

# Explaining the model of maintaining human resources in crisis situations (Covid-19–The study of Qom municipality)

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## Abstract

The purpose of the current research is to explain the model of maintaining human resources in the critical conditions of Covid-19 in Qom municipality. This is an applied research, and in terms of method, it is descriptive-correlation. The statistical population of the research includes all managers and employees of Qom Municipality, in the number of 3700 people, of which 348 people were selected as a statistical sample based on Cochran's formula and selected by simple random. Data were collected through a researcher-made questionnaire. In order to ensure the existence or non-existence of a causal relationship between the research variables and to check the suitability of the observed data with the conceptual model of the research, the indicators and items of maintaining human resources in the critical conditions of Covid-19 were tested using the structural equation model. In this research, structural equation modeling and partial least squares (PLS) methods have been used to test and fit the model. According to the findings of the research, the validity of all indicators and items of human resource maintenance in the critical conditions of Covid-19 was confirmed. The results showed that the t value of the indicators of maintaining human resources in the critical conditions of Covid-19 in Qom municipality is more than its critical value at the level of 5 percent (1.96) and therefore the validity of the indicators and items of maintaining human resources in the critical conditions of Covid-19 It was approved in Qom Municipality. Also, according to the results of the structural model tests, it can be said that the indicators and issues of maintaining human resources in the critical conditions of Covid-19 have a good explanatory power in the research model. The research model has a very good validity and fit.

Keywords: critical conditions, critical conditions of Covid-19, maintaining human resources, maintaining human resources in critical conditions

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## 1 Introduction

In late December 2019, a new and widespread disease, COVID-19, began in China and rapidly spread worldwide, and on March 11, 2020, the World Health Organization declared it a pandemic [6]. Diseases are not alien to human society. The 2019 coronavirus disease is very terrifying due to its high infectious capacity and global coverage. Attacking people of every color, race and age who represent the human resources of organizations and countries violates geographical boundaries. When employee health is compromised, productive activities within an organization

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and nation will suffer. The large amount of goods and services produced by organizations is reduced. As a result, it causes low labor mobility, low recruitment, poor human resource planning, reduced wages and salaries, frustration with the work contract, and dismissal [19]. Human resource management must manage human resources during a crisis in order to ensure business continuity. As COVID-19 and similar crises create digital, flexible, and remote-friendly work norms, changes in policies, processes, workspaces, collaboration systems, and employee health are of urgent importance [16].

The historical challenge of Covid-19, due to the exceptional and uncertain conditions and changing economic landscape, requires deep thinking and flexibility for the proper management of human resources [1]. Today, in the global work environment, the cost of hiring, and maintaining human resources in an organization is so high that their loss due to illness causes huge damage to the financial resources of the organization. This disease can disable the organization's human resources so that they cannot perform their duties on time and finally, it may lead to loss of employees and the death of the organization, forcing the organization to provide alternative resources [13]. The quarantine caused by the Covid-19 pandemic has prevented human resources from performing their duties in the organization. This leads to low productivity and as a result, most organizations are forced to cut costs through salary cuts, under-recruitment, inadequate human resource planning and finally layoffs if the pandemic is not contained in time, causing some organizations to close [2].

Therefore, in the current crisis, the safety, health and well-being of employees is the concern of many organizations [15]. In fact, employees are one of the main factors in the formation, development and implementation of organizational operations. Effective performance and employee engagement ensure efficiency, which ultimately increases productivity, sales growth, and profitability, and reduces employee turnover [21]. Human resource managers are responsible for hiring people, managing performance, employee salaries and benefits, as well as developing and revising the classification of employees, looking for creative and effective ways to solve employee problems and maintaining their health, supporting them and retaining employees by creating a reliable management strategy [14]. Overall, the Covid-19 pandemic has created an urgent need for HR managers to think of new ways to adapt to challenging times. Telecommuting is one of the new emerging methods that most organizations use as a way to maintain smooth operations and quality customer service [22]. According to the explanations provided, it can be said that the main characteristic of crises is their impersonality, which causes decision-makers to be in a situation of anxiety and confusion. The global crisis of the coronavirus has emerged in various fields, which, due to the lack of similar experience, has endangered not only the government and the medical industry but also organizations in all sectors, especially service sectors, including Qom Municipality. From the statistics collected from the mentioned sources, it is clear that the most damage was done to the human resources working in Qom municipality, which often led to them losing their jobs. For example, the frontline employees of Qom municipality had to provide services around the clock. Many people were forced to work telecommuting, which requires adapting to the requirements of online and virtual work. Many people lost their jobs due to the decrease in the volume of services and productions of organizations. These conditions are very different from the normal conditions before the Covid-19 crisis, in which human resource management was solely responsible for developing strategic human resource plans with a focus on increasing organizational productivity. In a situation where the human resource management system is ineffective in managing this shock and crisis, adapting to these shocks requires having skilled, efficient and sufficient human resources. The challenge faced by local organizations during the Corona crisis, and Qom Municipality at the head of them, was the preservation of human resources. On the other hand, the non-availability of the necessary facilities and equipment for the development and empowerment of Qom Municipality's human resources in times of crisis led to a high degree of uncertainty, aggravation of disorder, a sense of lack of control, emotional disorders of employees, etc. Integration between the processes of human resources management and crisis management due to reasons such as emphasis on relations with human resources, the presence of various stakeholders, the need for senior management to focus on human resources issues in crises, influencing the entire organization, having a fixed model and the existence of emerging processes is an essential matter that should be taken into consideration in the preservation of human resources in the critical conditions of Covid-19. Qom municipality managers, if they adopt a strategic approach to maintaining human resources in critical conditions, while intelligently analyzing the internal and external conditions that have the potential to disrupt the normal process of the Qom municipality, will provide such a capability that they can easily manage critical conditions such as Covid-19 and return to the normal situation. For this reason, creating a link between human resource management processes and crisis management is an essential matter that has been given less attention. Based on this, it can be concluded that it is necessary to study the maintenance of human resources in the critical conditions of Covid-19 and provide a comprehensive and strategic model in this field considering the dependence of the organization's survival and profitability on the effective management of human resources in crises, developing a model for crisis management that is aligned and coordinated with the human resources preservation system will be of great importance. In general, in this research, we are trying to show the strengths and weaknesses of Qom municipality in implementing the human resources

