Employee's Health Management Evaluation System for the Enterprise

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Abstract

This research tries to establish one employee health management system for enterprises. Through sending the questionnaires by e-mail or face to face delivery to human resource management experts who work in the universities and enterprises in China. A total of 30 questionnaires were distributed and wholly returned for the first round and a total of 20 questionnaires were distributed and 18 were returned for the second round. Those questionnaires based on human capital theory were analyzed by modified Delphi method and analytic hierarchy process. The results show that the evaluation system of employee health management is constructed, including 2 primary indexes, 9 secondary indicators, and 34 thirdly indicators. Two enterprises were evaluated by the employee health management system and shows that the index system can accurately reflect the implementation of employee health management and can provide guidance for enterprises to carry out employee health management activities. This research show that the evaluation systems consist of two independent variables, there are health management process and health management results which are significantly related to the enterprises employees' health management. Future research should expand the depth of research content and increase the number of enterprises to perfect the evaluation system.

Keywords: Health management evaluation system, Human capital theory, Health management process, Health management results, Enterprise

JEL Classification Code: I11, I15, J01, J24

1. Introduction

Health management is an activity process of comprehensive detection, evaluation and effective intervention of individual or group health risk factors (Zhang, 2018). Health management is a comprehensive subject integrating life science, epidemiology, social medicine, management and informatics (Bai, 2008). With the deepening of the reform of China's market economy, especially the marketing reform of medical and health system, the acceleration of industrialization and the increase of competition pressure, not only the diseases, but also the psychological problems of anxiety,

helplessness, strangeness and depression (Charoensukmongkol & Suthatorn, 2018). The poor health of employee will seriously affect or restrict their intelligence, and cause serious losses to the enterprise (Phungsoonthorn, 2019), so taking employee health management as the research objective. According to the survey of the health status of Chinese cities in 2019, more than 60% of Chinese enterprises are in "sub health", and overdraft among elite and senior executives is the most serious, with 91% and 86% of sub-health respectively, and 10.3% of them are overworked. A survey of 58912 residents in more than 10 provinces and cities including Beijing, Shanghai and Shenyang completed by the health line of Chinese enterprise employees show that 42.4% of respondents think they are "sub health"; 31.6% of them are "slightly uncomfortable occasionally"; 13.7% of them "feel bad cakes and have chronic diseases"; only 12.4% think they are "healthy", while 78.9% of them are psychologically. The staff had a restless mood, 59.4% felt anxiety, 38.6% felt depressed (Xie, 2020).

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The poor health of employees will seriously affect or restrict their intelligence, and cause serious losses to the enterprise (Li, 2019) . There are mainly two kinds of losses. One is directly, which refers to the medical insurance expenses that the enterprise must provide for the employees. The other is indirectly, which is the low efficiency and waste of working time caused by a series of phenomena such as employees' absence rate rising due to sick leave, or "not working hard" due to poor health (Charoensukmongkol, 2017). In fact, these bad conditions are not unchangeable. Through the management of employees' health, such as health education, safety management, disease management, enterprises will reduce the cost of medical care, obtain efficient employees, improve the productivity of enterprises, and establish a healthy and good corporate image.

However, enterprises still have doubts about the implementation of employee health management due to the follow reasons (Wu, 2007). Firstly, due to the complexity of the influencing factors of employee health, such as natural and social factors, internal factors and personal factors, enterprises are not sure how much the implementation of health management can improve the health of employees, and cannot directly see the economic effect of employee health management. Secondly, even if the implementation of health management in enterprises is not effective, enterprises cannot directly see the economic effect of employee health management. It is difficult to determine which activities of employee health management are more important and worthy of implementation. Enterprises may feel confused about employee health management because of some management processes have no measurable results. Therefore, it is of great significance to establish a set of scientific and practical evaluation index system of employee health management. It is an important guarantee for enterprises to systematically, long-term and effectively implement employee health management and achieve the desired goal. Through the evaluation of the management process and results of employee health management, enterprises can not only improve the deficiencies of employee health management, but also quickly learn the methods of employee's health management and improve the level of employee's health management.

