Research on Key Competency Elements of an Excellent Front-Line Health Inspector

Yan Liu[1]*, Chunhong Zhou[1]*, Xiaoling Chen[1], and Yuzhong Yan[2] (iD)

Abstract

In order to find out the competency elements of excellent front-line health inspector, and to improve the comprehensive quality and law enforcement level, we conducted this study. Firstly, key Behavior Event Interview (BEI) was used to find out the competency elements of front-line inspector. From May to September in 2020, 7 health inspectors engaged in front-line inspection and law enforcement work in the Pudong New Area Health Inspection agency were interviewed by using the method of key Behavior Event Interview (BEI). Meanwhile, the competency differences of front-line personnel with different performance levels were compared by analyzing the difference of the average grade score, the highest grade score and so on of inspectors in different performance groups. Then the method of expert consultation was used to verify the rationality of the extracted competency elements. Combined with the results of expert consultation and the results of key Behavior Event Interview (BEI), the prominent competency elements of excellent front-line health inspector were found out. The total 6 prominent competency elements were investigation and evidence collection ability, on-site control ability, legal awareness, career love, communication and coordination ability, teamwork ability. Cohen's Kappa coefficient of the 2 coders was more than 0.6, which had high consistency. The key Behavior Event Interview (BEI) is scientific and reasonable method to find out prominent competency elements of excellent front-line health inspector, and the prominent competency elements found out will be helpful in the human resources planning and management of health inspection in the future.

Keywords

health, inspection, competency, behavior, interview

What do we already know about this topic?
Competencies refer to all the qualities that a person has to complete his own work in a specific job and organizational environment. These qualities can enable him to show excellent performance different from ordinary people. In the development of competency theory, it has gradually formed 2 different models: benchmark model and excellence model. Accordingly, benchmark competency and prominent competency are also generated.

How does your research contribute to the field?
Based on the previous research, this study obtained first-hand information through BEI and extracted the elements of prominent competency, and to provide a basis for better evaluation, assessment and training of excellent front-line health inspector.

What are your research's implications toward theory, practice, or policy?
It is conducive to understand the quality and ability of health inspection personnel, and select or train excellent front-line health inspection talents with potential, so as to meet the requirements of the development of health inspection. It is also helpful to improve the training system to focuses more on career planning, communication and coordination, team cooperation etc. instead of only on professional knowledge.

Introduction

The outline of "Healthy China 2030" points out that we should further promote the streamlining administration and delegating power, the combining of decentralization and management, and optimizing services in health-related fields. As the administrative law enforcement agency in the health industry, health inspection agency is required to constantly innovate health inspection modes and improve the capacity of inspection and law enforcement. Pudong New Area, which is

a leading area for modernization, the key to transform government functions and promote the innovative is to cultivate excellent health inspection and law enforcement personnel.

This study intends to find out the job competency elements of excellent front-line health inspector using Behavior Event Interview (BEI). Competencies refer to all the qualities that a person has to complete his own work in a specific job and organizational environment. These qualities can enable him to show excellent performance different from ordinary people.[1] In the development of competency theory, it has gradually formed 2 different models: benchmark model and excellence model.[2] Accordingly, benchmark competency and prominent competency are also generated.[3] The competency of excellent front-line health inspector in this study should belong to prominent competency. In the research of competency elements, BEI is commonly used, followed by questionnaire survey, expert consultation, and so on. At present, competency theory has been widely used in health service field,[4] but only a few studies using BEI in the field of health inspection, even fewer on the competency of excellent front-line health inspector due to the difference between health inspection and other fields of health industry. Based on the previous research, this study obtained first-hand information through BEI and extracted the elements of prominent competency, and to provide a basis for better evaluation, assessment and training of excellent front-line health inspector.