maintenance system in crises like Corona, so that we can witness some kind of transformation and rehabilitation in this sector and by relying on our equipment in human resource management and the necessary infrastructure, we can deal with critical situations like Corona in Qom Municipality and carry out the missions, including maintaining human resources in the era of Corona. Because if we have shortcomings in this way, we will see the consequences in the organizational functions. Therefore, we must provide conditions so that we can successfully overcome this crisis while reducing costs.

In this regard, the main question of the present research is raised as follows:

What is the model of maintaining human resources in the critical conditions of Covid-19 in Qom Municipality?

## 2 Theoretical foundations of research

### 2.1 Human resource maintenance

Today, maintaining human resources is considered the main problem of the organization. In addition to this, the role and importance of these resources in the development of the organization has caused intense competition to attract talented and competent people between organizations. Therefore, one of the most important management issues and decisions is to maintain and employ the most qualified people in each job [11]. Attracting and maintaining human resources is a set of management measures and actions that enable the fields of staying and maintaining human resources in the organization. Maintaining the security, morale, interest and specialized ability of people is called maintenance. Retention is a process in which the management tries to increase the willingness of employees to continue serving in the organization by using factors such as effective payment system, training and improvement, promotion based on merit and providing comfort facilities and appropriate services and maintenance is creating a favorable employment situation for employees so that they are not willing to transfer to another organization [9]. Employee retention is a combination of specific programs and procedures through which organizations can retain their talent for a longer period of time. This function of human resources is a systematic effort in designing programs and actions that encourage them to stay by providing a suitable environment to meet the needs of employees [25]. A comprehensive employee retention program can play a vital role in both attracting and retaining key employees and reducing turnover and related costs. All these contribute to organizational productivity and overall business performance. Retaining a quality employee is more efficient than hiring, training and directing a replacement employee of the same quality [20]. In general, human resource management has functions, one of the most important of which is the maintenance of employees. Employee retention is closely related to the organization's performance management system. Keeping employees in the organization is not only physical aspect, but also the active presence and movement of the organization's employees within it and their coordination and alignment with the organization's policies and strategies, and in a sense, their involvement with the work and job and related issues. In other words, maintaining the employees of organizations has wider dimensions than connecting people with the rights and benefits received or providing health and safety in the work environment [17].

### 2.2 Crisis

Crises include events that can be characterized by various forms of "destruction". They are unexpected, unplanned, unimaginable, unprecedented, uncertain, undesirable, unpleasant, and often uncontrollable. A crisis is defined as a period of time during which a community of people including an organization, a city, or a nation perceives an immediate threat to core values or vital functions, which must be dealt with [28]. In general, a crisis is an unplanned event that may cause the disintegration of the organization's structure and threaten its survival and in addition to affecting the organization's employees, it also affects the key stakeholders outside the organization. It may also affect the honesty and correctness of the organization from the perspective of different people. On the other hand, crisis can be considered both a danger and an opportunity. It can have both positive and negative results and be an opportunity to change or learn. This opportunity can be an opportunity to identify warning signals before they occur and change them for the benefit of the organization [23]. Crisis management involves forecasting and planning, directing staff, and working together to control a crisis. Crisis management oversees the five components of organization, communication, decision-making, recognition of crisis factors and design [7]. Crisis management is an applied knowledge during which, by systematically observing crises and experiencing and analyzing them, it is possible to take necessary precautions and in case of crisis, to reduce the effects, take immediate measures and improve and restore the situation [27]. Crisis management is a systematic and dynamic process that includes the stages of prevention, preparation, response and recovery. To overcome the crisis, the management of the organization needs special tools of that organization, but in all organizations, human capital is a common factor that helps the management of the organization in the face of crisis [8].