2. Literature Review
2.1. Human Capital Theory

This research uses human capital theory as the conceptual framework. This theory is relevant because the investment for the long-term development of an enterprise is not limited to the material forms such as factories, machines, equipment and technological inventions. However, it also depends significantly on the development of human resources such as education, training, medical treatment, health care and community services (Charoensukmongkol et al., 2015; Ratasuk & Charoensukmongkol, 2020(. The former is physical capital in material form, while the latter can be summarized as human capital. Capital originally refers to material capital)Wu, 2008(. In the book "human capital", it is proposed that "human capital refers to the knowledge, ability, qualification and skill possessed by an individual, and also includes health, time and life span")Shen, 2017(.The theory of human capital holds that health is an important part of human capital. Investment in health can not only prolong the life span of human beings, but also increase the total amount of human capital, prolong the time for human capital to play a role and improve its capital value. Moreover, investment in healthy investment can also enhance people's physical fitness and improve them quality in all aspects, It can also give full play to the individual's internal ability.

2.2. Hypothesis Development

Base on the human capital theory, this research proposes that health management process and health management results can affect employees' health in the enterprise and can be used for assessment.

This research proposes that health management process is the first level evaluation index. Health management process including health education and training, health environment management, security management, disease management, stress and emotion management and medical insurance management)Refer to Table 1(. These indexes will consider as second level evaluation index. A set of scientific, standardized and operable evaluation index system of employee health management is of great significance for the diagnosis and evaluation of an enterprise's employee health management. Therefore, the research on the evaluation index system is the key to employee health management. (D. S. Wang, 2020) proposed that productivity, corporate image and health care should be considered in the impact of employee health statu on enterprise production. Among them, productivity includes the loss of working hours, work desire, Table 1: Proposed Employees' Health Management Index

Item	Content
Health management process	Health education and training
	Health environment management
	Security management
	Disease management
	Stress and emotion management
	Medical insurance management
Health management results	Health status of employees
	Financial performance of enterprises
	Nonfinancial performance of enterprises

physical and mental health, turnover rate; medical care includes medical claims and compensation, life, medical and other insurance; corporate image refers to the good image of an enterprise established by paying attention to the health of employees. All those mentioned index belongs to health education and training, health environment management, security management, disease management, stress and emotion management and medical insurance management.

This research also proposes that health management result is the first level evaluation index. Health management results including health status of employees, financial performance of enterprises and nonfinancial performance of enterprises)Table 1(. These indexes will consider as second level evaluation index. Richard and Donald (1994(suggested that the health management plan of employees should include smoking cessation plan, stress management, weight control, exercise and fitness, health risk assessment, hypertension monitoring and testing, nutrition education,back problem prevention and accident prevention plan,and the integrity of the health management plan of enterprise employees can be evaluated from these aspects)Chang, 2019(. All those mentioned above belongs to "Health status of employees", but still need to increase some index. Michael et al.,)2009(divided the fields of health promotion project evaluation into the following three areas: project structure, project process and project results)Qu, 2016(. Among them, the evaluation of project results should consider the cognition of health promotion project, the participation of health promotion project, the satisfaction of project,the attitude of managers, behavior change and health improvement, funds and other aspects. No report has been discussed about financial performance of enterprises and nonfinancial performance of enterprises if they can affect employees' health management. For this reason, this research proposes using financial

Table 2: Summary Sources for Health Management Evaluation Index

performance and nonfinancial performance of enterprise to assess if they can affect enterprise employees' Health management.

Based on the hypotheses for employees' health management, this study using Wanfang Journal Full-text Database, VIP Journal Full-text Database, CNKI database, etc., as well as using Baidu academic and Yahoo search engine to find China and foreign literature related to this topic, and on the basis of combing and studying the literature related to employee health management, the evaluation index system for employee health management process.

2.3. Research questions

Question one: Is that feasible to establish an employee health management evaluation system?

Question two: Are the two independent variables of health management process and health management results based on human capital theory are significantly related to the enterprises employees' health management by Modified Delphi method and analytic hierarchy process method?

Question three: Is the employee health management evaluation system practical?

