



Shahid Bahonar  
University of Kerman



Journal of New Studies in Sport Management

Online ISSN: 2717 - 4069

Homepage: <https://jnssm.uk.ac.ir>



Iranian Scientific  
Association of  
Sport Management

## Providing a Model of Workplace Health along with an Approach to Staffs' Physical Activity Improvement (Case Study: Mobarakeh Steel Company)

Mojtaba Lotfi Foroshani<sup>1</sup> | Mehdi Salimi<sup>2</sup> | Mina Mostahfezian<sup>3</sup> | Mohammad Soltanhosseini<sup>4</sup>

1. Ph.D. Candidate on Sport Management, Department of Physical Education and Sports Science, Najafabad Branch, Islamic Azad University, Najafabad, Iran. Email: [moj.lotfi@gmail.com](mailto:moj.lotfi@gmail.com)
2. Associate professor in sport management, Sport sciences Faculty, University of Isfahan, Isfahan, Iran. Email: [m.salimi@spr.ui.ac.ir](mailto:m.salimi@spr.ui.ac.ir)
3. Corresponding author, Associate professor in sport management, Sport medicine research center, Najafabad Branch, Islamic Azad University, Najafabad, Iran. Email: [dr.mostahfezian@gmail.com](mailto:dr.mostahfezian@gmail.com)
4. Associate professor in sport management, Sport sciences Faculty, University of Isfahan, Isfahan, Iran. Email: [m.soltanhosseini@spr.ui.ac.ir](mailto:m.soltanhosseini@spr.ui.ac.ir)

### ARTICLE INFO

**Article type:**  
*Original article*

### Article history:

Received: 20 December 2022  
Received in revised form: 31 January 2023  
Accepted: 1 February 2023  
Publish online: 16 February 2023

### Keywords:

Grounded theory  
Physical activity  
Mobarakeh steel company  
Workplace health

### ABSTRACT

The present study brings forward a model of workplace health with an approach to staff's physical activity improvement. this study was an applied and descriptive research that has been conducted with a mixed approach for data collection (qualitative and quantitative). The methodology is performed qualitatively on the basis of grounded theory of Glaser approach. The research participants in qualitative included 18 subjects selected through judgmental sampling method with snowball approach. In addition, the sample in quantitative section, 384 subjects were studied through convenience sampling based on Krejcie and Morgan table. The analysis in the quantitative section is second-order confirmatory factor analysis. According to the results, components of workplace health comprising the physical environment with sub-components of preparing infrastructure along with strenuous company; the psycho-social environment with sub-components of education, culturalization, encouragement along with support; the health resources with the sub-components of evaluation, supervision and alignment of plans; and participation of the company which comprises management and planning.

## Introduction

The most important resource of an organization is human resources (Heydari, Keshtidar, Talebpour, Shojaei, & Oveysi Sani, 2021). As human beings are the most fundamental focus in transformation and alteration in any organization, human resources are considered the most invaluable assets (Salimi

**How to Cite:** Lotfiforoshani, M., Salimi, M., Mostahfezian, M., & Soltanhosseini, M. (2023). Providing a Model of Workplace Health along with an Approach to Staffs' Physical Activity Improvement (Case Study: Mobarakeh Steel Company). *Journal of New Studies in Sport Management*, 4(1), 701 -715. doi: 10.22103/jnssm.2023.20746.1149



© The Author(s).

Publisher: Shahid Bahonar University of Kerman

DOI: 10.22103/jnssm.2023.20746.1149



M. , 2020). Immense preparations are provided in pioneer organizations to promote human resources (Salimi, 2017). Accordingly, any organization and firm being successful is crucially based on whether its staff are effectively and persistently regarded into consideration to be capable of growing their performance and introducing themselves as the principal element for resources of the organization to be provided and maintained (Barshan, safaei movahhed, moghadam zadeh, Farzad, & kiamanesh, 2018). Evaluation of the workplace is defined as the knowledge dealing with promoting productivity and growing rate of staff health and analyzing staff's mutual relations, workplace and instrumentation (Lisanne, R, Appel, & Arentze, 2021). In order to evaluate overall values crucial to workplace, along with to prioritize the rate of the organization's performance and staff's health; evaluation of the workplace can be considered as a great assist to organizations (Sadeghi & Omranzadeh, 2020). Due to several reasons, as lack of culture and appropriate consideration to productivity in society, the importance of taking productivity into account has been overlooked, in Iran. Many professionals believe that the missing chain of the country's economy is regarded lack of labor productivity rather than capital or natural resources. Recent knowledge tries to resolve issues in organizations and systems, of which is solving difficulties in relation to health and health care of the staff (Havaei, Lorenzo, & MacPhee, 2021). Science and technology having been progressed at lightning speed in every area and having not paid attention to principles of workplace in design and manufacture of equipment, staff and workers are obliged to be adapted to the imposed conditions of the workplace; consequently, the disproportion between the staff and the workplace conditions leads to diverse issues, physically and mentally. Imposing stress, lowering organization performance and productivity, increasing expenditures, and causing human harms to workforce are regarded among the above-mentioned issues (Faez, Zakerian, & Azam, 2018). Ignoring principles of health in the workplace leads to gigantic costs for the organization and the staff, furthermore, it leads to reduce the efficiency, effectiveness and quality. Approaches have been altered from components of individual risk and workplace safety, along with physical and psychological harmful factors control to health-promoting environments, in recent decades. It conveys that cultural, psychological, social and political specifying influences on employees, officials, families and society health are regarded into consideration, furthermore, diverse individuals and groups are identified as active factors to alter the environment and governing policies. One of the strategic domains in Ottawa Charter is regarded as environments promoting health, which have been operationally addressed in international conferences on health promotion and its implementation has been stated fundamental for governments (World Health Organization, 2009). Several studies have proposed that health growth in the workplace would lead to diminish unhealthy behaviors along with related expenditures to incidents, treatment and disability happening among staff workers (Van Rijn, Robroek, Brouwer, & Burdorf, 2014). Research indicates that unhealthy lifestyle factors lead to more than half of inopportune deaths among adults; accordingly, it is regarded significant to provide, maintain and grow health levels of staff and have an influential effect on their lifestyle. Staff's lifestyles and career are associated with the scope of activity and their personal and social values. Therefore, health-promoting workplaces take psychological, physical and social components, as well as the interaction between individuals with their environment into consideration. From another point of view, today, seniors' health and they remaining active is considered a serious issue. Furthermore, people work out less for the reason of incremental growth of industries and life being more mechanized in today's world; consequently, they experience a descending process of health and physical fitness (Salimi & Keshvari, 2019). As a result, deeper consideration is required for physical activity and its different levels, as they are regarded cultural and social categories, also are constructive to body and mind, furthermore, entail health and vitality. The reason is that, as a vital factor in health perspective, getting used to working out may lead to psycho-social outcomes in individuals (Sadegh Pour, Sadegh Pour, & Soltan Hosseini, 2014).