### 2.3 Maintaining human resources in the Covid-19 crisis

Proper implementation of crisis management requires efficient human resources. Capable human resources can design, adjust and compile a comprehensive crisis management program with an analytical approach. It should consider differentiating the necessary plans in the stages before, during and after the crisis and strive for their timely implementation. The brain of an organization is its human capital. The more appropriate skills, expertise, capabilities and competencies this capital has, the better it will perform in the face of crises. Research shows that the human element such as effective leadership, coordinated teams and motivated employees can have a great effect in preventing and influencing the crisis [8]. The study of human resource management in times of crisis requires the analysis of the co-evolution of the causes of decline, the rotational reactions of the organization, human resource strategies, internal employment practices and relations. Employment relations strategies suggest that crisis responses must constantly evolve [24]. Based on the crisis, organizations must act quickly to respond to the crisis and ensure continuity. In addition, businesses must consider the strategic aspects of crisis and related recovery from the perspective of a dynamic environment. In this context, human resource management is critical to ensure that the organization is not disrupted after a crisis. Organizational processes and the environment may change in response to the situation. In addition, human resource management and wider organizational practices may also be affected. As a result, management will be required to innovate and adapt to new processes and techniques to help employees and business [3].

On the other hand, human resource specialists are responsible for managing human resources during this crisis. Because human resource management policies and practices can directly affect the behavior and performance of employees. The Covid-19 pandemic has created difficult conditions for human resource management. Therefore, HR should review its previous policies in the context of the new Covid-19 norms. In the midst of the pandemic, HR managers are facing challenges especially in employee retention and engagement, employee health and well-being, boosting morale, restoring productivity and motivation, skill management, and more. In addition to their regular duties, HR managers are looking for innovative and effective ways to solve employee problems and provide additional support to deal with the current scenario [5].

### 2.4 Research background

Azimi Ghadikolaei et al. [10] in a research entitled "Presenting the Model of Human Resources Recruitment and Retention of Medical Sciences Universities of Mazandaran Province in the Conditions of the Covid-19 Disease Epidemic" reached the conclusion that in order to preserve and maintain human resources, the senior managers of medical sciences universities should pay attention to the categories that are effective in preserving human resources so as not to face a shortage of human resources. Safari et al. [25] in a research entitled "Antecedents of human resource maintenance with an emphasis on the role of job integration: a mixed meta-study" reached the conclusion that the components of joint creation include different layers that were identified in the form of 5 categories of individual factors, occupational factors/occupational environment, support measures, leadership, and context. Azimi Ghadikolaei et al. [9] in a research entitled "Identification of the factors affecting the retention of human resources in universities of medical sciences in Mazandaran province during the crisis (Covid 19)" reached the conclusion that 11 components of recruitment or talent acquisition operations, volunteer forces, selection operations, distribution operations, human resource socialization operations, service compensation system, organizational support, quality of work life, safety and health, guidance and counseling and leadership are effective in attracting and maintaining human resources of Mazandaran University of Medical Sciences in crisis conditions (Covid-19 outbreak). Bayat et al. [11] in a research entitled "Designing and explaining the sustainability model of active human resources based on justice" reached the conclusion that the factors of justice-based manpower sustainability for the electricity distribution company of Alborz province are individual factors, internal organizational factors, external organizational factors, environmental factors, sense of commitment and sense of justice. Also, extra-organizational, intra-organizational and individual factors have an effect on the sense of justice. The environmental factor also plays a moderating role in the relationship between the maintenance of human resources and the sense of justice. Shahvazian and Hashemi Gheinani [26] in a research titled "Challenges of human resource management during the transition from the Corona crisis and providing a solution in Iran's hotel industry" found that the causal conditions of this research at the extra-organizational level are the highly damaging nature of the Covid-19 pandemic, at the organizational level, economic problems and weak organizational and communication skills of human resource management, and at the individual level, the weak perceptive skills of human resource management. Beheshtifar et al. [12] in a research titled "Recognition and analyzing strategic factors of human resources retention in NAJA" came to the conclusion that the strategic factors of maintaining the human resources of the police organization include the three main dimensions of employee health, employee satisfaction, and the willingness of employees to continue working with the organization and nine sub-codes include physical health, mental health, job satisfaction, satisfaction with managers, satisfaction with the organization, commitment,

development opportunities, livelihood and balance between work and life of employees. Hosseinian and Shariati-Jam [18] in a research entitled "Development of Human Resources Maintenance Process Strategy" came to the conclusion that in the process of maintaining human resources, the organization in question has a relative weakness in terms of the internal environment and is facing a relative threat in terms of the external situation. Therefore, in order to fulfill its mission and goals, in the process of maintaining human resources, while avoiding threats from the external environment, it is necessary to remove the weaknesses of the internal environment and turn it into a strength and by emphasizing the extracted defensive strategies, move the current situation of the human resources maintenance process towards an offensive strategy during future plans.