3. Research Methods and Materials

3.1. Research Design

Through literature analysis, this study initially constructed indicators for employee health management evaluation system(Refer to Table 2). Then send the 30 designed questionnaires by e-mail or face to face to human resource management experts who work in the universities and enterprises. After collecting the data for the first round, those data were analysed by modified Delphi method and analytic hierarchy process. Then send 20 modified questionnaires to the same experts who work in the universities and enterprises, and analyses the data again. After the evaluation system's indicators confirmed, determination of weight by analytic hierarchy process method for those indicators. Select two enterprises for practical test to check if the employee health management system can accurately reflect the employee health management status and provide guidance for enterprises to carry out employee health management activities. After that, research summary is discussed and get the conclusion. Figure 1 shows the research design for this research.

3.2. Data Collection

This study sent the questionnaires by e-mail or face to face delivery to human resource management experts who work in the universities and enterprises in China. Before sent the questionnaires, make call reservation, and told the experts it is a independent study,the questionnaire must be returned within two days. Rate the importance of each indicator. The criterias are : Very unimportant = 1 point, Unimportant = 2 points, Uncertain = 3 points, Important = 4 points and Very important = 5 points. Mark "√" or "yes" on the corresponding options. The larger the number is, the more you agree with this statement.The experts can make suggestions on the questionnaire. A total of 30 questionnaires were distributed and returned for the first round , the recovery rate is 100%. A total of 20 questionnaires were distributed and 18 were returned for the second round because of 2 experts were out for business, the recovery rate is 90%. Using SPASS 11 software to analysis those data.

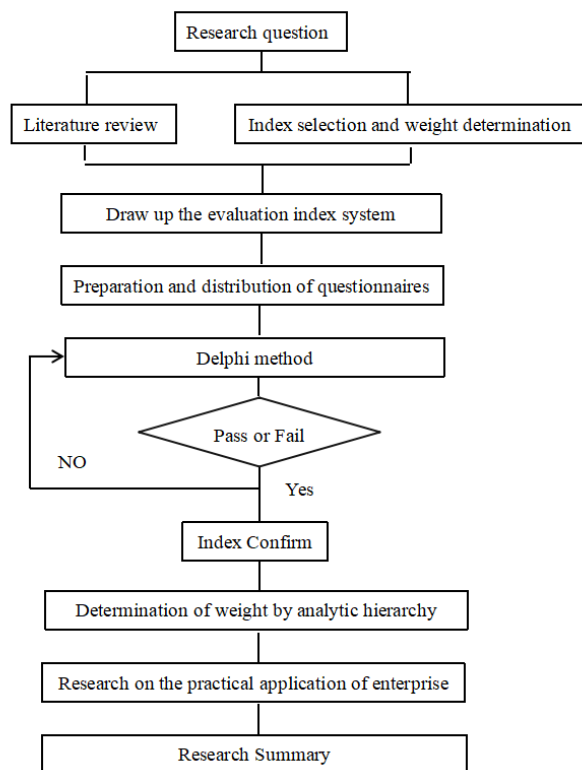| Items	Content	References
1	Diversity of health education and training forms	(Xu, 2021)
2	The richness of health education and training contents	(Xu, 2021)
3	Proportion of employees participating in health education and training	(Yang, 2020)
4	Times of health education and training per capita in a year	(Zhou, 2019)
5	Qualified rate of environmental monitoring in workplace	(Shen, 2017)
6	Management of smoking control in workplace	(Zhou, 2019)
7	The perfection of safety signs in the workplace	(Zhou, 2019)
8	Supporting conditions of staff rest places	(Zhou, 2019)
9	Number of safety management personnel	(Zhou, 2019)
10	The perfection degree of safety facilities	(Zhou, 2019)
11	Allocation of labor protection articles	(S. Y. Huang, & Jin, Z.X., 2019)
12	Allocation of regular transport buses	(Bai, 2008)
13	The perfection of the staff health risk assessment system	(Zhou, 2019)
14	Diversification of occupational disease prevention and control measures	(Wang, 2017)
15	Improvement of chronic disease management system for employees	(Q. M. Huang, Song, W.L., & Li,C.F., 2019)
16	Per capita working hours per week	(S. Y. Huang, & Jin, Z.X., 2019)
17	The diversity of psychological consultation channels for employees	(S. Y. Huang, & Jin, Z.X., 2019)
18	Implementation of employee assistance program	(Chang, 2019)
19	Measurement frequency of employees' work stress	(Yang, 2020)
20	The richness of forms of cultural and sports activities in Enterprises	(Shen, 2017)
21	Proportion of employees' social insurance	(Bai, 2008)
22	Proportion of employees' supplementary insurance	(S. Y. Huang, & Jin, Z.X., 2019)
23	Proportion of employees participating in physical examination	(Bai, 2008)
24	Cost standard of annual welfare physical examination for employees	(Lin, 2020)
25	Filing rate of employee health records	(Shen, 2017)
26	Proportion of healthy employees undergoing physical examination	(Shen, 2017)
27	Absence rate of employees due to illness	(Shen, 2017)
28	Incidence rate of chronic diseases among employees	(Zhao, 2017)
29	Incidence of serious injury to employees	(S. Y. Huang, & Jin, Z.X., 2019)
30	Corporate image	(Z. Wang, 2020)
31	Employee loyalty	(Chen, 2019)
32	Employee satisfaction	(Chen, 2019)
33	Organizational climate	(Chen, 2019)
34	Labor productivity per capita	(D. S. Wang, 2020)
35	Decrease rate of employee turnover expenses	(D. S. Wang, 2020)
36	Average annual reduction rate of medical and health care expenses of employees	(Mao, 2020)
37	Return for investment	(D. S. Wang, 2020)

