

WORKPLACE WELLNESS: MANAGING WEIGHT USING OBESITY ROADMAP 4.5[¶]

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ABSTRACT

Background: Workplace wellness is based on activities, which encourage and improve health of the employees as well as policies that add to positive behaviors. Physically and mentally fit employees should contribute to enhanced productivity and reduce number of sick leaves.

Methods: Obesity Roadmap 4.5 is proposed that includes allowances for mature-age as well as married-female corrections in optimal masses incorporating height-percentile-based optimal mass and *BMI*-based-optimal mass, taking care that employees are not recommended to shed-off more than 10 *kg* of mass (weight) within the next 6 months, so that there are no adverse effects on health. Diet and exercise plans for managing weight are provided. Work-style adjustment and concept of recharge rooms have been described, with two recreational activities, table tennis and yoga, discussed.

Results: Obesity Roadmaps 4.5 of 2 working couples are generated, which include *BMI*, specific *BMI*, depictive status (pertaining-to-mass), build as well as month-wise mass- and weight-management ranges for the father and the mother. In G. Family, the father seems to be maintaining optimal weight, whereas the mother needs to lose weight within the next 6-month period. In Z. family, both the father and the mother need to shed-off weight within the next half-a-year.

Conclusions: The primary cause of many illnesses and psychological problems is employee obesity due to prolonged hours in front of computer and smart phones as well as file work and projects. Optimal weight, based on height of an employee, should be maintained according to the month-wise targets suggested by Obesity Roadmap 4.5.

Keywords: *BMI*-based-optimal mass • height-percentile-based-optimal mass • organic diet and drinks • table tennis • yoga

LIST OF ABBREVIATIONS

BE: Bachelor of Engineering • **BMI:** Body-Mass Index • **CDC:** Centers for Disease Control and Prevention • **ITTF:** International Table Tennis Federation • **MBA:** Master of Business Administration • **MSc:** Master of Science • **NGDS:** National Growth and Developmental Standards for the Pakistani children • **SGPP:** Sibling Growth Pilot Project

Units: *cm* — centimeter(s) • *ft* — foot (feet) • *in* — inch(es) • *kg* — kilogram(s) • *lb* — pound(s) • *ml:* —milliliter(s) • *oz* — ounce(s)

Conversion Factors: 1 *ft* = 12 *in* • 1 *in* = 2.54 *cm* • 1 *kg* = 2.205 *lb* • 1 *lb* = 16 *oz*

INTRODUCTION

Workplace wellness consists of activities that promote and enhance health of the employees as well as policies that contribute to positive behaviors, which boost well-being of employees. The program may include medical screenings, health-education fairs, fitness programs and health-club memberships, which in the long run contribute to increased productivity, lesser days off based on poor health and positive self-esteem among employees translating into institutional loyalty.

In this paper, the authors propose a model of weight management based on Obesity Roadmap 4.5, which includes allowances for old-age as well as married-female corrections in computed optimal masses incorporating

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[¶]Keywords, list of abbreviations, units and conversion factors are arranged alphabetically.

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height-percentile-based optimal mass and *BMI*-based-optimal mass. In addition, two activities have been suggested, table tennis and yoga, which could be easily performed in the workplace environment combined with organic diet offered in the cafeteria.

SIGNIFICANCE OF WORKPLACE WELLNESS

Major benefits of workplace wellness are lesser days off from the job, underperformance on the job and decrease in medical expenditures. Jones *et al.* (2019) designed and implemented a comprehensive workplace-wellness program for a large employer to assess how effective they are in reducing expenses related to health care, increasing productivity and improving well-being. McGillivray (2002) looks at the trend in England towards workplace-health promotion, in particular, workplace-fitness provision. He concludes that these endeavors represent a missed opportunity. Murphy *et al.* (2021) gave a systematic review of randomized controlled trials examining workplace-wellness interventions. Olszewski and Wolf (2023) described Total Worker Health Program, created by the National Institute of Occupational Safety and Health, a division of CDC. SantaBarbara *et al.* (2022) examined preliminary efficacy and acceptability of an online exercise and nutrition workplace-wellness program. Song and Baicker (2019) tried to examine the effect of a multicomponent workplace-wellness program on health and economic outcomes. Two years later they described a randomized controlled trial to assess health and economic outcomes up to 3 years after a workplace-wellness program (Song and Baicker, 2021). Terry (2023) listed 25 most important studies in workplace-health promotion to examine in what direction workplace-wellness research has been evolving over the past 20 years. Theodore *et al.* (2018) investigated workplace health and safety hazards faced by informally employed domestic workers in the United States.