Individuals who are involved in physical activity represent higher adaptation to surrounding properties at workplace; on the contrary, those not being physically in favorable condition may turn into pessimistic and isolated ones, by which leads to diminish efficiency and productivity of the workforce (Fang, Huang, & Hsu, 2019). Hereupon, regular and comprehensive sports schedule for staff needs to be taken into consideration by organizations; furthermore, along with monitoring the accurate execution of the program, they need to build required motivation to participate in sports

activities (Sadegh Pour, Sadegh Pour, & Soltan Hosseini, 2014). Family, friends and colleagues may play a major role in establishing physical activity among different individuals (Brunet, Gaudet, Wing, & Bélanger, 2019). It is undeniably accepted in diverse communities to be physically active and doing sports in current situation. Regular physical activity plays a crucial role in maintaining and promoting a healthy lifestyle, as indicated by many studies (Lahart, Darcy, Gidlow, & Calogiuri, 2019). Physical education and sports, in desirable conditions, may prepare opportunity to accomplish a considerable proportion of daily physical activity (Kalajas-Tilga, Koka, Hein, Tilga, & Raudsepp, 2020).

A study conducted by Mirzaei, halvani, fallah, & fallahzadeh (2021), "Investigating the effect of participatory workplace implementation on job satisfaction in the staff of Shahid Rajaei Fareydan Hospital", by studying 60 subjects (40 nurses, 20 service personnel, 10 office personnel), found that there is a positive and significant relationship between the implementation of participatory ergonomics and job satisfaction. Atari, Ghorbanpour, Seyedmehdi, & Babayi mesdaraghi (2018) conducted a study under the title of "investigating effect of continuous Training of Ergonomic on Productivity and Exposure to Ergonomic Risk Factors", by which they studied 51 employees of a food industry company in Tehran utilizing an analytical-descriptive method along with gathering data through the questionnaire, they conclude that half of the workers were working in an unfavorable environment. Alongside, the results indicate that persistent training of the preliminaries of the workplace may lower the score obtained by quick exposure check technique and may increase the level of productivity in the workplace. "Effect of ergonomics on job satisfaction of the administrative staff working on projects in Iranian Gas Engineering And Development Company" is the title of a study conducted by Hosseini Yarandi, Shaafi, & Golabchi (2018), in which the authors carried out a descriptive-correlation study on 205 employees of the above-mentioned company utilizing a questionnaire to conclude that the path coefficient between the ergonomic variable and the job satisfaction variable is positive and significant, and the ergonomic variable explains 21% of the variance of the job satisfaction variable. Lisanne, R, Appel, & Arentze (2021) conducted "Investigating the physical office workplace as a resource for mental health", in which they studied 560 public sector employees at Eindhoven University in the Netherlands and proposed that some mental health indicators (like concentration and stress) show a significant relationship with the quality of the office workplace. Also, factors like burnout and depression indicated little relationship with the physical conditions of the office workplace. Nicolaas (2021) qualitatively carried out "Implementing movement at the workplace: approaches to increase physical activity and reduce sedentary behavior in the context of work" in the department of Public Health of the University of Minnesota, the U.S., concluded that enhancing mobility at workplace promotes physical activity and mitigate sedentary behavior among staff. Furthermore, enhanced mobility at the workplace creates crucial health results in physical, mental, social and economic areas. Havaei, Lorenzo, and MacPhee (2021) utilizing regression data analysis, studied "The impact of workplace violence on medical-surgical nurses' health outcome: A moderated mediation model of work environment conditions and burnout using secondary data" to examine 537 medical-surgical nurses (full-time, part-time) at the University of British Columbia, Canada; they found that workplace plays a moderating role between job burnout and workplace violence. Furthermore, burnout, violence, musculoskeletal impairments and anxiety disorders are observed less in healthier workplaces. "Workplace-based opportunities to support child care workers' health and safety" is conducted by Amber et al. (2020), through interviews and observations, to test staff of 74 child care centers in North Carolina via studying four areas of infrastructure, organizational policies, plan and procedures, and the organization internal physical environment, which concluded that the conditions of the workplace influence significantly on staff health, their occupational safety and healthcare. Abigail et al. (2019) work, "Perceived Workplace Health and Safety Climates: Associations with Worker Outcomes and Productivity", studied 959 employees from among three companies of Minnesota, the U.S. utilizing the questionnaire method and structural equation modeling and concluded that a positive relationship exists between perceived workplace safety and physical activity. Furthermore, perceived workplace health and safety was associated with less depression, job satisfaction, and higher quality of life and public health. Also, the results indicate that the perceived workplace safety and health grow levels of productivity. Jennifer, Stephanie, Andrew, and Attallah (2018) studied "Influence of the workplace on physical activity and cardiometabolic health"; they studied 410 nurses from among 14 hospitals



in Canada to conclude that perceived workplace influences significantly on the level of physical activity and health of nurses. In addition, the results propose that 8-hour shifts, fixed-shifts and in-urban hospitals working nurses received higher scores in perception variable of the workplace. Also, the results indicate that rotating shifts and 12-hour shifts prevent nurses to meet the recommended physical activity levels.