Figure 1   Research Design Chart

3. Data Process

Data process use Modified Delphi method and Analytic hierarchy process method.

Weaver (1987) proposed that the Delphi method can be modified, and the steps and statistical methods of the traditional Delphi method can still be used, but the first round of open-ended questionnaire survey can be omitted, and the original first round of open-ended questionnaire can be replaced by the research results of relevant literature. The research framework proposed by researchers or expert interviews, and then the structural questionnaire can be put forward as the first round of survey. The questionnaire is called "modified Delphi method". The modified Delphi method can not only save time, let experts focus on the problem to be studied, but also improve the questionnaire recovery rate.

Analytic hierarchy process is a set of decision making methods developed by Thomas, an American operations researcher and research scientist, which quantifies the qualitative analysis of subjective judgment, and numerical the difference of judgment elements, and realizes the normalization and

quantification of human thinking process and subjective judgment. The basic principle is to regard the research problem as a whole system, and divide the relationship among various factors by analyzing the factors inside the system, then ask the experts to give quantitative scores on the importance of each factor at each level; then establish a mathematical model to calculate and sort the relative importance of each factor at each level; finally, select the scheme according to the results.

4. Results and Discussion

4.1. Questionnaire Recovery Rate and Kendall harmony coefficient

Two rounds of expert questionnaires were distributed in this survey. In the first round the recovery rate is 100%, and the second round recovery rate is 90% as show in Table 3. Kendall Harmony Coefficient of Two Rounds' P value is 0.000, as show in Table 4. That means the two rounds of expert questionnaires is credible.

Table 3: Statistics of Two Rounds Questionnaire Recovery

Items	First Round	Second Round
Number of questionnaires issued	30	20
Number of questionnaires returned	30	18
Recovery rate	100%	90%

Note：Table 3 shows the the two round consultation results. 30 questionnaires were distributed and 30 were recovered, with a recovery rate of 100% in the firs tround. 20 questionnaires were distributed and 18 were recovered, with a recovery rate of 90% in the second round.

Table 4: Kendall Harmony Coefficient of Two Rounds

Items	First Round	Second Round
Number of experts	30	20
X^2	117.43	101.11
P value	0.000	0.000
Freedom	47	44
Kendall's W	0.268	0.296

Note：Table 4 shows the P value for the first and second round is 0.000, high probability of non accidental coordination exist in the consultation results.