Employing too much AI, in particular, the one which invades mind of the employee has drawbacks. Mantello *et al.* (2023) discussed socio-demographic and cross-cultural determinants of emotional AI in the workplace. Their study suggests 3 concerns for future job seekers, who'll be governed by non-human resource management, *viz.* privacy, explainability as well as targeting minds and behavioral process of workers to encourage productivity, which may backfire.

MANAGING OPTIMAL WEIGHT-FOR-HEIGHT THROUGH OBESITY ROADMAP 4.5

Benzzina *et al.* (2022) presented a scoping review of workplace-wellness programs targeting weight outcomes in men. Heinen and Darling (2009) elaborated the role of employers in addressing their employees' key lifestyle risks and reducing obesity in the workplace, along with curtailing tobacco use as well as inactivity.

Fontana and Hu (2014) discussed optimal body weight for health and longevity by bridging basic, clinical and population research. Japas *et al.* (2014) studied weight of 9864 multiethnic men between ages of 20-40 years to analyze the association of midlife *BMI* change with current lifestyle patterns. Their findings imply that reduced physical activity as well as dietary pattern is linked to both gained and attained *BMI*. Sperrin *et al.* (2015) described serial cross-sectional surveys in the United Kingdom during 1992-2011, which investigated the relationship of *BMI* in women and older adults to height. Unlike early childhood, where taller children tend to have higher *BMI*, older adults show an inverse *BMI*-height association. Hence, there is a need for mature-age corrections in optimal masses of older persons, say, after 40 years. This has been done in Obesity Roadmap 4.5, proposed in this paper.

Obesity Roadmap 4.5 is different from version 2.6 in terms of corrections (Table 1) for mature age as well as those applied to optimal masses of females to account for possible pregnancy and corresponding mass for about to be

Table 1. Corrections to generate Obesity Roadmap 4.5

Age Range (years)	<i>BMI</i> -based-Optimal Mass (kg)	Height-Percentile-based-Optimal Mass (kg)
Mature-Age Corrections		
40+ to 50	Add 5% to the computed value	Add 5% to the computed value
50+ to 60	Add 10% to the computed value	Add 10% to the computed value
60+	Add 15% to the computed value	Add 15% to the computed value
Corrections for females		
To account for fetal mass	Add 5 kg to the computed value	Add 5 kg to the computed value

married, married or recently-divorced females. These corrections are added to the optimal masses to compute corrected-*BMI*-based-optimal mass as well as corrected-height-percentile-based-optimal mass in Roadmaps 4.5.

BMI-based-optimal mass is the mass corresponding to *BMI* value 24 kg/m^2 , whereas height-percentile-based-optimal mass is the mass corresponding to percentile of height (Kamal, 2017). Methods of constructing version 2.6 are listed elsewhere (Kamal *et al.*, 2021a, Additional File 3). Recommendations for weight reduction at the end of 6 months should not exceed 10 kg, in order to safeguard against the adverse effects of rapid loss of weight. This roadmap should go along with Growth-and-Obesity Vector-Roadmap 4.5 and Growth-and-Obesity Scalar-Roadmap 4.5 (Kamal, 2022, Additional File 1 — color-coding, Additional File 2 — methods of construction).

The authors suggest that Obesity Roadmap 4.5 should be generated for all employees bi-annually and these employees encouraged to maintain weight as per recommendations of this roadmap through lifestyle adjustment, diet and exercise plans given earlier (Kamal *et al.*, 2021a, Additional File 4). The very first step in generating Obesity Roadmap 4.5 is accurate and precise recording of height and weight (Kamal, 2016). Step-by-step procedures of measurement of height and weight illustrated with labeled photographs are, also, provided (Kamal *et al.*, 2021a, Additional File 1). In addition, there should be fitness testing, physical and psychological exams twice a year.