Physical and mental health along with preventing the incidence of various psychological and neurological diseases is among outcomes of physical activity; therefore, physical activity increases quality of life (Kremer, et al., 2014). As David (2020) indicates, humans possess some sort of self-control system, by which they manage their thoughts, feelings, and behaviors, including physical activity and sports. It is regarded essential that everyone to have physical activity which can assist in delay, prevention or management of various diseases among different individuals (Mora & Valencia, 2018). It is considered crucial in any organization to identify factors diminishing performance and productivity of the staff in the workplace, align with implementing corrective actions, in order to attain best findings by utilizing minimum resources. Due to importance of addressing the issue, experts and researchers in diverse disciplines at various organizational, group and individual scales, have investigate productivity management as one of the most fundamental concepts in organizational research. Attaining productivity is regarded as one the manners to reach organizational goal; today, the importance of productivity is not latent, considering expanded rate of competition, complex technology, various tastes, deficient resources as well as rapid of information exchange. Accordingly, in order to progress productivity, focus and planning are needed, which are key points to organizations' success in today's competitive environment. Consequently, productivity subject matter is taken into consideration more crucially, so resource and facilities waste and productivity loss impose a high percentage of expenditure on the organization (Karmann & Roesel, 2017). Human resources, work and productivity, production and organization are terms which are related closely. Considering productivity of human resource, human is regarded as an operator, a driving force and an active force (Sánchez-Oliva, et al., 2020). Among crucial factors in productivity of human resources there are individuals' accuracy and efficiency in diverse vocations, ranging from service, research and education to agriculture and industry (Atari, Ghorbanpour, Seyedmehdi, & Babayi mesdaraghi, 2018). One of the fundamental indicators in economic growth of every country is productivity. Analyzing and measuring productivity at the rate of heterogenous economic sectors may indicate the economic performance of the country in the field as well as indicating production capacity of various sectors. Human resource is regarded as the main factor to build and improve productivity; it is concerned with the best manner to improve productivity, as organizations' human resource is the only resource being rare and unique and cannot be feasibly copied by competitors; consequently, it builds a sustainable competitive advantage for the organization (Sadeghi & Omranzadeh, 2020). The most significant criterion of productivity is human resource productivity; the reason is that human resource productivity pertains most organizational analyses; furthermore, it is the easiest data to be measured (Hamidi, Shaterabadi, & Soltanian, 2018).

The most immense private industrial unit in Iran and the most spacious steel production complex in the Middle East is Isfahan Mobarakeh Steel Company; being the driving force for divergent upstream and downstream industries. The aforementioned company is established on the basis of engineering and knowledge foundation, which is supported by experiences and knowledge achieved from the construction era to operation and development of the company having missioned to localization, support and development of the technology of the country's steel industry; relying on professionals' experience, elites' capability and experts' aggregated knowledge of the largest complex and steel supply chain in the country, it considers into account being pioneer in indigenization, development and commercialization of the technology of the country's steel industry; furthermore, to fulfill the insight, it is regarded principal to pay attention to level of organizational and workplace productivity in the company. Analyzing workplace conditions in terms of indicators of physical environment, psycho-social environment, the organization's participation in promoting community health and health resources, based on the World Health Organization model, can assist respective managers to plan significantly in order to improve the economic and social condition; insomuch, nowadays, it is not latent that improving levels of organizational productivity is extremely significant to flourish more in current competitive conditions. It is considered significant to pay

attention to the level of organizational productivity of Isfahan Mobarakeh steel complex more than before; regarding the reason that it now provides raw materials for excessing 3000 factories and manufacturing workshops in the country in the industries of pipes and profiles, oil, gas and petrochemistry, automobiles, electric motors, household appliances, light and heavy metals, construction, food, shipbuilding and marine structures, etc.; furthermore, every year it export a part of its products to improve quality, meet currency needs, and appear progressively and grow in global markets; since during the last decade, its performance and production at the international level is interrupted due to spread of sanctions. It is noteworthy that the complex of subsidiary companies of Mobarakeh Steel comprises 350,000 direct and indirect workforce from which the growth of their physical activity is regarded as one of concerns of decision-making managers due to the adversity of occupation and the creation of various physical and mental complications; accordingly, the objective of the present study is to provide a model of workplace health with an approach to staff's physical activity improvement of Mobarakeh Steel company. The obtained results of the present study are considered beneficial for managers and staff of Isfahan Mobarakeh Steel Company along with other consubstantial companies in the field of industry to obtain more comprehensive perception of the situation of the staff's workplace environment; also, to progress health and quality of the workplace through needed plans and preparations in order to be able to provide appropriate conditions for organizational productivity as well as staff's physical activity. Three fundamental questions are addressed in the present study to attain the model: 1- How is the physical activity condition of the staff of Mobarakeh steel company? 2-What is the paradigmatic model of workplace health with an approach to developing physical activity of the staff of Mobarakeh Steel Company? And 3- What is the structural model of workplace health with an approach to developing physical activity of the staff of Mobarakeh Steel Company? The present study can be beneficial for managers and authorities of Isfahan Mobarakeh Steel Company in order to progress the level of organizational productivity and planning regarding the optimal characteristics of the workplace in order to grow the level of health and physical activity of staff.

## **Methodology**

The current research was conducted in 2021 using a qualitative and quantitative approach. The methodology is based on grounded theory method in qualitative section. Theory generated from data or Grounded theory is defined as a general, inductive, interpretive and exploratory method. In the present study, the classic approach pertaining Glaser is utilized, in which there is no frame and mental presupposition about the relations of data or concepts. Structural equations modelling approach is utilized in the quantitative section, in which, the structural model of the study was provided according to the statistical indicators obtained from in the qualitative section. Questionnaire is the tool for data collection in this section. The present study's statistical population in qualitative section was composed of elites in the research field (including professionals, managers, HSE experts) from which the statistical sample was selected utilizing a judgmental sampling method with snowball approach to theoretical saturation to reach 18 individuals. In quantitative section, the statistical population comprised Mobarakeh Steel Company staff (13,000 individuals), which the number of the sample is specified according to the table of Krejcie and Morgan (384 individuals) and based on the available sample. The first step was to study the documents, books, articles and reliable sources about the investigated components and indicators. After that, while designing the researcher's questionnaire, interviews were conducted with specialists and experts. Each of the interviews was conducted by making an appointment with the relevant expert and each one took between 30 minutes and one hour. With each interview, thematic analysis was done, and as soon as the theoretical saturation was reached and the accuracy and accuracy of the design and implementation of the research was ensured, the operation was stopped. The final stage was the presentation of the qualitative research model and the final step was the presentation of the structural model of the research. For this purpose, according to the extracted final model, a researcher-made quantitative questionnaire was designed based on components and sub-components in the form of a Likert scale and sent and tracked through an electronic form in order to collect information. In order to analyze the data in qualitative and

quantitative section, MAXQDA and SmartPLS software are utilized, respectively. The criteria of long-term participation, sustained observation, re-inspection of information learning path, participant review, triangulation and continuous contrast (Skinner, Edwards, & Corbett, 2014) were used for validity testing, as well as for reliability testing. From the qualitative part of the current research, the reliability method is test-retest. Among the interviews, some were selected as samples to calculate the retest reliability and each one was compared in two different time periods, based on which the amount of agreement and disagreement in the two-step coding of the stability index was calculated and analyzed in this study. (Sheikhi, Salimi & Zahedi, 2013). In two 30-day intervals, the total number of codes, the total number of agreements among codes, and the total number of disagreements equals to respectively 26, 21, and 5. The reliability of retest of the interviews in the present study equals to 81%. Furthermore, face validity was employed to evaluate validity of the questionnaire, in the quantitative section. To do so, utilizing 6 professors' opinion in the field, validity was confirmed. The reliability of the quantitative section was determined by Cronbach's alpha to 81%, therefore, the reliability was confirmed.