4.2. Results of Expert Consultation

After statistics)Refer to table 5(, the average value of all indicators is 4.075, the standard deviation is 0.185, the cut-off value = average minus standard deviation = 4.075-0.185 = 3.890; the average value of coefficient of variation is 0.173, the standard deviation is 0.041, the cut-off value equals average plus standard deviation, that means 0.173 + 0.041 = 0.214. All quartile difference is below 0.6, except for clause1.1, clause 3.4, clause 5.4 and clause 8.1, so the expert opinions are highly consistent. According to the suggestions of experts from the parameter of average value, coefficient of variation and quartile difference, three unqualified indicators were eliminated in the first round, namely: "The diversification of health education and training forms", "The allocation of transportation shuttle bus", "The frequency of employees' work stress measurement". Experts suggest that the revised indicators include: "The number of health education and training per capital per year" should be changed to "the number of health education and training per capital per year", so as to better reflect the actual situation of health education and training in enterprises;"The number of safety management personnel" is too general, which should be changed to "The proportion of safety administrators in all employees"; and "The perfection degree of fire safety facilities" should be measured. The scope of the amount is too small to comprehensively measure the situation of safety facilities, so it should be changed to" The allocation of safety facilities"; The "Employee Supplementary Insurance" includes employee supplementary pension insurance and supplementary medical insurance, and the "Employee Supplementary Pension Insurance" cannot distinguish the implementation of enterprise employee health management, so it is suggested to change the "Insurance proportion of Employee Supplementary Insurance" to "Employee Supplementary Insurance" . It is suggested that "Per capital labor productivity" should be changed to "Per capital labor productivity increase range", because it is not convenient for comparison among enterprises; "Corporate image" mainly refers to the popularity, trust and reputation of enterprises, which is too wide, so it is suggested to be changed to "Corporate social reputation"

According to the situation of the first round, experts score the revised indicators again, and the statistical results are shown in Table 6.

The steps of the second round of questionnaire analysis and the criteria of data results are consistent with those of the first round. The questionnaire received feedback from 18 experts, and the positive coefficient of experts reached 90%. After statistics, the average value of all indicators is 4.207, the standard deviation is 0.252, and the cut-off value equals average value minus standard deviation that means 4.207-0.252 = 3.955. The analysis shows that the values of all indexes are greater than this threshold. The average value of the coefficient of variation is 0.128, the standard deviation is 0.028, the cut-off value = average value plus standard deviation = 0.128 + 0.028 = 0.156, the coefficient of variation of each index is within this cut-off value, which meets the standard, but the difference between the coefficient of variation and the cut-off value of several indexes is less than 0.01, and the quartile difference of each index is less than 0.6, which indicates that the expert group has a high recognition of the index and has reached the "high consistency" standard (Refer to Table 6).

The evaluation index system of enterprise employee health management adopts the combination of quantitative index and qualitative index. When evaluating the health management of employees in an enterprise, the quantitative indicators need not be converted. The qualitative indicators are converted into 0.2, 0.4, 0.6, 0.8,1.0 according to the scores of 1, 2, 3, 4 and 5. In this study, we selected two enterprises, Sichuan Huahao Biotechnology Co., Ltd. and Chengdu Zhongke Meimei Medical Beauty Clinic Co., Ltd., to apply the evaluation index system of employee health management. By contacting the persons in charge of the relevant departments of the two enterprises, the health management status of the employees in the two enterprises was investigated by using the evaluation index system of employee health management constructed in this paper, and the score is shown in Table 7.

4.4. Discussion

This paper establish a evaluation index system of employee health management which been constructed by using Delphi expert method, Quartile difference method, Kendall's concordance coefficient method, andAnalytic hierarchy process method. It is the first time to use different statistical methods to determine the evaluation index, which can also be used in other fields except for employee health management. The construction of employee health management evaluation index system improves and supplements the human capital theory of employee health management,which is a theoretical innovation.