Object and Method

Research Object

Statistically speaking, to reduce the systematic error, it is best to cover all research objects.[5] Due to the health inspection work lord increasing because of Coronavirus disease 2019 (COVID-19) prevention and control and the tight project time, the study group used the simplified key BEI method. From May to September 2020, 7 health inspectors from the Pudong New Area health inspection agency of Shanghai city were selected as the research objects. Base on the consultation of experts from legal department and administrative department, inspectors with 3 simultaneous factor as following were selected as a member of high achievement group: the quality and quantity of annual administrative punishment cases completed as the first responsible person in recent 2 years ranked among the top 2 in the department; in recent

2 years, it has obtained the honorary title or reward of the agency level or above; engaged in health inspection for at least 3 years and ranked top 15% in recent 3 years annual assessment. Standard of inspectors of average achievement was as following: the quality and quantity of annual administrative punishment cases completed as the first responsible person in recent 2 years were at the ordinary level of the department; engaged in health inspection for at least 3 years; without serious errors or complaints.

Research Methods

Behavior Event Interview

In order to extract the competency elements of excellent front-line health inspectors, the researchers used the method of behavioral event interview.

Behavioral event interview (BEI) is an open behavioral retrospective exploration technology and the main tool to reveal competency. The main process is to ask the respondents to recall the key cases in which they feel the most sense of achievement (or frustration) in their work in the past 1 year (or more), including the description of the situation, the participants, the behaviors they actually took, the feeling and the results.[4]

Composition of Research Group

There were 6 members in the research group, including 1 university lecturer, 3 graduate students, 1 section chief, and 1 section member of the health inspection agency. From the perspective of professionalism and practicality, it provides an important guarantee for the smooth progress of the research.

Preparation of Competency Dictionary

Zhiming et al summarized the manager competency model, including 21 general competency elements,[6] which constitutes the basic content of the competency dictionary. These 21 competency elements summarize the characteristics of people's knowledge and skills, social roles, self-concept, traits, and motivation in daily life and behavior. On the basis of relevant literature review, the competency dictionary entries, 27 in total, of front-line health inspector are compiled by referring to McClellan competency dictionary and combining the previous research results,[7] as shown in Table 1.

[1]Pudong New Area Health Inspection Agency, Shanghai, China
[2]Shanghai University of Medicine & Health Sciences Affiliated Zhoupu Hospital, Shanghai, China

*These authors contributed equally.

Corresponding Author:
Yuzhong Yan, Shanghai Pudong New District Zhoupu Hospital, Zhouyuan Road No.1500, Pudong 201318, China.
Email: jykwsw@126.com

Table 1. Entries of Competency Dictionary of Front-line Health Inspection and Law Enforcement Personnel.

Category	Entry name
Knowledge	Professional knowledge, Legal knowledge
Skill Ability	Ability to produce law enforcement documents, Application of laws and regulations, Familiarity with the use of office software, Teamwork ability, Adaptability, Investigation and evidence collection ability, Communication and coordination ability, On-site control ability, Judgment, Inquiry skills, Analysis ability, On-site detection skills, Scientific research ability, Learning ability
Sense of worth	Honesty and integrity, Legal awareness, Justice awareness
Idiosyncrasy	Sense of responsibility, Initiative, Service awareness, Innovation awareness, Physical quality, Tenacity and Patience
Motive	Career love, Achievement tendency

Implementation of Behavior Event Interview

STAR rules, which means situation, task, action and result, are often used as a tool for interviewers to collect job-related specific information and abilities. In the design of the interview outline, the STAR rules[8] was used. By recalling 3 successful and 3 less successful key events in health inspection in the past 3 years, the respondents were asked to focus on the background of the event, relevant people, their own thinking and handling methods at that time and the final results.[9] In order not to occupy too much time of the respondents, we used simplified BEI, and the duration of interview was controlled in 30 to 50 minutes. In order to make the interview more smooth, we first conducted a pre interview and finally total 7 formal interview records were obtained.