Healthy and Balanced Diet in Cafeteria to Manage Weight

Nutrition in the old age should be given special emphasis for the senior employees to prevent them from acquiring old-age diseases, *e. g.*, anxiety, cardiovascular diseases, depression, diabetes mellitus (sugar), hypertension (blood pressure), osteoporosis and rheumatoid arthritis. The workplace cafeteria should provide healthy organic food consisting of yogurt, sandwiches, fish, salad, fruits and tea or coffee. However, no bakery items as well as sweets and desserts should be provided, which include pastries, cakes, biscuits (cookies), muffins, *etc.* Cold drinks and extra sugar (for tea, coffee) should be rationed (Kamal and Khan, 2020). No carbonated drinks, except one 250-ml bottle in a month should be allowed. 10-12 glasses of water should be consumed on a daily basis. To put-on mass (weight), diet plan should include milk, potato items (baked/boiled, not fried) and protein-rich diet; to shed-off mass, diet plan should include salad, yogurt and skimmed milk. Calorie count should be mentioned on each food item available in the cafeteria.

Exercise Plans to Manage Weight

To put-on mass (weight), the employees should perform heavy exercises for shorter duration, consistently. To shed-off mass (weight), they are to engage in light exercises for longer duration, consistently. All structured exercises should be performed in exercise-friendly clothing, preceded by warm-up and followed by cool-down routines only after a thorough physical examination, in particular, orthopedic and cardiovascular components (for safety reasons), in close supervision of a professional trainer. Calorie consumption should be mentioned for each exercise routine.

WORKSTYLE ADJUSTMENT AND RECHARGE ROOM

Babar *et al.* (2023) investigated effect of 2 digitally-delivered nudges, namely, social support (non-verbal cues such as ‘kudos’ or ‘likes’) and motivational messaging of employee’s self-reported physical activity. Madsen (2003) in his paper defines dimensions of wellness, provides examples of wellness programs, discusses readiness for change theories and introduces the connection between wellness and the preparation of employees for change. Marshall (2004) discusses challenges and opportunities for promoting physical activity in the workplace. Ogomegbunam (2023) studies work-life balance practices and employee’s performance in commercial banks in Delta and Bayelsa States, Nigeria. Schonfeld and Bianchi (2022) take up the problem of distress in the workplace by characterizing the relationship of burnout measures to the Occupational Depression Inventory.

Since one spends a significant portion of one’s daytime hours in the workplace, it is essential to introduce ‘recharge rooms’, which are essentially communal spaces. The workers can interact there with their fellows, unwind and decrease stress, lying on sofas, bunkers and beds. They should include table-tennis and pool (billiard) tables, badminton courts, yoga rooms and massage chairs. We’ll discuss table tennis and yoga in the following sections.

Frumkin *et al.* (2017) proposed a research agenda on nature contact and health. They identified research questions in 7 domains. There is a need for some green areas and walking tracks in the workplace setting. Workers could change into jogging shoes and have a brisk walk (preferably in a group) in a soothing environment to relieve stress.

It is, also, very important that workers have a proper sitting arrangement, with monitor at eye level and holders for smartphones so that proper posture is maintained during computer and smartphone use. This should reduce incidences of back pain. After a continuous work on table (computer, smartphone, reading, writing, signing) for 50 minutes, 10-minute exercise period should be mandatory, in which the workers get up from their seats, stretch, bend on sides, focusing eyes far away and moving eyeballs, move fingers and wrists, touch toes without flexing knees as well as exercise neck muscles (left, right, up, down). In addition, foot care should be given prime importance, in particular for the diabetic patients.

Such arrangements should help increase ‘emotional capacity’ by building resilience, grit and fortitude and change temperament to deal with the challenges of life and turning them into opportunities. Further, it should inculcate positive thinking and persuade the incumbent to surround oneself with successful and dynamic people.

Table Tennis

Table tennis is derived from tennis. However, it is different from tennis in the sense that it is played across a table with a small net fixed in the middle. It is a racket sport, which can be organized between 2 individuals or 2 pairs, with the players taking alternating turns rupturing a light, hollow ball over the table’s net. It is, also, called ping-pong or whiff-waff. The features that make it an ideal sport in the workplace environment include small playing area, ability to be played indoors in all climates in office attire sans jacket and ease in accessibility of the equipment. It has been an Olympic sport since 1988. The sport is governed by ITTF (International Table Tennis Federation), founded in 1926 with a current membership spanning 226 member associations worldwide. The rules of game of table tennis are spelled out in ITTF Handbook. With its origins in Victorian England, the game was played among the upper class as an after-dinner parlor game.