Kalogiannidis [19] in a study entitled "The Impact of Covid-19 on Future Marketing and Human Resource Management Practices" found that the dynamic work has changed from the traditional way of working from an organization's location to telecommuting. Consequently, to cope with the current changing times, an organization must adapt to new emerging telecommuting technologies and implement strategic policies and procedures to maintain a steady flow. Azizi et al. [6] in a research entitled "Innovation in human resource management during the covid-19 pandemic with a systematic review of studies" found that the Covid-19 pandemic has brought countless adverse consequences, including economic shock, global health crisis, changing social behaviors, and challenges at the organization level to continue business operations. Alonge [4] in a study entitled "Covid-19 Pandemic and Human Resource Management in Nigeria in the Retail Sector" concluded that when employee health is compromised, productive activities within an organization and the nation will suffer. Using a secondary source of data, it was found that a large amount of goods and services produced by organizations were reduced. As a result, it causes low labor mobility, low recruitment, poor human resources planning, reduction of wages and salaries, frustration with the work contract and dismissal.

## 2.5 Research methodology

The current research is applied in terms of purpose, and descriptive in terms of correlation type. The statistical population of the research includes all managers and employees of Qom municipality, with a number of 3700 people, and the size of the statistical sample was estimated to be 348 people based on simple random sampling and according to Cochran's formula. The tool of data collection in this research is a researcher-made questionnaire. The analysis of the research data was done using structural equation modeling based on PLS3 software, the results of which are presented in the research findings section. To calculate the validity of the research tool, face validity was used, which was approved by professors and experts. In order to analyze the reliability of the research tool, Cronbach's alpha coefficient has been used, the results of which are as described in Table 1.

Table 1: Determining the Reliability of Research Tools (By Cronbach's Alpha Method)

Variables	Cronbach's Alpha coefficient (Cronbach's Alpha > 0.7)
Establishing timely guidelines for employee retention	0.934
Redefining the duties, relationships and perception of employees	0.944
Adopting appropriate operational policies	0.890
Adopting human resource maintenance policies appropriate to the crisis	0.942
Digital environment	0.908
Upgrading information technology infrastructure	0.903
Electronic human resource management	0.822
Smartening of administrative processes	0.961
Designing a service compensation system	0.725
Financial support	0.909
Setting financial strategies	0.906
Attention to the mental health and safety of employees	0.924
Compassionate actions	0.922
Implementation of employee welfare plan	0.936
Psychological support	0.973
Strengthening relationships between people at work	0.901
Development of communication systems	0.853
Development of communication management systems	0.921
Strategic sensitivity	0.720
Behavioral flexibility	0.902
Adaptability to critical conditions	0.878

According to table 1, as can be seen, Cronbach's alpha coefficient has a suitable value and the reliability of the research tool is confirmed.

### 3 Research findings

In order to ensure the existence or non-existence of a causal relationship between the research variables and to check the suitability of the observed data with the research model, they were tested using the structural equation model. In this research, structural equation modeling and partial least squares (PLS) method have been used to test and fit the model. The output of the software after testing the research model is shown in Figures 1 and 2. In the following, the results of the two parts of the measurement model test and the structural model test are presented.