Coding and Classification

The coding process was adhere to the double-blind principle.[10] Firstly, the research group selected a text randomly, and coded by 3 members respectively according to competency dictionary entries. We selected the 2 members with the same overall coding results as the formal coder. Each competency element is divided into 1 to 4 levels, and points are assigned according to the level. Level 1 is assigned 1 point, level 2 is assigned 2 points, and so on. The total frequency, total score, average score and highest score of each competency element were calculated. Total frequency equals to the sum of frequencies corresponding to each level of a certain competency element in the interview text; total score equals to the sum of the product of the score of each level and the frequency of the corresponding level; average score equals to total score divided by total frequency; highest score equals to the product of the highest grade score of a competency element in the interview text and its corresponding frequency.

Expert Consultation

The method of expert consultation is to verify the rationality of the extracted competency elements. Twenty-six competency items were compiled into a questionnaire for expert consultation and 20 experts selected the prominent competency elements that the excellent front-line health inspector should have independently.

Twenty experts who are department heads and health inspection experts were selected from the Shanghai health inspection field to select the discriminative competency elements that should be possessed by excellent front-line health inspector, and compared the results with the competency elements extracted by behavioral event interview, so as to make the results more convincing.

Statistical Methods

SPSS16.0 was used for statistical analysis, and Cohen's kappa coefficient was used to test the consistency of coding and classification. T test and Mann-Whitney U test were used to compare the high achievement group and average achievement group, with p less than 0.05 ($P < .05$) as the difference.

Results

General Information of 7 BEI Interviewees

Among 7 interviewees, there were 4 in the high achievement group and 3 in the average achievement group. There were 2 males and 5 females; 3 undergraduates and 4 masters; 3 junior and 4 intermediate for job title. The average age was 34.29 years, and the average number of years engaged in health inspection was 8.5 years.

According to the coding of the 2 members of the research group, "familiarity with the use of office software" was not coded, indicating that this competency element was not reflected in the text. Therefore, this competency element was removed and the remaining 26 competency elements were analyzed.

Analysis of Interview Length

The length of the interview can be reflected by the time consumption of the interview or the number of words in the text, and both variables are normally distributed. The purpose to test the difference of interview length between different

Table 2. Interview Length of Different Performance Groups.

Interview length	High performance group (n = 4)		Average performance group (n = 3)		t	P
	$\overline{\xi}$	s	$\overline{\xi}$	s		
Interview time (minutes)	39.00	10.03	43.30	6.66	−0.642	.549
Number of text words	3295.25	839.95	2993.00	387.19	−0.569	.594

performance groups, is to exclude the impact of interview length on the competency analysis of the 2 groups. The average interview time of the high achievement group was 39 minutes, and 43.3 minutes of the average achievement group; the average number of words in the interview text of the high achievement group was 3295.25 words, and 2993 words of the average achievement group. Two independent sample t-tests were conducted on the interview length of different performance groups, and there was no significant difference between groups (P values were .549 and .594 respectively, both greater than .05), indicating that the competency differences of different performance groups were not affected by the interview length, as shown in Table 2.

At the same time, by Spearman correlation analysis, it could be seen that when the 3 variables of average score, highest score and total frequency were adopted, only the application ability of laws and regulations was positively correlated with the number of words in the interview text 3 times (P values are all .019, all less than .05). See Table 3. Other competency elements were not affected by the number of words in the interview text, it showed that the 3 variables had good stability.

Coding Reliability Test

We used Cohen's kappa coefficient to test whether the coder's codes were consistent. As shown in Table 4, except for 1 coefficient value of 0.583, the others were above 0.60. According to Cohen's kappa coefficient consistency judgment standard, the coefficient value is between 0.61 and 0.80, which means that they have strong consistency. It could be seen that the coding consistency of the 2 coders was relatively high.

