

ENVIRONMENTAL STRESSORS AND  
ORGANIZATIONAL INEFFICIENCIES: A CRITICAL  
ANALYSIS OF EMERGENCY MEDICAL  
TECHNICIANS IN INCHOEN, SOUTH KOREA

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Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF PHILOSOPHY  
May, 2023

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## ACKNOWLEDGEMENTS

I would like to thank my parents, my wife, Nalee, and our babies, Ina and Ijoon, for silently supporting me on this long journey. I could not have done it alone without the support of my family.

My spiritual mentor and supervisor, Dr. McAleavy, I sincerely appreciate your guidance for leading me to the right scholarly path during this precious journey.

Program Coordinator Dr. Murphy, I heartily appreciate your tremendous administrative support and guidance from the beginning of my degree to the end.

Dear Dissertation Committee Members, Drs. Li and Brien, I deeply appreciate your valuable advice and support in completing this meaningful dissertation.

For all those who supported me, I will become a scholar who strives to contribute to the development of disaster management in this society.

Name: BYUNGGI CHOI

Date of Degree: MAY, 2023

Title of Study: ENVIRONMENTAL STRESSORS AND ORGANIZATIONAL  
INEFFICIENCIES: A CRITICAL ANALYSIS OF EMERGENCY  
MEDICAL TECHNICIANS IN INCHEON, SOUTH KOREA

Major Field: FIRE & EMERGENCY MANAGEMENT ADMINISTRATION

Abstract:

As society changes and people's lifestyles change, various emergency dispatches are increasing year after year. Accordingly, there must be an appropriate number of Emergency Medical Technicians (EMTs) and ambulances to meet the growing demand for emergency calls. This study was conducted to find out how EMTs, who deal with the gradual increase in the number of EMS dispatches, think of organizational efficiency.

This study conducted in-depth interviews on occupational stress and organizational inefficiency with EMTs belonging to the Incheon Fire Department in South Korea, and identified organizational problems. After reviewing related secondary data through a preliminary literature review, a total of 30 samples were recruited, and data were collected and analyzed using open-ended semi-structured qualitative interviews.

In order to conduct a full-fledged qualitative research analysis, 24 phone call recording interviews and six written interviews were transcribed and translated from Korean to English. For qualitative research analysis, ATLAS.ti specialized software was used based on grounded theory. The analysis method went through the process of dividing and summarizing the corpus of extensive data into core categories through open coding, axial coding, and selective coding. Three themes, eight categories, and 24 codes were formed through repetitive analysis and revision work. Critical common stress factors, administrative inefficiencies, administrative policies, and practical policies were formed as major categories to discuss in-depth ways to improve the problems that EMTs thought about and experienced during their daily work.

Keywords: EMT, EMS, organizational inefficiency, environmental stress

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## CHAPTER I

### INTRODUCTION

The prevalence of chronic diseases is increasing due to changes in lifestyle despite improvements in socioeconomic level. While the proportion of the elderly population is also increasing as the average lifespan is extending as a result of developments within health and medical technology. Accordingly, the number of emergency patients using the Emergency Medical Service (EMS) due to acute and chronic diseases, traffic accidents, and trauma is increasing (Cydulka et al., 1989; Swab & Donne, 2019; Tanabe et al., 2022). The enhancement of the emergency medical system is, therefore, essential because timely pre-hospital care and transfer of patients can reduce mortality and irreversible damage, thereby minimizing the prevalence of sequelae (McAleavy, Choi, & Arlikatti, 2021).

The emergency medical system in South Korea is divided into pre-hospital and intra-hospital stages. The pre-hospital stage includes on-site and transfer stages. In the on-site stage, emergency vehicles and Emergency Medical Technicians (EMTs) are dispatched to scenes when the report is received to provide first aid. This is the transport stage from the site to the hospital, and EMTs play an essential role (Jeong, 2017). For the last decades, the demand for EMS has been increasing year on year because the number of

ambulance calls have increased gradually, as shown in Table one below (Incheon Fire Department, 2022). Moreover, job-related stress is increasing amongst EMTs as the recruitment of workforce is insufficient compared to the increase in the workload of EMTs (Daniel, 2019).

**<Table 1> Statistics of Emergency Medical Service Activity Performance  
in Incheon, South Korea**

<i>Category</i>		<i>Year</i>									
		<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>	<i>2021</i>
<i>Number of Calls</i>		121,301	123,622	134,593	141,499	150,484	156,802	162,444	162,124	147,583	173,247
<i>Number of Transfers</i>		78,918	80,297	88,949	93,270	95,593	96,760	101,308	101,796	90,692	102,419
<i>Types of Incidents</i>	<i>Fire</i>	126	106	73	49	72	74	69	80	61	58
	<i>Electricity</i>	24	23	18	21	26	16	27	21	18	18
	<i>addiction</i>	700	760	745	845	850	825	1,031	1,070	952	913
	<i>Traffic</i>	9,500	9,114	10,503	9,615	10,216	10,059	9,884	9,526	8,287	7,851
	<i>Disease</i>	46,742	49,384	53,426	57,376	65,195	59,477	64,063	64,697	59,036	71,381
	<i>Others</i>	23,709	22,586	26,277	27,198	20,971	27,820	27,733	27,604	23,312	24,271