Chang *et al.* (2010) studied the behavior of leisure participation of college table-tennis athletes. They found that collegiate table tennis players’ self-efficacy in overall exercises only reach the average value of 2.88. Coaches are recommended to focus on the methods to enhance table-tennis players’ exercise self-efficacy in professional trainings to be held in future. González-García *et al.* (2020) investigated differences in anger depending on sport performance in table-tennis players. They concluded that differences existed in anger levels depending on division level. Hence, they suggest that players be coached towards anger control in table tennis.

The last author was a very good table tennis player during his undergraduate years and had an opportunity to earn PhD in Biomechanics from Leeds University, England. He continued his research on the science of table tennis as a faculty member, which included study of the linear transition speed of arm joints in table tennis forehand stroke (Al-Kurdi, 1990), methods to obtain dynamic data during table-tennis performance (Al-Kurdi, 1992), distance-movement analysis of table-tennis players (Al-Kurdi *et al.*, 1992), cinematographical analysis of the nine learning points in table tennis (Al-Kurdi *et al.*, 1995), kinematical analysis of backhand drive and backhand loop strokes for table-tennis players in the south of Jordan (Al-Kurdi and Al-Madanat, 2000) as well as kinematical analysis of forehand drive stroke for disabled table-tennis players (Sarhan *et al.*, 2015). The first author, also, played some table tennis during his teenage years purely for recreation.

Yoga

Yoga is a combination of mental, physical and spiritual practices that derive their origin in the Indian subcontinent. There exist a large variety of yoga schools as well as yoga practices and goals in Buddhism, Hinduism and Jainism. In fact, traditional as well as modern yoga is practiced, globally.

Hartfiel *et al.* (2011) looked into the effectiveness of yoga for the well-being and the ability to cope with stress in the workplace. In a randomized controlled trial at a British university, they recruited 48 employees and divided them into yoga or wait-list control group. The yoga group received a weekly 60-minute Dru yoga class by a certified instructor for a period of 6 weeks. This resulted in significantly improved Profile of Mood States — Bipolar and Inventory of Positive Psychological Attitudes. Sharma *et al.* (2023) studied yoga intervention on occupational stress by reviewing the available literature to identify the existing stressors in the workplace of today. Valencia *et al.* (2019) wrote a systematic review of yoga in the workplace and health outcomes. Valle *et al.* (2020) conducted a meta-analysis and prepared a systematic review of effectiveness of workplace yoga interventions to reduce perceived stress in the employees.

Table 2a. Obesity Roadmaps 4.5 for G. Family

Father's Date of Birth (year-month-day): † 1971-07-15 • Mother's Date of Birth (year-month-day): † 1979-01-02

Checkup	Father †	Mother †
Date of Checkup (year-month-day)	2014-11-22	2014-11-22
Time of Checkup (24-hour clock)	1107h	1107h
Age (year-month-day)	43-04-07	35-10-20
Age (decimal year)	43.36	35.89
Height (cm) ←	167.16	160.16
Height (ft-in)	5 ft 5.81 in	5 ft 3.06 in
CDC Percentile-of-Height ↔	9.25 ^P	31.83 ^P
Modified-Scaled Percentile-of-Height	11.57 ^P	46.31 ^P
Net Mass (kg) ⇒	62.66	71.16
Net Weight (lb-oz)	138 lb 2.64 oz	156 lb 14.52 oz
CDC Percentile-of-Net-Mass ↔	22.20 ^P	83.38 ^P
Modified-Scaled Percentile-of-Net-Mass	48.92 ^P	96.30 ^P
BMI-based-Optimal Mass (kg) ⇒	67.06	61.56
Percentile-of-BMI-based-Optimal-Mass ↔	37.02 ^P	60.95 ^P
Corrected-BMI-based-Optimal Mass (kg)	70.42	66.56
Height-Percentile-based-Optimal Mass (kg) ⇒	58.00	54.04
Corrected-Height-Percentile-based-Optimal Mass (kg)	60.90	59.04
Refined Status (pertaining-to-mass)	0	+6.91%
Depictive Status (pertaining-to-mass)	Normal	1st-Deg Obese
BMI (kg/m ²)	22.42	27.74
Specific BMI	0.934	1.156
Build	Medium	Medium

SAMPLE OBESITY ROADMAPS 4.5

In this section, we are including 2 Obesity Roadmaps 4.5. In both of the these roadmaps, 5 kg mass is added to the mother's BMI-based-optimal mass as well as height-percentile-based-optimal mass to account for the possible pregnancy and the associated mass of fetus; no such correction is needed for the father.