Analysis of Competency Difference

Difference Test of Mean Grade Score

The average scores of 26 competency elements in the high performance group and the average performance group were tested by normal distribution. Among them, 17 elements such as "legal knowledge," "application ability of laws and regulations" and so on did not conform to the normal distribution (Kolmogorov Smirnov test, $P < .05$), and other 9 elements conformed to the normal distribution (Kolmogorov Smirnov test, $P > .05$). Two independent sample t-tests were

conducted between the 2 groups of competency elements for the average scores conforming to the normal distribution. There were significant differences in the "investigation and evidence collection ability," communication and coordination ability", "on-site control ability," and "teamwork ability" (P values were .046, .044, .000, and .030, all less than .05). Mann-Whitney U test was conducted for the average scores of competency characteristics that did not conform to the normal distribution. There were significant differences in "career love" among different performance groups (P value was .022, less than .05). See Tables 5 and 6 for specific results.

Difference Test of Highest Grade Score

Normal distribution test was conducted for the highest grade scores of 26 competency elements in the high performance group and the average performance group. Among them, 16 items such as "legal knowledge," "the application ability of laws and regulations" and so on did not conform to the normal distribution (Kolmogorov Smirnov test, $P < .05$), and the other 10 items conformed to the normal distribution (Kolmogorov Smirnov test, $P > .05$). Two independent sample t-tests were conducted between the 2 groups of data conforming to normal distribution. There were significant differences in "investigation and evidence collection ability," "communication and coordination ability," "on-site control ability," "teamwork ability," and "career love" between different performance groups (P values were .004, .047, .000, .045, and .002, all less than .05), Mann-Whitney U test was conducted for the highest score of competency elements that did not conform to the normal distribution. There was no significant difference between the high performance group and the average performance group. See Table 7 for specific results.

Difference Test of Total Frequency

The total frequency of 26 competency elements in the high performance group and the average performance group was tested by normal distribution. Among them, 17 elements such as "legal knowledge," "the ability to make law enforcement documents" and so on did not conform to the normal distribution (Kolmogorov Smirnov test, $P < .05$), and the other 9 elements conformed to the normal distribution (Kolmogorov Smirnov test, $P > .05$). Similarly, 2 independent sample

Table 3. Correlation Analysis Between the Number of Words of Interview Text and Statistical Indicators of Competency.

Competency element	Highest score to the number of words		Average score to the number of words		Total frequency to the number of words	
	ρ	P	ρ	P	ρ	P
Professional knowledge	0.356	.434	0.541	.210	0.694	.083
Legal knowledge	0.134	.775	0.134	.775	0.512	.240
Ability to produce law enforcement instruments	−0.056	.905	−0.056	.905	0.000	1.000
Application ability of laws and regulations	0.837	.019	0.837*	.019	0.837*	.019
Teamwork ability	0.055	.907	0.472	.284	0.636	.124
Adaptability	0.131	.780	0.108	.818	0.218	.638
Investigation and evidence collection ability	0.154	.741	0.318	.487	−0.038	.936
Communication and coordination skills	0.401	.373	0.401	.373	0.474	.282
On site control capability	0.378	.403	0.255	.582	−0.474	.282
Judgment	0.408	.363	0.408	.363	0.408	.363
Inquiry skills	−0.134	.775	−0.134	.775	−0.158	.735
Analytical ability	−0.408	.364	−0.400	.374	0.318	.487
On site inspection skills	0.578	.174	0.512	.240	0.657	.109
Scientific research ability	0.154	.741	0.206	.658	−0.430	.335
Learning ability	0.472	.284	0.472	.284	0.132	.777
Honesty and integrity	−0.567	.184	−0.567	.184	0.243	.599
Legal awareness	−0.189	.685	−0.189	.685	−0.158	.735
Justice awareness	−0.179	.701	−0.179	.701	−0.179	.701
Sense of responsibility	0.099	.834	0.099	.834	0.179	.701
Initiative	0.056	.905	−0.127	.786	0.430	.335
Service awareness	0.386	.393	0.386	.393	0.340	.455
Innovation	0.000	1.000	0.000	1.000	0.000	1.000
Physical quality	−0.243	.599	−0.356	.434	−0.079	.867
Achievement tendency	0.000	1.000	0.000	1.000	0.000	1.000
Tenacity and patience	−0.632	.127	−0.579	.173	−0.668	.101
Career love	0.204	.661	0.204	.661	−0.433	.332

Table 4. Consistency of 2 Coders.