(Incheon Fire Department, 2022)

The primary job stress of EMTs is friction with patients, guardians, or neighbors during on-site activities (Jalili, 2020). Also, providing emergency treatments can be challenging as EMTs must always be prepared for urgent and unpredictable events. Stress can occur when dispatched quickly, and medical treatments must be put into operation. In addition, expectations for high-quality emergency medical services and unstable changes in patient status, which are required as the public's level of consciousness improves, increase the stress on EMTs through exacerbated psychological burden (Bentley, Crawford, Wilkins,

Fernandez, & Studnek, 2013; Cydulka, Emerman, Shade, & Kubincanek, 1994). As these environmental characteristics increase, EMTs experience negative physical and psychological reactions such as tension, threat, and anxiety in job performers (Swab & Donne, 2019). Although EMTs perform physically and mentally special tasks compared to other departments, research on their health is limited to musculoskeletal disorders, low back pain, depression, and post-traumatic stress disorder. Therefore, it is necessary to consider EMTs' job and socio-psychological stress in an organization (Kim, 2020; Tanabe et al., 2022).

On top of that, in a situation where disasters are causing large-scale damage to property and lives in various fields, responsibilities in disaster management organizations that are active at the forefront of disasters are rising every time a disaster occurs. However, although a considerable amount of research has been done on institutional-level approaches to disasters, interest in organizational effectiveness is relatively low (Hahn, Van Wyck, Lessard, & Fried, 2021; Swab & Donne, 2019). In this context, while recognizing the importance of disaster management organizations, this study will examine the problems of organizational effectiveness by focusing on the awareness level of EMTs and critical evaluation of the literature review on prior research.

If the organization's efficiency is lowered while human beings are involved in the organization's activities, the employees will have lower job satisfaction (Jaegal, Cho, & Jaegal, 2019; Thielmann, Schnell, Böckelmann, & Schumann, 2022). A further interest of the study relates to factors affecting the effectiveness of firefighting organizations based on the perception of EMTs. In this regard, organizational culture is indirectly related to various organizational behaviors, including the effectiveness of leadership, organizational

innovation, as well as job satisfaction after the commitment of group members (Eisenberg & Hearne, 1982; Goodman, Zammuto, & Gifford, 2001; Jaegal et al., 2019; Kim, 2020).

Therefore, since organizational culture is the primary source, the importance of research between organizational culture and effectiveness is high (Paais & Pattiruhu, 2020).

To sum up, fire departments respond to people's needs 24 hours a day, so they receive support from the public in Korea. Among them, Emergency Medical Technicians (EMTs) are establishing themselves as an organization trusted by the public (Jeong, 2017; Jung, 2003).

However, due to insufficient workforce, conflict within the organization, and work system, EMTs are becoming another risk factor due to the deterioration of organizational effectiveness (Shima et al., 2022; Thielmann, Schnell, Böckelmann, & Schumann, 2022).

In this regard, there have always been controversial problems with the emergency system, but there has been little effort to listen to field workers' in-depth thoughts. Also, there needed to be more effort to accurately identify and satisfy their internal complaints (Hong, 2000; Khattak & Qureshi, 2020;).

Regarding this, this research idea was initially derived from the researcher's long-term observation of EMTs related organizational inefficiency at the organization that the researcher has been involved (Kwon, 2002; Swab & Donne, 2019; Corbin & Strauss, 2008; Creswell, 1994); there was a need for the scrutinization of in-depth perceptions from the EMTs in Incheon. Also, the theories from the pre-literature review, such as large cities with a lack of workforces especially had heavy workloads and higher stress rates, fit with the target city's characteristics (Anderson, Ricciardelli, Tam-Seto, Giwa, & Carleton, 2022; Jaegal, Cho, & Jaegal, 2019; Tanabe et al., 2022).

Based on the evidence of the literature review and in-depth interviews, the study identified current issues on stress status and organizational efficiency in the EMT work system to make recommendations for theory, policy, and practice that will enhance the quality of the job environment quality.

### **Aim & Objectives**

The project aims to:

*Critically evaluate Emergency Medical Technician-related environmental stressors and organizational inefficiencies in Incheon, South Korea*

The objectives are to:

1. Write a comprehensive literature review on Emergency Medical Service-related stressors and organizational inefficiencies
2. Construct a purposive (non-probability) sample frame of Incheon-based Emergency Medical Technicians
3. Complete a schedule of semi-structured qualitative interviews with the sample frame
4. Analyze the qualitative corpus of data utilizing a grounded theory approach
5. Formulate recommendations to enhance the theory, policy, and practice of Emergency Medical Services in Incheon, South Korea

## CHAPTER II

### LITERATURE REVIEW

To understand theories and academic perspectives on organizational effectiveness and stressors, in this section, the researcher conducted a literature review on the emergency medical system in South Korea, organizational effectiveness, organizational culture, and occupational stress. Furthermore, the researcher scrutinized prior research on organizational effectiveness and stress of EMS organizations to review previous studies' core findings and limitations.