Table 5: Results of the First Round of Expert Consultation

Items	Average Value	Standard Deviation	Coefficient of	Quartile Difference
Management process	4.73	0.442	0.092	0.375
1. Health education and training	4.09	0.642	0.152	0.375
1.1 Diversity of health education and training forms	3.71	0.683	0.235	0.875
1.1 The richness of health education and training contents	4.06	0.685	0.168	0.375
1.3 Proportion of participating in health education and training	3.77	0.717	0.190	0.500
1.4 Times of health education and training per capita in a year	3.76	0.551	0.148	0.000
2. Health environment management	4.16	0.588	0.142	0.375
2.1 Qualified rate of environmental monitoring in workplace	4.32	0.919	0.220	0.500
2.2 Management of smoking control in workplace	4.22	0.718	0.168	0.500
2.3 The perfection of safety signs in the workplace	4.03	0.758	0.186	0.375
2.4 Supporting conditions of staff rest places	4.02	0.648	0.163	0.000
3. Security management	4.30	0.571	0.132	0.500
3.1 Number of safety management personnel	3.70	0.734	0.197	0.000
3.2 The perfection degree of safety facilities	3.90	1.118	0.286	0.375
3.3 Allocation of labor protection articles	3.94	0.844	0.215	0.375
3.4 Allocation of regular transport buses	3.76	1.021	0.276	1.000
4. Disease management	4.21	0.524	0.126	0.375
4.1 The perfection of the staff health risk assessment system	4.16	0.587	0.142	0.000
4.2 Diversification of disease prevention and control measures	3.59	0.566	0.142	0.000
4.3 Improvement of chronic disease management system	3.96	0.687	0.173	0.000
5. Stress and emotion management	4.61	0.502	0.108	0.500
5.1 Per capita working hours per week	4.01	0.725	0.182	0.000
5.2 The diversity of psychological consultation channels	3.92	0.788	0.201	0.370
5.3 Implementation of employee assistance program	3.95	0.685	0.173	0.375
5.4 Measurement frequency of employees' work stress	4.01	0.724	0.181	0.750
5.5 The richness of cultural and sports activities in Enterprises	3.96	0.686	0.173	0.375
6. Medical insurance management	4.29	0.469	0.108	0.500
6.1 Proportion of employees' social insurance	4.19	0.833	0.199	0.500
6.2 Proportion of employees' supplementary insurance	3.86	0.815	0.212	0.500
6.3 Proportion of participating in physical examination	4.26	0.638	0.150	0.500
6.4 Cost standard of annual welfare physical examination	4.09	0.553	0.136	0.000
6.5 Filing rate of employee health records	4.06	0.412	0.086	0.375
Management results	4.79	0.411	0.084	0.000
7. Health status of employees	4.43	0.511	0.116	0.500
7.1 Proportion of healthy employees undergoing physical examination	4.19	0.767	0.182	0.500
7.2 Absence rate of employees due to illness	4.01	0.648	0.163	0.000
7.3 Incidence rate of chronic diseases among employees	4.06	0.758	0.188	0.375
7.4 Incidence of serious injury to employees	4.01	0.796	0.198	0.375
8. Nonfinancial performance of enterprises	3.99	0.698	0.185	0.500
8.1 Corporate image	3.96	0.946	0.240	0.875
8.2 Employee loyalty	4.11	0.719	0.176	0.500
8.3 Employee satisfaction	4.29	0.658	0.154	0.500
8.4 Organizational climate	4.26	0.727	0.168	0.500
9. Financial performance of enterprises	4.10	0.788	0.191	0.500
9.1 Labor productivity per capita	3.86	0.746	0.192	0.375
9.2 Decrease rate of employee turnover expenses	3.91	0.815	0.212	0.500
9.3 Average annual reduction rate of medical and health care expenses of employees	4.26	0.638	0.151	0.500
9.4 Return for investment	4.02	0.837	0.209	0.375