Text number	Cohen's Kappa coefficient for competency coding	Cohen's Kappa coefficient for grade score
1	0.819	0.705
2	0.783	0.583
3	0.777	0.645
4	0.834	0.648
5	0.876	0.762
6	0.850	0.700
7	0.964	0.895

t-tests were conducted on the total frequency of 9 competency elements conforming to the normal distribution. There were significant differences in "investigation and evidence collection ability," "on-site control ability," "legal awareness," and "career love" between different performance groups (*P* values were .039, .007, .018, and .007, all less than .05), Kruskal Wallis test was conducted on the total frequency of 9 competency elements that did not conform to the normal distribution. There was no significant difference between the high performance group and the average performance group. See Table 8 for specific results.

Analysis of Competency of Excellent Front-line Health Inspector

Based on the difference test results of the above 3 variables, for different performance groups, there were 5 competency elements with statistical differences in average grade scores

Table 5. Test for Difference of Average Score between the High Performance Group and the Average Performance Group (Elements Conforming to Normal Distribution).

Competency	High performance group (n = 4)		Average performance group (n = 3)		T/Z	P
	$\overline{\xi}$	s	$\overline{\xi}$	s		
Investigation and evidence collection ability	3.50	0.57	2.33	0.57	2.64	.046
Communication and coordination skills	3.37	0.47	1.50	1.32	2.68	.044
On site control capability	2.63	0.48	0.00	0.00	9.27	.000
Teamwork ability	3.75	0.50	2.58	0.52	3.01	.030

Table 6. Test for Difference of Average Score between the High Performance Group and the Average Performance Group (Elements Not Conforming to Normal Distribution).

Competency	High performance group (n = 4)		Average performance group (n = 3)		Z	P
	Median	Interquartile range	Median	Interquartile range		
Career love	3.00	0.75	0	0	−2.291	.022

Table 7. Difference Test of the Highest Grade Score between the High Performance Group and the Average Performance Group.

Competency	High performance group (n = 4)		Average performance group (n = 3)		t	P
	$\overline{\xi}$	s	$\overline{\xi}$	s		
Career love	3.50	1.00	0.00	0.00	5.92	.002
Investigation and evidence collection ability	4.50	0.58	2.33	0.58	4.91	.004
Communication and coordination skills	3.75	0.50	1.67	1.53	2.62	.047
On site control capability	2.75	0.50	0.00	0.00	9.30	.000
Teamwork ability	3.75	0.50	2.67	0.58	2.67	.045

Table 8. Test for Difference of Total Frequency Between the High Performance Group and the Average Performance Group.

Competency	High performance group (n = 4)		Average performance group (n = 3)		t	P
	$\overline{\xi}$	s	$\overline{\xi}$	s		
Investigation and evidence collection ability	4.25	1.50	1.67	0.58	2.78	.039
On site control capability	1.50	0.58	0.00	0.00	4.39	.007
Legal awareness	1.75	0.50	0.33	0.58	3.49	.018
Career love	1.50	0.58	0.00	0.00	4.39	.007

($P < .05$), there were 5 competency elements with statistical difference in the highest grade score ($P < .05$), there were 4 competency elements with statistical differences in the total frequency ($P < .05$), and the average value of the 3 variables for the high performance group was greater than that of the average performance group. It is concluded that the prominent competency elements of excellent front-line health inspector can include the following 6 items: "investigation and evidence collection ability," "on-site control ability," "legal awareness," "career love," "communication and coordination ability," and "teamwork ability," and the high performance group had higher value on all the 6 competency elements.

Results of Expert Consultation

The 20 experts for expert consultation included 16 experts from district health inspection agency, who are all heads of personnel departments, and 4 experts from municipal health inspection field, including 2 deputy directors of Shanghai Health inspection agency and 2 university professors majoring in health inspection. All 20 questionnaires were recovered and effective.