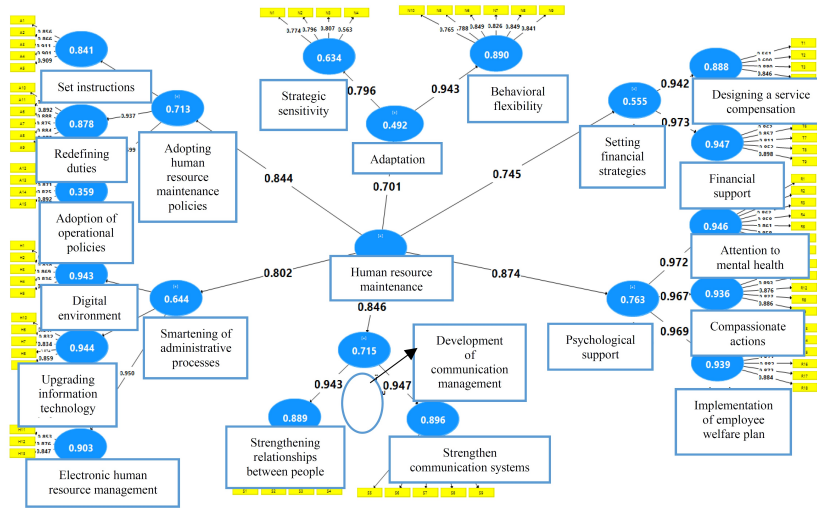


Figure 1: Research Model in Standard Coefficient Estimation Mode

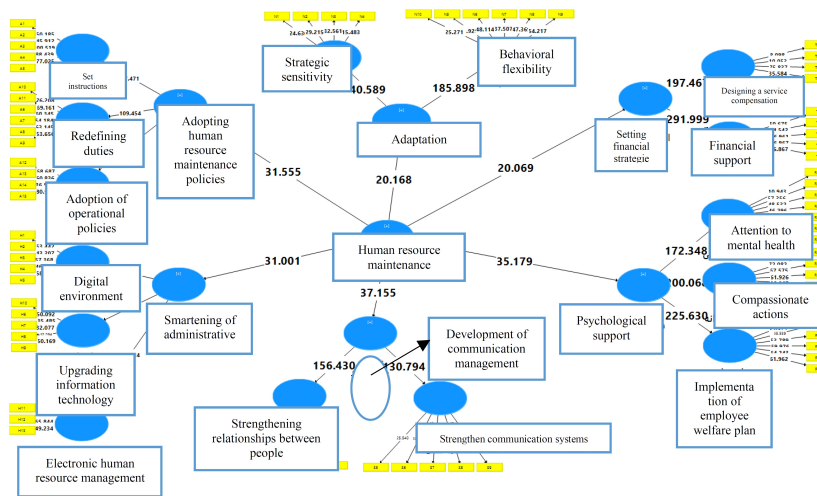


Figure 2: Research Model in the Significance Mode of Coefficients

#### 3.1 Reliability tests of research measurement model

To measure the reliability of the model, at least 4 tests must reach the permissible limit and the results accepted by the experts. The results of the reliability tests are given in Table 2.

To measure the reliability of the model, four Cronbach's alpha tests, composite reliability, Spearman's correlation coefficient and shared reliability have been used. According to the findings of Table 2, these criteria have adopted a suitable value for the variables of the research. Based on this, it is possible to confirm the appropriateness of the reliability of the research.

Table 2: The Results of the Reliability Tests of the Research Variables

Variables	Cronbach's Alpha coefficient (Cron- bach's Alpha > 0.7)	Combined reliability coefficient ( $CR > 0.7$ )	Spearman corre- lation coefficient ( $Rho - A > 0.7$ )	Reliability coefficient (Communality > 0.5) co- shared
Establishing timely guidelines for employee retention	0.934	0.950	0.935	0.791
Redefining the duties, relationships and perception of employees	0.944	0.956	0.942	0.782
Adopting appropriate operational policies	0.890	0.924	0.897	0.751
Adopting human resource maintenance policies appropriate to the crisis	0.942	0.950	0.948	0.568
Digital environment	0.908	0.931	0.909	0.731
Upgrading information technology infrastructure	0.903	0.928	0.904	0.721
Electronic human resource management	0.822	0.894	0.823	0.737
Smartening of administrative processes	0.961	0.965	0.962	0.681
Designing a service compensation system	0.725	0.820	0.800	0.541
Financial support	0.909	0.932	0.911	0.734
Setting financial strategies	0.906	0.927	0.923	0.597
Attention to the mental health and safety of employees	0.924	0.940	0.934	0.694
Compassionate actions	0.922	0.942	0.923	0.763
Implementation of employee welfare plan	0.936	0.949	0.937	0.757
Psychological support	0.973	0.976	0.975	0.691
Strengthening relationships between people at work	0.901	0.931	0.902	0.772
Development of communication systems	0.853	0.894	0.856	0.629
Development of communication management systems	0.921	0.935	0.924	0.615
Strategic sensitivity	0.720	0.828	0.704	0.550
Behavioral flexibility	0.902	0.925	0.904	0.673
Adaptability to critical conditions	0.878	0.903	0.885	0.589

### 3.2 Validity tests of research measurement model

#### A. Convergent Validity

1.  $AVE > 0.5$

According to Table 3, all coefficients of average extracted variance of the variables are higher than 0.5. Therefore, the first condition of convergent validity exists.

2.  $CR > AVE$

According to Table 4, it can be seen that for all research variables  $CR > AVE$  and the second condition also has convergent validity and it can be claimed that the research model has convergent validity.

#### B. Divergent Validity

1. Fornell and Locker Test

According to Table 5, it can be seen that the AVE root of all variables is higher than the correlation of that variable with other variables. Therefore, the divergent validity of the variables is also confirmed.

2. HTMT

Considering that the appropriate value for the HTMT test is less than 0.9 and according to the findings of Table 6, these criteria have adopted the appropriate value for the research variables, it is possible to confirm the appropriateness of the divergent validity status of the research variables.

Table 3: The Results of the Extracted Average Variance Test

Variables	AVE
Establishing timely guidelines for employee retention	0.791
Redefining the duties, relationships and perception of employees	0.782
Adopting appropriate operational policies	0.751
Adopting human resource maintenance policies appropriate to the crisis	0.568
Digital environment	0.731
Upgrading information technology infrastructure	0.721
Electronic human resource management	0.737
Smartening of administrative processes	0.681
Designing a service compensation system	0.541
Financial support	0.734
Setting financial strategies	0.597
Attention to the mental health and safety of employees	0.694
Compassionate actions	0.763
Implementation of employee welfare plan	0.757
Psychological support	0.691
Strengthening relationships between people at work	0.772
Development of communication systems	0.629
Development of communication management systems	0.615
Strategic sensitivity	0.550
Behavioral flexibility	0.673
Adaptability to critical conditions	0.589