## Results

Statistics acquired from the sports affairs of Mobarakeh Steel Company for its staff's average activity at least during last year were utilized in order to answer the first research question. Based on the statistic obtained from smart sports' card system in the clubs under contract of Mobarakeh Steel Company, on the basis of separated disciplines in the contract party, 61143 individuals have used the sports spaces and facilities.

Table (1) indicates distribution of users based on separation of personnel, retirees and under the care of each one.

**Table 1:** Distribution of users based on separation of personnel, retirees and dependents

User	Number	Frequency Percentage
Employed	12391	20.27
Under the care of the employee	26075	42.65
Retired	7493	12.25
Under the care of the retired	15184	24.83
Total	61143	100

Furthermore, according to rates of participation of staff and retirees and their dependent families in sports activities like sports arena, domestic competitions, veteran groups, mountain climbing and hiking groups, and sports conferences, the penetration coefficient of sports in Mobarakeh Steel Company equals to 43%. Sports fields exercised are listed as: bodybuilding, swimming (recreational, training), aerobics, massage, Pilates, soccer school, volleyball, taekwondo, gymnastics, corrective movements, yoga, aerobics and fitness, ninja, ancient, CrossFit, senior sports, Muay Thai, Massage therapy, aqua village, fat burn, trampoline, boxing, fitness, Ninjutsu, Jeet Kune Do. The number of active individuals in the above-mentioned fields equals to 50785. Regarding the rate of participation of staff and the penetration coefficient, staff's physical activity level is evaluated 'appropriate' currently. As presented in Table (2), a semi-structured interview was conducted with a total of 18 elites to reach theoretical saturation in order to answer the second research question.

**Table 2.** Interviewees' features

Feature	Education Degree				Employment Category						Age		
Dimensions	B.A.	M.A.	Ph.D.	Supervisor /Manager	President	Occupational medicine specialist	Health expert	Sports affairs expert	Sports affairs Technician	Faculty member	30 years or older	31-40 years	40 years and older
Number	3	8	7	3	2	2	4	3	1	4	2	8	8

Firstly, the open coding was conducted after the interview. Secondly, data coding alters to axial coding. It means that at this step, concepts are connected with each other in a network. The main categories are built in the final step. Building main categories comprises logically arranging together sub-categories and relating them to other categories, validating the relationships and filling the blank spaces with the categories obliged to be further modified and expanded. It implies that this step is regarded as the most abstract level of coding through which the relations among built sub-categories are explained. The researcher needs to regulate the main phenomenon and commits himself to it, in order to obtain the desired integration at this step. Table (3) extracts and represents the resulted categories from the concept analysis at in the interview step.

**Table 3.** Main categories obtained according to combining concepts and sub-categories

Interview Code	Concepts	Sub-Categories	Main Categories
P6, P7, P18	Growing public awareness of staff about sports and its effects	Education and culture	Psycho-social environment
P13, P17	Emphasis on perseverance of participation in sports activities		
P3, 10, P8, P9, P17, P18	Company's media coverage and support for the pertained sports programs		
P11, P16	Employing experienced coaches and sports professionals in sports and health sessions		
P5, P16, P2	Company informing health matters		
P19, P8	Promoting health-oriented sports activities	promoting sports and physical activity	
P15, P12, P13	Providing needed opportunity for public in order to participate in health improvement activities		
P9, P11, P16	Sports competition events being held specifically for Steel Company staff		
P7, P9	Allocating the appropriate time to involve in sports activities		
P16, P18	Oobligatory exercise at work for at least 30 minutes		
P4, P6, P7	Stretching and corrective movements being performed at work		
P4, P9, P11	Involving in sports activities accompanying with the family, like hiking		
P7, P9	Active participation of higher-order managers in sports events		
P5, P9	Sports teams' participation in outside the company competitions		
P9	Sports programs being performed before work begins		
P1	Employing sports coaches at work		
P10, P12, P13	Encouraging staff to do sports		

