining a path forward. *The Lancet Diabetes & Endocrinology*. 2023 Jul; 11(7): 509-24. doi: 10.1016/S2213-8587(23)00129-8.
- [17] Wand H, Moodley J, Reddy T, Vujovich-Dunn C, Naidoo S. Quantifying impact of obesity on cardiometabolic comorbidities and public health implications: Insights from South Africa. *Obesity Research & Clinical Practice*. 2023 Mar; 17(2): 122-9. doi: 10.1016/j.orcp.2023.02.003.
- [18] Lavados-Romo P, Andrade-Mayorga O, Morales G, Muñoz S, Balboa-Castillo T. Association of screen time and physical activity with health-related quality of life in college students. *Journal of American College Health*. 2023 Jun; 71(5): 1504-9. doi: 10.1080/07448481.2021.1942006.
- [19] Silveira EA, Mendonça CR, Delpino FM, Souza GV, de Souza Rosa LP, de Oliveira C, et al. Sedentary behavior, physical inactivity, abdominal obesity and obesity in adults and older adults: A systematic review and meta-analysis. *Clinical Nutrition ESPEN*. 2022 Aug; 50: 63-73. doi: 10.1016/j.clnesp.2022.06.001.
- [20] Adnan NB, Dafny HA, Baldwin C, Jakimowitz S, Chalmers D, Moh'd Ahmad Aroury A, et al. What are the solutions for well-being and burn-out for healthcare professionals? An umbrella realist review of learnings of individual-focused interventions for critical care. *BMJ Open*. 2022 Sep; 12(9): e060973. doi: 10.1136/bmjopen-2022-060973.
- [21] Sadaf A. The role of built environment, personal, religious, cultural, and socioeconomic factors in increasing overweight and obesity rate in women vs men: a case study of Karachi, Pakistan. *Cities & Health*. 2023 Jan: 1-4. doi: 10.1080/23748834.2022.2155290.
- [22] Kasu ES, Ayim A, Tampouri J. Prevalence of obesity among health workers in Kadjebi District of Ghana. *Journal of Biology Agriculture and Healthcare*. 2015; 5(2): 155-66.
- [23] Mangemba NT and San Sebastian M. Societal risk factors for overweight and obesity in women in Zimbabwe: a cross-sectional study. *BMC Public*

- Health. 2020 Dec; 20(1): 1-8. doi: 10.1186/s12889-020-8215-x.
- [24] Abitew DB, Yalew AW, Bezabih AM, Bazzano AN. Comparison of mid-upper-arm circumference and weight-for-height Z-Score in Identifying severe acute malnutrition among children aged 6–59 months in South Gondar Zone, Ethiopia. *Journal of Nutrition and Metabolism*. 2021 May; 2021: 8830494. doi: 10.1155/2021/8830494.
- [25] Taxová Braunerová R, Kunešová M, Heinen MM, Rutter H, Hassapidou M, Duleva V, et al. Waist circumference and waist-to-height ratio in 7-year-old children—WHO Childhood Obesity Surveillance Initiative. *Obesity Reviews*. 2021 Nov; 22: e13208. doi: 10.1111/obr.13208.
- [26] Tutunchi H, Ebrahimi-Mameghani M, Ostadrahimi A, Asghari-Jafarabadi M. What are the optimal cut-off points of anthropometric indices for prediction of overweight and obesity? Predictive validity of waist circumference, waist-to-hip and waist-to-height ratios. *Health promotion perspectives*. 2020 Mar; 10(2): 142. doi: 10.34172/hpp.2020.23.
- [27] Andreacchi AT, Griffith LE, Guindon GE, Mayhew A, Bassim C, Pigeys M, et al. Body mass index, waist circumference, waist-to-hip ratio, and body fat in relation to health care use in the Canadian Longitudinal Study on Aging. *International Journal of Obesity*. 2021 Mar; 45(3): 666-76. doi: 10.1038/s41366-020-00731-z.
- [28] Qin J, Chen Y, Guo S, You Y, Xu Y, Wu J, et al. Effect of tai chi on quality of life, body mass index, and waist-hip ratio in patients with type 2 diabetes mellitus: a systematic review and meta-analysis. *Frontiers in Endocrinology*. 2021 Jan; 11: 543627. doi: 10.3389/fendo.2020.543627.
- [29] Mohanty A, Kabi A, Mohanty AP. Health problems in healthcare workers: A review. *Journal of Family Medicine and Primary Care*. 2019 Aug; 8(8): 2568. doi: 10.4103/jfmpc.jfmpc_431_19.
- [30] Jepchumba RS, Munyaka A, Kamuhu R. Prevalence and demographic risk factors for overweight and obesity among healthcare workers at Uasin Gishu County hospital, Kenya. *African Health Sciences*. 2023 Jul; 23(2): 565-71. doi: 10.4314/ahs.v23i2.65.