Table 4: The Comparison Test of the Combined Reliability Coefficient and the Extracted Average Variance Coefficient

Variables	Composite reliability	Extracted average variance
Establishing timely guidelines for employee retention	0.950	0.950
Redefining the duties, relationships and perception of employees	0.956	0.782
Adopting appropriate operational policies	0.924	0.751
Adopting human resource maintenance policies appropriate to the crisis	0.950	0.568
Digital environment	0.931	0.731
Upgrading information technology infrastructure	0.928	0.721
Electronic human resource management	0.894	0.737
Smartening of administrative processes	0.965	0.681
Designing a service compensation system	0.820	0.541
Financial support	0.932	0.734
Setting financial strategies	0.927	0.597
Attention to the mental health and safety of employees	0.940	0.694
Compassionate actions	0.942	0.763
Implementation of employee welfare plan	0.949	0.757
Psychological support	0.976	0.691
Strengthening relationships between people at work	0.931	0.772
Development of communication systems	0.894	0.629
Development of communication management systems	0.935	0.615
Strategic sensitivity	0.828	0.550
Behavioral flexibility	0.925	0.673
Adaptability to critical conditions	0.903	0.589

Table 5: Fornell and Larcker Test Results

	Adoption of human resources maintenance policies	Adaptation	Financial strategies	Development of communication management systems	Psychological support	Smartening
Adoption of human resources maintenance policies	0.754					
Adaptation	0.718	0.767				
Financial strategies	0.703	0.620	0.773			
Development of communication management systems	0.618	0.523	0.521	0.784		
Psychological support	0.603	0.470	0.499	0.781	0.831	
Smartening	0.561	0.413	0.417	0.620	0.624	0.825



Table 6: HTMT Test Results

	Adoption of human resources maintenance policies	Adaptation	Financial strategies	Development of communication management systems	Psychological support	Smartening
Adoption of human resources maintenance policies						
Adaptation	0.769					
Financial strategies	0.799	0.701				
Development of communication management systems	0.682	0.596	0.599			
Psychological support	0.650	0.514	0.561	0.826		
Smartening	0.633	0.456	0.603	0.663	0.654	

Table 7: Results of Significance Test and Path Analysis

Direction	path ( $\beta$ )	coefficient	Significance coefficient (T-Value)	Meaningful (P-Value)	Test result
Adoption of human resource maintenance policies → Adoption of operational policies	0.599		10.187	0.000	Confirmation
Adoption of human resources maintenance policies → redefining duties	0.937		109.454	0.000	Confirmation
Adoption of human resources maintenance policies → setting guidelines	0.917		97.471	0.000	Confirmation
Adaptability → behavioral flexibility	0.943		185.898	0.000	Confirmation
Adaptability → strategic sensitivity	0.796		40.589	0.000	Confirmation
Setting financial strategies → financial support	0.973		291.999	0.000	Confirmation
Setting up financial strategies → designing service compensation system	0.942		197.467	0.000	Confirmation
Development of communication management systems → strengthening relationships between people	0.943		156.460	0.000	Confirmation
Development of communication management systems → strengthening of communication systems	0.947		130.794	0.000	Confirmation
Psychological support → Compassionate actions	0.967		200.068	0.000	Confirmation
Psychological support → Attention to mental health	0.972		172.348	0.000	Confirmation
Psychological support → implementation of employee welfare plan	0.969		225.630	0.000	Confirmation
Human resource maintenance → adopting human resource maintenance policies	0.844		31.555	0.000	Confirmation
Human resource management → adaptability	0.701		20.168	0.000	Confirmation
Maintaining human resources → setting financial strategies	0.745		20.168	0.000	Confirmation
Human resource maintenance → development of communication management systems	0.846		37.155	0.000	Confirmation
Human resource maintenance → psychological support	0.874		35.179	0.000	Confirmation
Maintenance of human resources → Smartening administrative processes	0.802		31.001	0.000	Confirmation
Smartening administrative processes → upgrading information technology infrastructure	0.972		267.309	0.000	Confirmation
Smartening administrative processes → digital environment	0.971		273.192	0.000	Confirmation
Smartening administrative processes → electronic human resources management	0.950		120.624	0.000	Confirmation

### 3.3 Structural model tests

#### A. Significance Test and Path Analysis

The results of Table 7 showed that all research variables are confirmed in terms of path coefficients and significant coefficients.

**B. R Square Test**

This test is the ultimate goal of any causal research. That is, it states how much the exogenous variables predict or explain the variance of the behavior of the endogenous variables in total. The results of this test are given in Table 8.