In the 26 competency elements that were compiled into a questionnaire, the selection frequency of "investigation and evidence collection ability", "on-site control ability", "legal awareness", "career love", "communication and coordination ability," and "teamwork ability" was all more than 80%,

ranking in the top 10. The expert consultation results were consistent with the results of BEI. It can be explained to a certain extent that the prominent competency elements of excellent front-line health inspectors extracted by BEI are scientific and reasonable.

Discussion

This study found out 6 prominent competency elements of excellent front-line health inspector through BEI, which were "investigation and evidence collection ability," "on-site control ability," "legal awareness," "professional love," "communication and coordination ability," and "teamwork ability." In the 6 competency elements, 4 were "skills" category, and the other 2 were respectively belong to "values" category and "motivation" category. The results indicate that health inspection is a highly practical work, and the prominent competency element of health inspector largely reflects his/her on-site law enforcement skills.

The ability of health inspection and law enforcement and the accuracy of law application are closely related to the sensitivity and judgment on evidence collection. With the emergence of various new business and the rapid development of the Internet, the difficulty of investigation and evidence collection also increases. Hongbin et al had pointed out that the investigation and evidence collection ability of health inspector in Shanghai could cope with daily work and was at the upper middle level, but there was still great gap for improvement. Only 11.8% of the respondents believed that the ability to collect evidence in the process of investigating and dealing with illegal acts was "very good,"[11] which is further proved that it is urgent to improve the ability of investigation and evidence collection.

On site control ability refers to the means to control the on-site situation, which tests the inspector's response ability in case of emergencies in the process of law enforcement. Excellent inspector can not only enforce the law, but also respond flexibly and appropriately to sudden and complex events to prevent further development. For example, in dealing with the illegal clinic, facing of the possible extreme behavior of illegal medical practitioners who evade inspection, good psychological quality, and on-site control ability are extremely important.

The health inspection agency is an administrative law enforcement department. With the improvement of citizens' awareness of safeguarding their rights according to law and the construction of a government ruled by law, good legal awareness can promote inspector to carry out inspection legally, to handle the cases within the legal framework, to remind themselves to standardize the use of power and hold the bottom line, and at the same time to avoid administrative litigation due to procedural mistakes, and to improve the efficiency of administrative law enforcement.

Career love is not only the completion of work tasks, but also a recognition and persistence of the work they are engaged in. Inspector full of professional love will have clear goals, be more diligent and aggressive when facing difficulties and setbacks, and play a positive role in promoting the development of health inspection.

Communication was extremely important in health inspection.[12] Smooth communication with the management objects helps to popularize legal knowledge and provide guidance, reduce the resistance, and enhance the understanding and support for health inspection, so as to improve the awareness of learning and abiding by the law. All of these are conducive to establish the good social image of health inspection.

Health inspection is a work that needs team cooperation. At least 2 inspectors are required to participate in the law enforcement process. The law enforcement process needs a clear division of labor and mutual assistance. Therefore, excellent teamwork ability can maximize the efficiency.

Conclusions

The research on public health competency model abroad has become mature. The competency model structure public health field is mainly divided into 2 parts: benchmark competency and prominent competency, with an average of about 7 dimensions. However, research in China is still in the primary stage, and there is no unified standard for the key competencies of public health,[13] and fewer documents related to the post competency in the field of health inspection. Although Yachao et al[14] constructed the competency model of health inspection in 2014, they did not distinguish the difference between prominent competency and benchmark competency.

The prominent competency elements of excellent front-line health inspector refers to those elements that can make the inspector superior. This study find out the prominent competency elements of excellent front-line inspectors different from average qualified inspectors, which will play a guiding role in the human resources planning and management of health inspection in the future. On the one hand, it is conducive to understand the quality and ability of health inspection personnel, and select or train excellent front-line health inspection talents with potential, so as to meet the requirements of the development of health inspection. On the other hand, it is helpful to improve the training system to focuses more on career planning, communication and coordination, team cooperation etc. instead of only on professional knowledge.