**Table 3.** Main categories obtained according to combining concepts and sub-categories

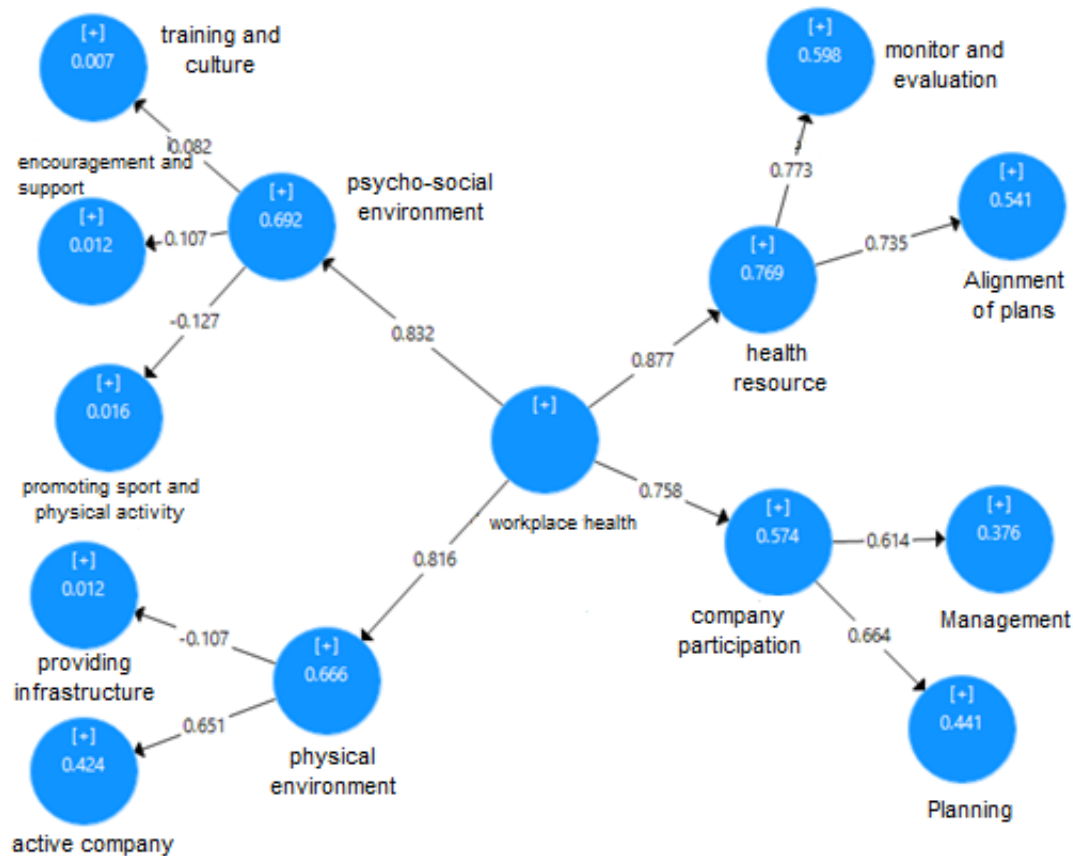
Interview Code	Concepts	Sub-Categories	Main Categories
P1, P4, P9, P11, P12, P16	Encouraging staff to stop smoking	Encouragement and support	
P4, P3, P7, P9	Encouraging to lose weight		
P1, P11, P14, P12	Allocation of required resources to progress physical activities		
P10, P15	Allocating budget to the company's sports and physical activity		
P10	Operational managers of the company supporting sports processes and proceedings		
P2, P5	Higher score of physical fitness to staff's performance evaluation		
P10, P17	Company's sports successes to be regarded as worthy		
P1, P2, P5	Higher-order managers support for physical activities		
P14	Champions being celebrated for winning sports competitions inside company		
P1, P8, P11, P13	Health caregivers and communicators of workplace being honored		
P1, P9, P16, P17, P18	Equip with standard sports facilities	Providing infrastructure	
P7, P11, P12, P14, P16, P18	Providing the needed sports facilities		
P3, P4, P9, P11, P14, P8, P18	Development of workplace health informatics		
P7, P11, P12, P15	Appropriate sports' per capita at workplace allocation		
P9, P14, P17, P18	Proprietary sports arena for male and female staff's to be constructed		
P8, P9, P13, P14, P17, P18	Equipment Ergonomics and working rooms		
P6, P9, P17, P18	Sports facilities access		
P4, P6, P9, P16	Appropriate distribution of sports arena and facilities at the company level		
P4, P5, P16	Furnishing safe equipment		
P10, P15, P16, P17, P18	Wellbeing stations construction at workplace	Active company	Physical environment
P10, P18	Sports teams' arrangement inside the company		
P2, P5, P6, P10, P13, P14, P16, P18	Use of bikes in the company campus		
P2, P3, P8, P11	Meeting ordinary but not important issues while pacing		
P10, P14, P15	Utilizing standing tables to have lunch		
P10	Cycling route in the company campus being determined		
P1, P2	Sports programs planning align with health goals	Alignment of plans	Health resource
P1, P4, P6, P7, P9, P14, P13, P14, P15, P16, P18	Sports programs being coordinated with the staff wants		
P1, P0	Sports programs being coordinated with the workplace		
P10, P11, P18	Staff physical health assessment		



**Table 3.** Main categories obtained according to combining concepts and sub-categories

Interview Code	Concepts	Sub-Categories	Main Categories
P10	Staff sports' needs assessment	Evaluation and monitoring	
P3, P9	Monitoring the improvement of physical activity development plans		
P4	Monitoring staff compliance of sports instructions		
P1, P2, P5, P8, P9, P13, P14, P17, P18	Evaluating and monitoring the company's sports performance		
P2, P6, P9	Monitoring utilization of sports equipment based on instructions		
P2, P4, P9, P11, P12, P13	Evaluating accessible sports equipment quality		
P1, P2	Evaluating accessible sports facilities quality		
P10	Maintenance of the company's sports equipment	management	
P10, P15, P17	Maintaining and repairing sports arena possessed by the company		
P3, P11, P15	Organizing a working group to develop physical activity in the company		
P1, P3, P7, P11, P12, P13, P14, P16	Construction of sports arena concentrating on workers' sports		
P10	Health-oriented management set up	planning	Company participation
P10, P15, P17	Assembling workplace health plan		
P10, P15, P16, P17, P18	Planning to create sports content at the workplace		
P11, P12, P13	Identifying skeletal impairment and organizing sessions for compensatory movements and providing nutrition at the location sports affairs		
P10, P13, P14	Appropriate planning of providing sports services based on day shift type, shift work turns and job order		
P10, P18	Prioritizing actions for physical activity development		
P2, P5, P6, P10, P13, P14, P16, P18	Possessing a calendar and regular schedule by the company pertaining sports and physical activity		
P2, P3, P8, P11	Explicit definition objectives of physical activity development		
P10, P14, P15	Planning to grow physical literacy of the staff		

Components obtained in the model are studied by selecting a sample of 384 individuals from the population in order to answer the third research question in the third step. As figure (1) represents, second-order structural equation model was utilized to analyze the compatibility of the components for Mobarake Steel Company of Isfahan.