The first roadmap is of G. Family — father, faculty member of Department of Health, Physical Education and Sports Sciences in a large public-sector university in Karachi, Pakistan; mother, staff of a large private hospital in Karachi; both parents hold MSc in Health and Physical Education (Tables 2a, b). Since father is above-40, mature-age corrections have been applied to his optimal masses (BMI-based- and height-percentile-based-) by adding 5% to

Table 2b. Month-Wise Mass- and Weight-Management-Target Ranges for G. Family — lower limit of 6-month-mass-management target not set at 59.04 kg (corrected-height-percentile-based-optimal mass) for mother as the model does not recommend losing more than 10 kg mass within 6 months

Target Date	Father †		Mother †	
	kg	lb-oz	kg	lb-oz
2014-11-22	62.66	138 lb 2.64 oz	71.16	156 lb 14.52 oz
2014-12-22	62.37-63.94	137 lb 8.33 oz - 140 lb 15.99 oz	69.50-70.39	153 lb 4.05 oz - 155 lb 3.36 oz
2015-01-22	62.07-65.27	136 lb 13.68 oz - 143 lb 14.85 oz	67.79-69.62	149 lb 7.63 oz - 153 lb 8.19 oz
2015-02-22	61.76-66.60	135 lb 9.41 oz - 146 lb 13.71 oz	66.08-68.85	145 lb 11.20 oz - 151 lb 13.03 oz
2015-03-22	61.49-67.80	141 lb 14.98 oz - 149 lb 8.03 oz	64.53-68.08	142 lb 4.62 oz - 150 lb 1.86 oz
2015-04-22	61.19-69.13	134 lb 14.75 oz - 152 lb 6.89 oz	62.82-67.32	138 lb 8.20 oz - 148 lb 7.05 oz
2015-05-22	60.90-70.42	134 lb 4.44 oz - 155 lb 4.24 oz	61.16-66.56	134 lb 13.72 oz - 146 lb 12.34 oz

Table 3a. Obesity Roadmaps 4.5 for Z. Family

Father's Date of Birth (year-month-day): † 1983-06-24 • Mother's Date of Birth (year-month-day): † 1979-11-03

Checkup	Father †	Mother †
Date of Checkup (year-month-day)	2019-10-20	2019-10-20
Time of Checkup (24-hour clock)	0907h	0907h
Age (year-month-day)	36-03-26	39-11-17
Age (decimal year)	36.32	39.96
Height (cm) ⇐	185.80	164.30
Height (ft-in)	6 ft 1.15 in	5 ft 4.69 in
CDC Percentile-of-Height ⇔	89.85 ^P	55.51 ^P
Modified-Scaled Percentile-of-Height	92.37 ^P	71.99 ^P
Net Mass (kg) ⇒	96.40	78.70
Net Weight (lb-oz)	212 lb 8.99 oz	173 lb 8.54 oz
CDC Percentile-of-Net-Mass ⇔	95.27 ^P	92.20 ^P
Modified-Scaled Percentile-of-Net-Mass	98.84 ^P	98.62 ^P
BMI-based-Optimal Mass (kg) ⇒	82.85	64.79
Percentile-of-BMI-based-Optimal-Mass ⇔	80.72 ^P	71.51 ^P
Corrected-BMI-based-Optimal Mass (kg)	82.85	64.79
Height-Percentile-based-Optimal Mass (kg) ⇒	88.71	64.90
Corrected-Height-Percentile-based-Optimal Mass (kg)	60.90	59.04
Refined Status (pertaining-to-mass)	+8.67%	+5.23%
Depictive Status (pertaining-to-mass)	1st-Deg Obese	1st-Deg Obese
BMI (kg/m ²)	27.92	29.15
Specific BMI	1.164	1.215
Build	Big	Big

these masses. It would be of interest to compare this Obesity Roadmap 4.5 with Obesity Roadmap 1.0 of the same couple computed in 2016, provided in Tables AFIII3a-c of (Kamal *et al.*, 2016, Additional File 3 — Tables AFIII-3a-c). They have one child, L. G. — SGPP-KHI-20131021-02/01, whose Growth and Obesity Vector-Roadmap 2.6 is given elsewhere (Kamal *et al.*, 2021a — Tables 7a-e and Figures 7, 8a-k, 9).