Table 6: Results of the Second Round of Expert Consultation

Items	Average Value	Standard Deviation	Coefficient of Variation	Quartile Difference
1 Management Process	4.19	0.327	0.077	0.125
1.1 Health education and training	4.27	0.460	0.109	0.500
1.1.1 Richness of health education and training contents	4.16	0.617	0.149	0.500
1.1.2 Proportion of participating in health education and training	4.10	0.472	0.113	0.000
1.1.3 Number of hours per capita health education and training	4.00	0.470	0.116	0.000
1.2 Health environment management	4.27	0.462	0.108	0.500
1.2.1 Qualified rate of environmental monitoring in workplace	4.21	0.549	0.128	0.500
1.2.2 Smoking control in workplace	4.38	0.501	0.113	0.500
1.2.3 Perfection of safety signs in the workplace	4.06	0.538	0.132	0.000
1.2.4 Supporting conditions of staff rest places	4.05	0.538	0.133	0.000
1.3 Security management	4.38	0.501	0.113	0.500
1.3.1 Proportion of security administrators in all employees	4.18	0.470	0.113	0.000
1.3.2 Allocation of safety facilities	4.21	0.427	0.102	0.125
1.3.3 Allocation of labor protection articles	4.16	0.617	0.147	0.500
1.4 Disease management	4.23	0.426	0.101	0.125
1.4.1 Perfection of the staff health risk assessment system	4.27	0.462	0.109	0.500
1.4.2 Diversification of disease prevention and control measures	4.10	0.472	0.116	0.000
1.4.3 Improvement of chronic disease management system	4.16	0.382	0.093	0.000
1.5 Stress and emotion management	4.12	0.501	0.121	0.500
1.5.1 Per capita working hours per week	4.18	0.515	0.124	0.125
1.5.2 Diversity of psychological consultation channels	4.29	0.576	0.133	0.500
1.5.3 Implementation of employee assistance program	4.12	0.472	0.116	0.000
1.5.4 Richness of cultural and sports activities in Enterprises	4.23	0.428	0.101	0.125
1.6 Medical insurance management	4.25	0.426	0.101	0.125
1.6.1 Proportion of social insurance	4.27	0.576	0.133	0.500
1.6.2 Proportion of supplementary medical insurance	4.12	0.582	0.143	0.125
1.6.3 Proportion of participating in physical examination	4.38	0.609	0.137	0.500
1.6.4 Cost standard of annual welfare physical examination	4.29	0.362	0.083	0.500
1.6.5 Ratio of employee health records	4.23	0.549	0.131	0.500
2. Management Results	4.82	0.382	0.0803	0.000
2.1 Health status	4.43	0.512	0.114	0.500
2.1.1 Proportion of undergoing physical examination	4.38	0.662	0.152	0.500
2.1.2 Absence rate of due to illness	4.18	0.382	0.093	0.000
2.1.3 Incidence rate of chronic diseases	4.05	0.618	0.153	0.125
2.1.4 Incidence of serious injury	4.01	0.593	0.148	0.125
2.2 Non financial performance	4.03	0.601	0.149	0.000
2.2.1 Corporate social reputation	4.05	0.525	0.130	0.250
2.2.2 Employee loyalty	4.27	0.628	0.146	0.125
2.2.3 Employee satisfaction	4.32	0.593	0.138	0.500
2.2.4 Organizational climate	4.27	0.598	0.134	0.500
2.3 Financial performance	4.32	0.595	0.137	0.500
2.3.1 The increase of per capita labor productivity	3.99	0.613	0.154	0.000
2.3.2 Decrease rate of turnover expenses	4.05	0.638	0.132	0.125
2.3.3 Average annual reduction rate of medical and health care expenses	4.27	0.568	0.132	0.500
2.3.4 Return for investment	4,16	0.617	0.149	0.500