**Figure 1.** Second-order structural equation model in terms of factor loading

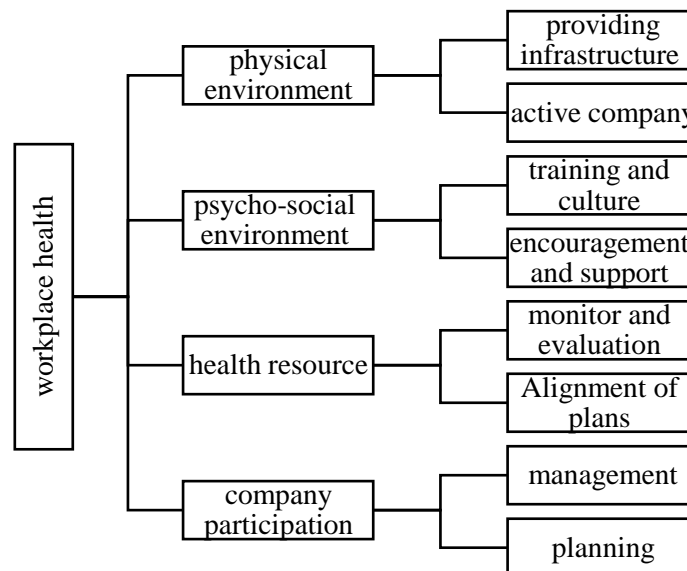
As it is evident from the second-order structural equation model appeared in figure (1), apart from education and culture, encouragement and support, and promotion of sports and physical activity acting as secondary variables of psycho-social environment, the factor loading of all factors is located at an appropriate level. Psycho-social environment factor remained among the model components due to significance of sub-components of the factor listed as: growing public awareness of staff about sports and its effects, emphasis on perseverance of participation in sports activities, company's media coverage and support for the pertained sports programs, company informing health matters in training and culture dimension, allocating budget to the company's sports and physical activity, operational managers of the company supporting sports processes and proceedings, company's sports successes to be regarded as worthy, higher-order managers' support for physical activity, champions being celebrated for winning sports competitions inside company, health caregivers and communicators of workplace being honored. Furthermore, sub-components of training and culture as well as encouragement and support remained in the aforementioned component. Furthermore, although the factor loading has been evaluated at low rate in physical environment; equipping standard sports facilities, development of workplace health informatics, workplace equipment ergonomics and furnishing safe equipment have been significant. Other components possess appropriate factor loading and are higher than 0.5, representing the requirement of their presence in the model. Estimated values of the generality evaluation indices of the structural equation model are presented in table (4).

**Table 4.** Estimating the values of the evaluation indicators of the structural equation model

Index	Value
SRMR	0.186
Chi-Square	341.256
NFI	0.087

The hypothesized model instated by the research data is supported as represented by the values of the indices; put it another way, the data fit to the model, also the fit indices demonstrate suitability of

the structural equation model. Furthermore, figure (1) depicts the values of the coefficient of determination inside the blue circles in the present model. The coefficient of determination of whole values is regarded as a proper value and approximate to 0.5 and higher (apart from for the components as train and culture, sports and physical activity promotion, encouragement and support, providing infrastructure). Remaining components as independent variables, having coefficient of determination under 0.5, are considered significant. The following chart represents the final model (Figure (2)) proposed, according to conducted analysis:



**Figure 2.** The model of workplace health with an approach to staff's physical activity improvement in Mobarakeh Steel Company

## Discussion and Conclusion

The objective of the present study was to bring forward a model for workplace health with an approach to physical activity development of Mobarakeh Steel Company's staff. This study was exploratory and was done in order to express knowledge and understand the current situation. The present research was conducted in order to solve a problem in Mobarakeh Steel Company, therefore it is in the field of applied research. Also, in the current research, the contextual theory method of Glasser's approach has been used. Also, confirmatory factor analysis and structural equation model were used to confirm the research model. Basically, workplace health along with staff health result in health level growth leading to productivity; consequently, utilizing the Grounded theory and Glaser approach, it was proposed that these conditions comprised the conditions of psycho-social environment, physical environment, health resources and the company's participation. Furthermore, no effect was found from conducting mandatory actions for sports in Mobarakeh Steel Company like obligatory exercise for at least 30, stretching and corrective exercises to be done, employing sports coaches at the workplace, etc.; it is regarded fundamental to adopt appropriate strategies in order to obtain desired and expected results.

The initial dimension was considered the psycho-social environment which indicates the presence of factors such as culture, promotion of sports and physical activity, and encouragement and support. In the present study some actions have not represent an influential effect on workplace health in Mobarakeh Steel Company like: promoting health-oriented sports exercise, providing opportunity to public participation in activities to improve health, holding matches specified for Steel Company staff, allocating appropriate time to do sports activities, obligatory 30-minute exercise at workplace, performing stretches and corrective movements at workplace, performing sports activity with family like hiking, higher-order manager active participation in sports events, company's sports teams participating in matches outside the company and holding sports exercises prior to starting work. Mirza Rah Kooshki and Khodayari (2019) in propose that making sports attractive, positive point of view, including sports in the household budget, approving World Sports Day, belief and religion of

leadership in sports and media growth is regarded as part of the factors resulting in improvement and promotion of sports and workplace health. These factors are consistent with culture, promotion of sports and physical activity, as well as encouragement and support which are regarded as the fundamental factors of the present study (Kargar, Nazari, & Salimi, 2022) explains the health-related factors affecting the institutionalization of sports in Iranian families. In the above-mentioned study, authorities and politicians considering sports, creating cultural attitude, and establishing encouraging regulations have been identified as factors which may result in institutionalization of sports. The present study in these dimensions is consistent with the dimension of the present research model.

The second dimension is defined as physical environment. Physical environment is defined as the presence of factors like providing infrastructure including: equip with standard sports facilities, providing the needed sports facilities, development of workplace health informatics, appropriate sports' per capita at workplace allocation, proprietary sports arena for male and female staff's to be constructed, equipment ergonomics and working rooms, sports facilities access, appropriate distribution of sports arena and facilities at the company level as well as furnishing safe equipment; furthermore, active company including wellbeing stations construction at workplace, sports teams' arrangement inside the company, use of bikes in the company campus, meeting ordinary but not important issues while pacing, utilizing standing tables to have lunch as well as cycling route in the company campus being determined. For Mobarakeh Steel Company's staff it is specified that within providing infrastructure; furnishing safe equipment, equipment and working rooms ergonomics as well as appropriate sports' per capita at workplace allocation, compared to remaining dimensions of the factor, are regarded more crucial; also, active company is related to components like meeting ordinary but not important issues while pacing, utilizing standing tables to have lunch as well as cycling route in the company campus, although remaining components are not considered influential on the study model. In the comprehensive system of education and health promotion at the workplace (2014), in the service package of health promotion at the workplace, it is pointed in the dimension of the physical environment that diseases may be entailed due to the improper ergonomics of the working room and equipment at the workplace and appropriate conditions are not met in the company to exercise. In the aforementioned document, the emphasized strategies to solve this issue are regarded as appropriate equipment and design of the workplace as well as possibility of performing alternating movements of body organs while working. Mirza Rah Kooshki and Khodayari (2019) have proposed strategies like establishing the deputy of health and appropriate structural changes, as well as the existence of requirements and standards in sports development in the workplace. These strategies within providing infrastructure and active company dimensions are entirely consistent with the present study. Kargar, Nazari, and Salimi (2022) explains the health-related factors affecting the institutionalization of sports in Iranian families. The aforementioned study stated factors such as infrastructural factors, including development of sports facilities being high quality and accessible, optimization of sports facilities and application of infrastructural capacities, from which the present study is align with its infrastructure dimension.