The other Obesity Roadmap 4.5 included is of Z. Family — father, Commander in Pakistan Navy, posted in Karachi, holds BE in Electrical Engineering; mother, General Manager in a power company in Karachi, holds MBA (Tables 3a, b). Obesity Roadmap 2.1 of this couple, computed in 2019, is available elsewhere (Kamal and Khan, 2020 — Tables 3c-e, 5). Growth and Obesity Vector-Roadmap 2.1 of their only child, Z. Z. — SGPP-KHI-20180919-

Table 3b. Month-Wise Mass- and Weight-Management-Target Ranges for Z. Family — lower limit of 6-month-mass-management target not set at 82.85 kg (corrected-BMI-based-optimal mass) for father and not at 64.90 kg (corrected-height-percentile-based-optimal mass) for mother as the model does not recommend losing more than 10 kg mass within 6 months

Target Date	Father †		Mother †	
	kg	lb-oz	kg	lb-oz
2019-10-20	96.40	212 lb 8.99 oz	78.70	173 lb 8.54 oz
2019-11-20	94.70-95.10	208 lb 13.13 oz - 209 lb 10.96 oz	77.00-77.19	169 lb 12.67 oz - 170 lb 3.18 oz
2019-12-20	93.06-93.83	205 lb 3.20 oz - 206 lb 14.42 oz	75.36-75.72	166 lb 2.74 oz - 166 lb 15.54 oz
2020-01-20	91.37-92.53	201 lb 7.44 oz - 204 lb 0.47 oz	73.67-74.21	162 lb 6.98 oz - 163 lb 10.28 oz
2020-02-20	89.68-91.23	197 lb 11.74 oz - 201 lb 2.57 oz	71.98-72.71	158 lb 11.28 oz - 160 lb 5.07 oz
2020-03-20	88.09-90.01	194 lb 3.89 oz - 198 lb 7.63 oz	70.39-71.30	155 lb 3.44 oz - 157 lb 3.29 oz
2020-04-20	86.40-88.71	190 lb 8.19 oz - 195 lb 9.73 oz	68.70-69.79	151 lb 7.74 oz - 153 lb 14.08 oz

01/01, is given in the same publication (Kamal and Khan, 2020 — Tables 3a, b, 4).

The calculations were performed using the app ‘Anthropometric Calculator’ developed by our group, (Kamal *et al.*, 2021b — Figure 2). Details of the study protocols are given elsewhere (Kamal *et al.*, 2016, Additional File 1).

RESULTS

Obesity Roadmaps 4.5 of two working families were generated, which include *BMI*, specific *BMI*, depictive status (pertaining-to-mass), build as well as month-wise mass- and weight-management ranges for the working father and the working mother, based on their *BMI*-based-optimal masses and height-percentile-based-optimal masses (Kamal, 2017). Table 2a lists these parameters for G. Family and Table 3a for Z. Family. In G. Family, the husband seems to be maintaining optimal weight, whereas the wife needs to lose weight within the next 6-month period (Table 2b). In Z. family, both the husband and the wife need to shed-off weight within the next half-a-year (Table 3b).

DISCUSSION

Implications for Practice

The main cause of many illnesses (cardiovascular, hypertension, *etc.*) as well as psychological problems (poor body image, low self-esteem) is employee obesity due to extensive time spent in front of computers and smart phones as well as working on files and projects, all requiring sitting for prolonged hours. This may, also, contribute to back problems. It is imperative that employers should set up health rooms in the workplaces, where heights and weights of employees be monitored biannually and targets to maintain optimal weight given based on Obesity Roadmap 4.5. Workplace cafeteria should provide healthy, organic diet with calorie count written on each item and customized diet schedules prepared for each employee based on targets to maintain optimal weight. They should be guided to appropriate exercises based on their 6-month targets.

Applying Research to Practice

All employees having office jobs, not requiring a lot of movement, should be mandated to participate in office-based exercise programs of 15-minute duration after regular sitting sessions, say after every 2 hours, followed by healthy, organic snacks and drinks with minimum consumption of sugar and fried items. They should be required to maintain their weights according to their heights based on Obesity Roadmap 4.5. This should reduce the number of days off due to illness and increase productivity in and out of office as well as economic outcomes in terms of return on investment on workplace-wellness programs (Unsal *et al.*, 2021). By investing in communities, the society can achieve the goal of healthier individuals, stronger and closely-knit communities as well as a safer and a contented nation (Adams, 2018). In addition, they should be offered recreational activities, like yoga and table tennis in the office space, so that they can relax and think about entangled problems faced during a regular work-week.