Table 8: Explained Variance Results

	<b>R Square</b>	<b>R Square Adjusted</b>
Establishing timely guidelines for employee retention	0.841	0.841
Redefining the duties, relationships and perception of employees	0.878	0.877
Adopting appropriate operational policies	0.359	0.357
Adopting human resource maintenance policies appropriate to the crisis	0.713	0.712
Digital environment	0.943	0.943
Upgrading information technology infrastructure	0.944	0.944
Electronic human resource management	0.903	0.903
Smartening of administrative processes	0.644	0.643
Designing a service compensation system	0.888	0.887
Financial support	0.947	0.947
Setting financial strategies	0.555	0.554
Attention to the mental health and safety of employees	0.946	0.946
Compassionate actions	0.936	0.936
Implementation of employee welfare plan	0.939	0.939
Psychological support	0.763	0.762
Strengthening relationships between people at work	0.889	0.888
Development of communication systems	0.896	0.896
Development of communication management systems	0.715	0.714
Strategic sensitivity	0.634	0.633
Behavioral flexibility	0.890	0.889
Adaptability to critical conditions	0.492	0.491

According to the results of Table 8, fortunately, all research variables taken together are 0.33 units higher according to the three Chinese values. On the other hand,  $R^2$  is sensitive to the sample size, and if the sample size increases, its value increases slightly. Therefore, they eliminate the effect of sample size in it and create a comparative or comparable index called R Square Adjusted. This index is suitable for comparing two studies, but its values are not interpretable.

**C. General Model Tests**

The first fit index is SRMR, whose value should be below 0.08, and the second is GOF index, which, of course, has many critics, and its value is compared with three numbers: 0.01, 0.25, and 0.36 and if the GOF value is above 0.06, the accuracy of the results reaches 97% of the covariance axes. This criterion is calculated through the following formula:

$$GOF = \sqrt{\text{communalities} \times R^2}$$

Table 9: Results of General Model Tests

<b>Communality</b>	<b><math>R^2</math></b>	<b>GOF</b>	<b>SRMR</b>
0.684	0.795	0.737	0.03

According to the values of GOF and SRMR according to Table 9, it can be concluded that the overall research model has a very good fit. Therefore, the quality of the researcher’s prediction reaches 97% of the covariance axes.

**4 Conclusion and recommendations**

The current research was designed and implemented with the aim of explaining the model of maintaining human resources in the critical conditions of Covid-19 in Qom municipality. Based on the obtained results, the research model was evaluated using SPSS and PLS3 statistical software and it was found that the path coefficient and the significance

coefficient between the research variables are significant at the alpha error level of 0.05. In this way, the research model was confirmed and it was concluded that the universal themes of maintaining human resources in the critical conditions of Covid-19 (adopting policies to maintain human resources in accordance with critical conditions, smartening administrative processes, setting up financial strategies appropriate to crisis situations, psychological support for human resources, development of communication management systems in crisis situations and adaptability to crisis situations), organizing themes (setting up timely recipes to protect employees from contracting the corona disease, redefining the duties, relations and perception of employees, adopting operational policies, digital environment, upgrading information technology infrastructure, electronic human resources management, designing a suitable service compensation system, financial support, paying attention to the mental health and safety of employees, compassionate actions, implementing the employee welfare plan, strengthening relationships between people at work, developing communication systems, strategic sensitivity for critical times, behavioral flexibility) and the basic themes of maintaining human resources in the conditions of Covid-19 (preparing for the absence of employees, providing a platform for remote work, setting a flexible work schedule, limiting unnecessary missions and visits, assessing the effects of the crisis on employees and trying to eliminate the negative effects, revising training programs and developing human resources in new conditions, designing new competency models to attract employees according to post-corona requirements, redesigning jobs according to new organizational conditions and requirements, transferring knowledge and skills needed in new conditions to employees, monitoring, feedback and correction of human resources processes, reconstruction, renovation and re-architecture of the administrative department, adaptation of the organizational chart to crisis conditions, making changes at organization levels, creating a coherent command team, appropriate updates in modifying plans and decisions, using the capacity of virtual networks in line with the training and development of employees, holding virtual meetings, online learning environment, serving employees to customers with digital tools, Using the incentive system to accept online management, Applying information technology to record organizational events in critical conditions, using the capacity of technology and technology in critical conditions, acquainting employees with various office software for remote work, electronic filing, using new and safe platforms, reducing additional organizational costs, managing employees' time, especially in critical situations, creating a platform for the security of employees' information, a reward and recognition strategy appropriate to job characteristics, adjusting payments to employees in crisis situations, identifying and appreciating the constructive behaviors of employees in times of crisis, proportioning the benefits provided to employees in crisis situations, granting aid packages to improve the economy of employees, granting economic aid packages to employees affected by Corona, granting money and facilities to the most vulnerable employees, identifying new methods of financing and reducing costs, observing justice in salaries and wages during quarantine and remote work, paying attention to the physical and mental health of employees in the workplace, material support and psychological guidance to employees, providing personal protective equipment in the workplace, encouraging employees to comply with health protocols in the workplace, paying more attention to the well-being of employees, observing proper hygiene in the work environment, observing the hygiene of employees' rest areas, Giving sick leaves to employees, emotional and spiritual support for employees, sympathy and empathy for injured employees, social skills training along with social-emotional experiences, providing free or cheap psychological counseling in the workplace, improving the quality of work life, allocating suitable times for rest, providing recreational and cultural facilities, meeting the expectations and needs of employees, strengthening the feeling of value in the work environment, paying attention to the feelings of employees in the work environment, creating a think tank in the organization, especially in critical situations, supporting the interests of employees, communicating continuously with employees affected by Corona, designing online communication systems with officials to reduce the traffic of clients, launching an integrated planning system in times of crisis, strengthening support systems for decision-making in critical situations, using telecommuting system, coordination between human resources units in crisis situations, organization of administrative operations in crisis situations, strategic foresight, quick response to environmental changes, intelligence of managers in organizational crisis management, foresight of managers for urgent times, strengthening the ability of self-control in critical situations, acceptance of new conditions by employees, innovative and creative response to critical conditions, the ability to perform multiple behavioral roles appropriate to the conditions, resilience against critical conditions and creating the ability to adapt to new technology and work processes) has an effect on maintaining human resources in the critical conditions of Covid-19 in Qom Municipality. In fact, according to the results of the structural model tests, it can be said that the comprehensive, organizing and basic themes have a good explanatory power in the research model and the research model has a very good validity and fit. This finding is consistent with the results of Azimi Ghadikolaei et al. [10], Safari et al. [25], Azimi Ghadikolaei et al. [9], Bayat et al. [11], Shahvazian and Hashemi Gheinani [26], Kalogiannidis [19], and Azizi et al. [6].