Health resources is considered as the third dimension, by which it means the presence of factors such as evaluation, monitoring and alignment of plans. Evaluation and monitoring are represented by components as staff physical health assessment, staff sports' needs assessment, monitoring the improvement of physical activity development plans, monitoring staff compliance of sports instructions, evaluating and monitoring the company's sports performance, monitoring utilization of sports equipment based on instructions, evaluating accessible sports equipment quality and evaluating accessible sports facilities quality; furthermore, the factor for plans alignment is defined by sub-components like plan for sports programs in line with health goals, sports programs coordinating with staff demands, and sports programs coordination with the workplace. All above-mentioned components and sub-components are regarded significant also present in the model of Mobarakeh Steel Company of Isfahan workplace health. Strategies in Mirza Rah Kooshki and Khodayari (2019) are consistent with the present study's; strategies like designing and implementing health monitoring information and monitoring systems related to physical activity and setting up and developing health monitoring and consulting centers. In addition, Linnan, Cluff, Lang, Penne, and Leff (2019) imply effects of plans aligned with health objectives at the workplace, also emphasize the point that scant workplaces have comprehensive health plans. They indicate a persistent monitoring in order to



measure, evaluate and improve comprehensive health plan; from which perspective, evaluation and plan are consistent with the present model's dimension.

Company participation is the fourth dimension, by which the presence of factors like management and planning is regarded. Management is defined by the following components like maintenance of the company's sports equipment, maintaining and repairing sports arena possessed by the company, organizing a working group to develop physical activity in the company, construction of sports arena concentrating on workers' sports as well as health-oriented management set up; in addition, planning is explained by sub-components like assembling workplace health plan, planning to create sports content at the workplace, identifying skeletal impairment and organizing sessions for compensatory movements and providing nutrition at the location sports affairs, appropriate planning of providing sports services based on day shift type, shift work turns and job order, prioritizing actions for physical activity development, possessing a calendar and regular schedule by the company pertaining sports and physical activity, explicit definition objectives of physical activity development, as well as planning to grow physical literacy of the staff. In the present model of workplace health in Mobarakeh Steel Company of Isfahan, the entire proposed components and sub-components are considered significant also present. Strategies presented in Mirza Rah Kooshki & Khodayari (2019), like requiring workplaces to support physical and sports activities, holding training courses on sports and health, determining and allocating the contribution of sports from financial credits are entirely consistent with the present study. Furthermore, Linnan, Cluff, Lang, Penne, and Leff (2019) in their study propose the effects of plans aligned with health objective at the workplace and emphasize that scant workplaces have comprehensive health plans. They imply that the method objective exists via developing physical activity utilizing comprehensive health plans; in addition, they declare the establishment of health-oriented management, by which this study is considered consistent with the present study. In addition, Hagger (2019) proposes habit formation to be considered as a behavioral response to environmental clues as a context to establish usual behaviors and to grow physical activity mentally. In the aforementioned study, the author states the accurate planning of providing sports services, prioritizing sports activities, defining the method of sports objectives, as well as facilitating physical literacy growth in order to eliminate skeletal impairment, by which, this study is regarded consistent with the present study.

Eventually, it is suggested to monitor and supervise actions and activities pertaining development of physical activity in Mobarakeh Steel Company, in order to highly utilize the proposed model. Furthermore, developing a comprehensive health plan needs to be performed. Additionally, the design of the workplace in Mobarakeh Steel Company needs to be carried out such, which the staff, unconsciously and by developing behavioral habits, participate in sports activities. It is apparent that facilitation is met via strengthening the managers' thinking in the area of encouraging staff and allocating the essential resources to develop staff's physical activity; eventually, it is required to determine appropriate structure and infrastructure based on staff's needs, in order to implement the model of workplace health while preparing appropriate instructions.

## Acknowledgment

We would like to thank all the esteemed experts as well as the employees of Mobarakeh Steel Company who helped us in conducting this research.

## References

- Abigail, S., Katz, N. P., McLellan, D., Dennerlein, J., Jeffrey, N., & Katz, M. D. (2019). Perceived Workplace Health and Safety Climates: Associations With Worker Outcomes and Productivity. *American Journal of Preventive Medicine*, 57(4), 4-18.
- Amber, E., Vaughn, E. A., Willis, D., Ward, S., Falon, S., Grummon, A., & Linnan, L. A. (2020). Workplace-based opportunities to support child care workers' health and safety. *Preventive Medicine Reports*, 19, 101154.
- Atari, S., Ghorbanpour, A., Seyedmehdi, S. M., & Babayi mesdaraghi, Y. (2018). Effect of Continuous Training of Ergonomic on Productivity and Exposure to Ergonomic Risk Factors. *johe*, 6(2), 27-34.