CONCLUSION

In this paper, we have studied the workplace-wellness regime and, subsequently, elaborated the importance of maintaining optimal weight based on height of an employee taking into account corrections based on mature age as well as allowance for fetal mass in the married females. A couple of examples have been worked out as well as diet and exercise guidelines to manage weight are given. It is beyond doubt that many health problems in mature age emanate from failure to maintain optimal weight. Workforce must be educated about individual’s weight-to-height ratio and the ways to maintain optimal weight.

Workplace efficacies depend greatly on the physical alertness and well-being. People with healthy routine and good physical health show mental strength and attentiveness. It is vital for people in the mature age to remain physically engaged and active. To enhance physical activity during a typical job-day, some basic changes in the workplace environment are required. Workplace of the third millennium should eliminate peon culture. Employees should self-serve their food and drinks in the cafeteria. People engaged in desk-jobs must be trained to take small breaks after each working hour to stretch and change their sitting positions. Some indoor activities must be arranged for employees to make them physically fit and mentally relaxed. Physical, mental, spiritual and social health of employees is of utmost importance to retain a productive work force, because a productive work force should guarantee economic well-being of the community.

KEY POINTS

- Workplace wellness is based on activities, which encourage and improve health of the employees as well as policies that add to positive behaviors.
- Work-style adjustment and concept of recharge rooms are introduced and two recreational activities discussed — table tennis and yoga.
- Obesity Roadmap 4.5 is proposed that includes allowances for mature-age as well as married-female corrections in optimal masses incorporating height-percentile-based optimal mass and *BMI*-based-optimal mass, taking care that employees are not recommended to shed-off more than 10 *kg* of mass (weight) within the next 6 *months*.
- Workplace cafeteria should provide healthy, organic diet with calorie count written on each item and customized diet schedules prepared for each employee based on targets to maintain optimal weight.
- All employees having office jobs, not requiring a lot of movement, should be mandated to participate in office-based exercise programs of 15-*minute* duration after regular sitting sessions, say after every 2 *hours*.

HUMAN-RIGHT PROTOCOLS

The NGDS Pilot Project was initiated in 1998, taking into account applicable local ethical and human-right protocols, adapted from the North American as well as the European standards. The project was designed as per directives of Governor Sindh/Chancellor, University of Karachi, a retired Lieutenant General of the Pakistan Army, after 'Institutional Review Process' by University of Karachi authorities, which included committees of Chancellor and Vice Chancellor. The project was, later, scrutinized by commanders of the Armed Forces of Pakistan and heads of the participating institutions.

The NGDS Pilot Project was, initially, started in 3 institutions administered by the Armed Forces of Pakistan — Army Public School, 'O' Levels, Bahria College, NORE I and Fazaia Degree College, PAF Base 'Faisal', all located in Karachi, on the basis of letters from the Coördinator of Governor Sindh, bearing numbers GS/2-55/98 (SO-I)/2531, 2530 and 2529, all dated November 25, 1998, addressed to HQ 5 Corps (administering Army Public School), Commanding Officer, Bahria Complex, NORE I (administering Bahria College) and Base Commander, PAF Base 'Faisal' (administering Fazaia Degree College), respectively. A civilian school was added in 2011.

Informed consent was obtained from each participating working family for the family-centered study (Sibling Growth Pilot Project — SGPP) based on 'Opt-in Policy'. SGPP Participation Form is available at:

https://www.ngds-ku.org/SGPP/SGPP_Form.pdf

DECLARATION OF COMPETING INTERESTS

The authors state that there are no financial or non-financial competing interests in the research presented in this paper.

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Additional File 2 — Methods of Construction of Roadmaps 4.5: https://www.ngds-ku.org/Papers/J67/Additional_File_2.pdf
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Additional File 1 — Techniques of Anthropometric Measurements (step-by-step procedures explained and illustrated through labeled photographs): https://www.ngds-ku.org/Papers/J60/Additional_File_1.pdf
Additional File 3 — Methods of Constructing Roadmaps 2.6: https://www.ngds-ku.org/Papers/J60/Additional_File_3.pdf
Additional File 4 — Lifestyle Adjustment, Diet and Exercise Plans: https://www.ngds-ku.org/Papers/J60/Additional_File_4.pdf
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