Table 7: Health Management Evaluation of Employees in Two Enterprises

		Evaluation index	Hua Hao	Zhong Ke
1	1.1	1.1.1 Richness of health education and training contents	3	2
		1.1.2 Proportion of participating in health education and training	62%	52%
		1.1.3 Number of hours per capita health education and training	3	2
	1.2	1.2.1 Qualified rate of environmental monitoring in workplace	5	4
		1.2.2 Smoking control in workplace	4	5
		1.2.3 Perfection of safety signs in the workplace	5	2
		1.2.4 Supporting conditions of staff rest places	5	2
	1.3	1.3.1 Proportion of security administrators in all employees	4	5
		1.3.2 Allocation of safety facilities	5	4
		1.3.3 Allocation of labor protection articles	5	5
	1.4	1.4.1 Perfection of the staff health risk assessment system	3	2
		1.4.2 Diversification of disease prevention and control measures	1	1
		1.4.3 Improvement of chronic disease management system	3	1
	1.5	1.5.1 Per capita working hours per week	2	5
		1.5.2 Diversity of psychological consultation channels	4	4
		1.5.3 Implementation of employee assistance program	3	3
		1.5.4 Richness of cultural and sports activities in Enterprises	5	5
		1.5.4 Richness of cultural and sports activities in Enterprises	3	3
	1.6	1.6.1 Proportion of social insurance	86%	100%
		1.6.2 Proportion of supplementary medical insurance	86%	100%
		1.6.3 Proportion of participating in physical examination	91%	96%
		1.6.4 Cost standard of annual welfare physical examination	3	3
		1.6.5 Ratio of employee health records	89%	78%
2	2.1	2.1.1 Proportion of undergoing physical examination	78%	76%
		2.1.2 Absence rate of due to illness	4.8%	3.8%
		2.1.3 Incidence rate of chronic diseases	8.2%	16%
		2.1.4 Incidence of serious injury	0.8%	0.3%
	2.2	2.2.1 Corporate social reputation	83%	76%
		2.2.2 Employee loyalty	75%	58%
		2.2.3 Employee satisfaction	79%	67%
		2.2.4 Organizational climate	85%	82%
	2.3	2.3.1 The increase of per capita labor productivity	41%	25%
		2.3.2 Decrease rate of turnover expenses	13%	12%
		2.3.3 Average annual reduction rate of medical and health care expenses	33%	28%
		2.3.4 Return for investment	16%	12%

Note: 1 means Management proces ; 2 means Management results ; 1.1 means Health education and training; 1.2 means Health environment management; 1.3 means Security management; 1.4 means Disease management; 1.5 means Stress and emotion management; 1.6 means Medical insurance management; 2.1 means Health status; 2.2 means Non financial performance; 2.3 means Financial performance. Huahao means Sichuan Huahao Biotechnology Co., Ltd; Zhongke means Chengdu Zhongke Meimei Medical Beauty Clinic Co., Ltd.

In the published papers from Baidu scholar, most of the researchers do not establish a practical assessment system, only report some indicators. Chang (2019) reported health management cognition of employees in Shanghai enterprises. This paper only study health examination, health knowledge lectures, mental health management, health consultation, health records, chronic disease management and lifestyle guidance and intervention, no systems can be found. The practical test of the employee health management evaluation system was carried out by two enterprises in Chengdu, Sichuan, China, and got the satisfactory results. This indicator system is a set of operation tools, which can make the enterprise know the status of employee health management more clearly, and it can be used for guiding improve the level of employee health management.

5. Conclusion

This paper establish one employee health management system in enterprises. Delphi expert method is used to select the index, and the weight of the index is determined by AHP. By using the modified Delphi method, the evaluation index system of enterprise employee health management is constructed combining qualitative and quantitative methods, including 2 first level indexes, 9 second level indexes and 34 third level indexes. Through the data analysis of two enterprises, the feasibility of health management evaluation index system is verified.

Limited by time, resources and knowledge level, the following limitations exist in this study. Firstly, the research takes Delphi method as the index selection method, and AHP as the method to determine the index weight. The coordination coefficient of experts and the consistency test results of judgment matrix are all good, so the establishment process of index system is reasonable. But the disadvantage is that the two methods selected are subjective method, which is not fully in line with the ideal index system construction method combined with subjective and objective view. Secondly, this study only selected two enterprises to study the application of index system, without large sample test, the evaluation results are only for reference. There are differences in employee health management in different industries and types of enterprises. If we can select more different types of samples, we can make the score results of different types of enterprises in different industries into normal distribution, so that each enterprise participating in the evaluation can understand their own level.

Future research should increase the number of sample enterprises, modify, improve and perfect the index system according to the research results. Expand the depth of research, track and record the representative enterprises, explore the investment return cycle of employee health management, make quantitative analysis on the improvement of health management and productivity, and more accurately measure the economic benefits of enterprise employee health management.

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