Limitation

However, the research process based on BEI inevitably contains many subjective factors. How to objectively verify the research results in practice needs further exploration.[5] At the same time, due to the limitations of manpower and time, the number of objects interviewed for behavioral events was

relatively few, and the interview time was not long enough. The interview was only carried out in the Health Inspection Agency in Pudong New Area, although it is the relatively big and representative health inspection agency in China, the representativeness is still not enough. And the research results will be continuously adjusted and improved from the practice of health inspection human resource management in the near future.

Author Contributions

ZC and YY contributed to conception and design of the study. LY conducted data acquisition. LY and CX carried out data analysis. LY contributed to interpretation of data. LY, ZC, and YY drafted the manuscript. YY revised the manuscript. All the authors read and approved the final manuscript.

Data Availability

The datasets generated and/or analyzed during the current study are not publicly available due to privacy but are available from the corresponding author on reasonable request.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

Ethical Approval

The study was approved by the research ethics committee of Gongli Hospital of Shanghai Pudong New Area (GLYYls2018-11). All procedures performed in studies involving human participants were in accordance with the ethical standards of the Declaration of Helsinki. Participants were instructed to read the consent form to ensure they fully understood the study's purpose and procedures, and the risks and benefits of participating in it. They were assured that their data would be kept confidential and anonymous.

ORCID iD

Yuzhong Yan https://orcid.org/0000-0002-9537-8377

References

1. Spencer LM, Spencer SM. *Competence at Work: Models for Superior Performance*. John Wiley; 1993.
2. Ministry of Education, Ministry of Health. *Opinions of the Ministry of Education and Ministry of Health on Implementing the Education and Training Plan for Excellent Doctors*. Ministry of Education, Ministry of Health; 2012.
3. Chongde L, Jiang Z, Desheng W, et al. *Encyclopedia of Chinese Adult Education: Society and History*. Nanhai Publishing Company; 1994.
4. Wei Y, Wang F, Pan Z, et al. Development of a competency model for general practitioners after standardized residency training in China by a modified Delphi method. *BMC Fam Pract*. 2021;22(1):171. doi:10.1186/s12875-021-01508-7
5. Defang L. Research on competency model of Principals of Higher Vocational Colleges based on Behavioral Event Interview. *China Higher Educ Res*. 2015;7:96-101.
6. Zhiming W, Jianmin S, Wu X, et al. *Theoretical and Empirical Research on Personnel Evaluation*. China Machine Press; 2009.
7. Chunhong Z, Xiaoling C, Liu Y, et al. Study on post competency of front-line Health Inspection and law enforcement personnel in Pudong New Area of Shanghai. *Occup Health*. 2020;36(12):1712-1715.
8. Jianfeng P, Xiaojuan J. *Design of Employee Quality Model*. China Renmin University Press; 2003.
9. Jianhua L, Huigen H, Xiaodan L, et al. Construction of competency model of clinical nurses with acute and critical diseases based on behavioral event interview. *Modern Clin Nurs*. 2017;16(4):1-6.
10. Chang F, Na S, Juncheng L, et al. Study on competency model of statisticians in tertiary hospitals in Shandong Province. *Med Soc*. 2015;28(05):13-16.
11. Hongbin X, Xiaoyan HE, Zhang F, et al. Analysis on the current situation of Investigation and evidence collection ability of Health Inspector in Shanghai. *Chin J Health Inspect*. 2012;19(4):340-344.
12. Cunxi Z, Xiaoming F, Gefei W, et al. On five basic abilities of Health Inspector. *Chin J Health Inspect*. 2008;15(3):196-198.
13. Shi L, Chunmei Y, Chen Z, et al. Review and reference of competency model in public health field at home and abroad. *Chin Publ Health Admin*. 2017;33(2):185-187.
14. Yachao Z, Lihua F, Wang G, et al. Study on the construction of competency model of health supervisors based on factor analysis. *Chin Health Manag*. 2014;31(1):28-30.