In explaining these findings, it can be said that maintaining human resources is one of the most important issues in the field of human resources. Human resources is considered as the most valuable resource at the disposal of any organization. The value of human resources ends by paying attention to issues such as ways of developing and

promoting human resources and increasing job satisfaction. What is raised in the continuation of these issues is the issue of preserving and maintaining human resources in critical conditions such as Covid-19. If the tips that lead to the preservation of human resources are not observed, many disadvantages will plague the organization. The inability of the organization to maintain human resources ends in "creating a negative cycle" of employee departure. In other words, if the conditions and proper platforms are not created for the employees, not only will it be difficult to maintain the current human resources, but also the maintenance of "new forces" will face great challenges. In particular, this issue is raised regarding talented forces. But the issue of preserving human resources is not limited to talented forces. Organizational growth and development is impossible without efforts to create platforms for the preservation and maintenance of human resources. Therefore, strategic planning to maintain human resources in critical conditions and formulating a strategy to deal with it is one of the most important elements in the success of human resource maintenance programs in critical conditions. In fact, with this type of planning, the organization will be able to determine its future directions and prepare the necessary measures in the field of maintaining human resources in advance to deal with any future changes and developments and adjust the future strategies in such a way that it fits the changing and complex conditions and is associated with success. On the other hand, the examination of the duties of human resources managers also indicates numerous and basic duties such as drafting employment rules, job analysis and review, manpower planning, recruiting and hiring, training, appointment, performance evaluation and separation of employees from the organization. In the meantime, what is of strategic importance is the maintenance of efficient human resources in critical situations such as Covid-19. As a result, in addition to fulfilling the goals of the functional and departmental units, the macro and strategic goals of the organization are also realized. Achieving these goals requires extensive planning in many fields such as education, career path planning and management succession, adopting human resources maintenance policies, designing safety and health system, performance evaluation, regulating relations between managers and employees, the design of service compensation system and the development of communication management systems and adaptability to critical conditions.

#### 4.1 Recommendations

Based on the results obtained from this research, the following suggestions can be made:

- Considering the necessity of telecommuting in critical situations, it is suggested that appropriate approaches to evaluate the performance of telecommuting employees be determined and implemented by managers and officials of organizations.
- It is suggested that managers determine criteria based on legal working hours (for example, online and availability during legal working hours) or specify the volume and quality of standard work for a period of time.
- It is suggested that managers put the necessary scenarios, mechanisms and rulings based on the experience gained from managing the Corona crisis in the form of law or as part of the organization's crisis management strategy.
- It is suggested to invest enough in the professional development of employees in order to use information and communication technology in performing assigned tasks.
- It is suggested that managers should take action to improve the infrastructure of information and communication technology in the organization, including the Internet and intranet, and create information systems by determining the level of access.
- Scientific, cultural and educational foundation should be made for officials and employees to know about crisis management in the organization.
- It is suggested that managers take measures such as strengthening empathy and sympathy between injured employees, understanding the work problems of employees in the administrative department, building trust and awareness about themselves and their colleagues in organizations, and organizational support for injured employees and performance-based evaluation to improve support and intimacy in organization especially in critical situations.
- It is suggested that managers have continuous planning to remove obstacles and create grounds for revitalization, promotion and expansion of morale at different individual, social and organizational levels and by creating a comprehensive database of successful managers in the field of maintaining human resources in the era of Corona, try to preserve and transfer local knowledge and their experiences to future generations.

- It is suggested that the officials and those involved in the organizations teach communication skills to their employees and managers and create conditions in the organization that, while strengthening effective communication within the organization, provide the necessary platforms for the communication of the manager and employees with higher institutions as well as the general public in critical situations.

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