- Barshan, A., safaei movahhed, S., moghadam zadeh, A., Farzad, V., & kiamanesh, A. (2018). Identifying the Effective Factors on the Formation of Learning Transfer to the Workplace in In-Service Training of Kerman copper industry. *Journal of Research in Educational Science*, 11(39), 113-134.
- Brunet, J., Gaudet, J., Wing, E. K., & Bélanger, M. (2019). Parents' participation in physical activity predicts maintenance of some, but not all, types of physical activity in offspring during early adolescence: A prospective longitudinal study. *Journal of sport and health science*, 8(3), 273-284.
- David, L. (2020). Social learning theory (Bandura). Available at: [www.learning – theories.com/social-learning-theory-Bandura](http://www.learning-theories.com/social-learning-theory-Bandura), Accessed 22 January 2019.
- Faez, E., Zakerian, S. A., & Azam, K. (2018). Validity and Reliability of the Persian Version of the Ergonomics Climate Assessment Questionnaire. *Sjsph*, 16(3), 307-316.
- Fang, Y. Y., Huang, C. Y., & Hsu, M. C. (2019). Effectiveness of a physical activity program on weight, physical fitness, occupational stress, job satisfaction and quality of life of overweight employees in high-tech industries: a randomized controlled study. *International Journal of Occupational Safety and Ergonomics*, 25(4), 621-629.
- Hagger, M. S. (2019). Habit and physical activity: Theoretical advances, practical implications, and agenda for future research. *Psychology of Sport and Exercise*, 42, 118-129.
- Hamidi, Y., Shaterabadi, S., & Soltanian, A. R. (2018). Investigation of the Relationship Between the Organizational Justice and the Organizational Performance and Productivity in the Health Center of Kermanshah Province. *Iran J Ergon*, 7(4), 52-61.
- Havaei, F., Lorenzo, O., & MacPhee, M. (2021). The impact of workplace violence on medical-surgical nurses' health outcome: A moderated mediation model of work environment conditions and burnout using secondary data. *International Journal of Nursing Studies*, 109, 121-136.
- Heydari, R., Keshtidar, M., Talebpour, M., Shojaei, H. S., & Oveysi Sani, F. (2021). Effective Factors on the Productivity of Human Capital via an Interpretive Structural Modeling (Case Study: General Office of Sports and Youth in Khorasan Razavi. *Journal of New Studies in Sport Management*, 2(2), 139-156.
- Hosseini Yarandi, F., Shaafi, F., & Golabchi, M. (2018). Effect of Ergonomics on Job Satisfaction of the Administrative Staffs Working on Projects in Iranian Gas Engineering and Development Company. *johe*, 6(4), 18-25.
- Jennifer, L. R., Stephanie, A. P., Andrew, L. P., & Attallah, S. K. (2018). Influence of the workplace on physical activity and cardiometabolic health: Results of the multi-centre cross-sectional Champlain Nurses' study. *International Journal of Nursing Studies*, 81, 49-60.
- Kalajas-Tilga, H., Koka, A., Hein, V., Tilga, H., & Raudsepp, L. (2020). Motivational processes in physical education and objectively measured physical activity among adolescents. *Journal of Sport & Health Science*, 9, 462-471.
- Kargar, A., Nazari, R., & Salimi, M. (2022). Explaining the Health-Related Factors Affecting the Institutionalization of Sports in Iranian Families. *The Journal of Toloo-e-behdasht*, 21(1), 43-56.
- Karmann, A., & Roesel, F. (2017). Hospital Policy and Productivity—Evidence from German States. *Health economics*, 26(12), 1548-1565.
- Kremer, P., Elshaung, C., Leslie, E., Toumbourou, J. W., Patton, G. C., & Williams, J. (2014). Physical activity, leisure-time screen use and depression among children and young adolescents. *Journal of Science and Medicine in Sport*, 17(2), 183-197.
- Lahart, I., Darcy, P., Gidlow, C., & Calogiuri, G. (2019). The effects of green exercise on physical and mental wellbeing: A systematic review. *International Journal of Environmental Research & Public Health*, 16(8), 1352.
- Linnan, L. A., Cluff, L., Lang, J. E., Penne, M., & Leff, M. S. (2019). Results of the workplace health in America survey. *American Journal of Health Promotion*, 33(5), 652-665.
- Lisanne, B., R. M.-P., Appel, M., & Arentze, T. (2021). The physical office workplace as a resource for mental health – A systematic scoping review. *Building and Environment*, Available online 29 October 2021, 108505.
- Mirza Rah Kooshki, M. H., A. Z., & Khodayari, A. (2019). Designing Health Development Strategies with a Physical and Sport Activities Approach. *Sport Management Journal*, 11(4), 787-807.
- Mirzaei, Y., halvani, G. H., fallah, H., & fallahzadeh, H. (2021). Investigating the effect of participatory ergonomics implementation on job satisfaction in the staff of Shahid Rajaei Faridan Hospital. *Tibbi-i-kar*, 13(2), 20-28.
- Mora, J. C., & Valencia, W. M. (2018). Exercise and Older Adults. *Clinics in Geriatric Medicine*, 34(1), 145-162.

- Nicolaas, P. P. (2021). Implementing movement at the workplace: Approaches to increase physical activity and reduce sedentary behavior in the context of work. *Progress in Cardiovascular Diseases*, 64, 17-21.
- Podgorodnichenko, N., Edgar, F., & McAndrew, I. (2020). The role of HRM in developing sustainable organizations: Contemporary challenges and contradictions. *Human Resource Management Review*, 30(3), 100685.
- Sadegh Pour, A., Sadegh Pour, M., & Soltan Hosseini, M. (2014). Investigating the relationship between physical activity levels and mental health (case study, employees of Isfahan University of Medical Sciences). *Journal of Isfahan Medical School*, 32(274), 90-101.
- Sadeghi, A., & Omranzadeh, E. (2020). Monitoring the Role of Organizational Justice on Productivity of Employees of Tejarat Bank Branches. *Quarterly Journal of Public Organizations Management*, 8(4), 159-168.
- Salimi, M. (2017). Providing Professional Ethics Development Model for Sport Organizations. *The Journal of Ethics in Science and Technology*, 12(1), 49-61.
- Salimi, M. (2020). The Mediating Role of Professional Ethics in the Relationship of the Organizational Culture with Social Responsibility and the Organizational Commitment in Sports Organizations. *Journal of New Studies in Sport Management*, 1(1), 1-9.
- Salimi, M., & Keshvari, F. (2019). Effects of Intellectual Capital on Organizational Innovation and Organizational Agility in Staff of Youth and Sport Offices: Role of Professional Ethics Mediator. *Journal of Human Resource Management in Sport*, 7(1), 61-79.
- Sánchez-Oliva, D., Mouratidis, A., Leo, F., Chamorro, J. L., Pulido, J. J., & García Calvo, T. (2020). Understanding physical activity intentions in physical education context: A multi-level analysis from the self-determination theory. *International Journal of Environmental Research & Public Health*, 17, 799.
- Sheikhi, B., Salimi, M., & Zahedi, H. (2022). Presenting the Model to Develop the Professional Ethics of Physical Education Teachers. *Sport Management Journal*, 14(3), 37-52.
- Skinner, J., Edwards, A., & Corbett, B. (2014). *Research methods for sport management*. Routledge.
- Van Rijn, R. M., Robroek, S. J., Brouwer, S., & Burdorf, A. (2014). Influence of poor health on exit from paid employment: a systematic review. *Occupational and environmental medicine*, 71(4), 295-301.
- World Health Organization, W. (2009). *Milestones in health promotion: Statements from global conferences; World Health Organization*; . Geneva.