#### **Emergency Medical Service System in Korea**

With the 1988 Seoul Olympics, South Korea's Emergency Medical Service (EMS) was rapidly deployed and operated nationwide, receiving much attention and support from the public worldwide. Emergency Medical Teams are deployed and operated at each fire station by region. In particular, EMS is a public institution with the convenience of a reporting system, rapid response to situations, and equality that any member of the public can use (Jeong, 2017; Seo, Lee, Kim, & Lee, 2015). EMS must be able to respond quickly to life-threatening patients with specialized skills. The public recognizes that EMS is an emergency organization that can be dispatched anytime, anywhere, and, has,

therefore, been integrated within fire stations across Korea (Jeong, 2017; Seo, Lee, Kim, & Lee, 2015). The fire department is a 24-hour emergency organization, and it already has response capabilities such as communication, emergency dispatch, and maintenance of vehicles as well as equipment to respond to emergencies. In addition, during the first stage of reporting an accident, residents can easily remember the call number 119. Since it is unified everywhere in the country, the public can easily report the accident. As such, the EMT administration is based on work speed and continuously operated with trained and equipped personnel (Jaegal et al., 2019; Oh, 2003). Also, a fire department's EMT administration is run systematically and organically by operating information related to emergency medical services in advance to secure accurate first aid and transfer systems. Thus, the EMS system can transfer patients quickly to specialized hospitals depending on the type of patients reported and helps improve the survival rate of emergency patients. In addition, the most prominent feature of EMT administration in South Korea is that it does not collect fees from users due to non-authoritative service administration (Byun, Shin, & Cho, 2018; Son, 2020). In a capitalist society, it may be natural that the cost burden on users lies with the public, but in terms of public services emphasizing public interest, it is arguably the nation's natural responsibility (Swab & Donne, 2019; Yun & Hong, 2018). EMS is an area of medical welfare, so equal benefits should be provided to all South Koreans. Emergency care is an essential part of medical care and, of course, should be discussed at a social level, and the direction of expansion of services should be considered as well. Regardless of their economic or social status, emergency patients should be protected if necessary. In this regard, EMS based in fire departments are provided free of charge to anyone in South Korea without conditions, which is consistent

with the principle of equality in terms of service provision in the national welfare delivery system (Shin, 2020).

## **Organizational Effectiveness**

### ***Meaning of Organizational Effectiveness***

An organization is a system that not only tries to achieve a given goal or purpose as much as possible but also maintains the system's internal state with homeostasis and secures and adapts to the energy to maintain and grow itself in exchange with the environment (Burhan Ismael et al., 2021). An organization that maintains this state with adequate flexibility is a healthy and active organization, which is also correlated with the concept of organizational effectiveness (Hogan & Coote, 2014). From traditional organizational theory to today's organizational theory, organizations seek to maximize organizational effectiveness, although they differ according to the nature and goals of the organization (Sharma & Singh, 2019). The concept of organizational effectiveness is an often-used term. Those who understand an organization according to the goal model refer to the degree of organizational effectiveness as achieving goals. The definition of organizational effectiveness also relates to criteria or indicators by which effectiveness is measured. Problems that exist in the concept of organizational effectiveness vary according to the nature and goals of the organization (Burhan Ismael et al., 2021). Organizational effectiveness developed and emerged in the 1960s, and as the change issue drew attention, it became important as an ideology. Also, standards for defining and measuring organizational effectiveness emerged during this period (Cameron & Whetten, 2013).



Organizational effectiveness was recognized as essential in all fields of society in South Korea after the monetary crisis in late 1997, and specific measures to improve organizational effectiveness were put into practice by public and private organizations. In particular, the effectiveness of public organizations was the most critical issue, and due to the restructuring of public officials and the consolidation and abolition of organizations, even civil servants at that time were not guaranteed retirement age (Chung, Lee, & Jung, 2016; Moon-Gi, 2004). Numerous definitions, models, and standards have been proposed for such significant organizational effectiveness. Because in many organizations, there are multiple goals, and the goals conflict with each other, no clear definition or standard has been proposed (Burhan Ismael et al., 2021; Chung, Lee, & Jung, 2016; Meyer, Allen, & Gellatly, 1990). In the case of administrative organizations, unlike private enterprises, it is difficult to grasp the output, and it is difficult to obtain an objective and accurate evaluation, which makes it challenging to define a consistent definition that is agreed upon (Hitt, 1988; Sharma & Singh, 2019).

Banard (1976) formally defined the concept of organizational effectiveness, viewing organizational behavior as effective when specific and desired goals are achieved, which refers to the degree of agreement between an organization's actual and intended outcomes. Price (1972) defined organizational effectiveness as the degree of achievement of goals. The goal is pursued by the organization through action guidelines and is what the organization is currently trying to implement.

Schein (1985) defined organizational effectiveness as the degree of time and cost-effectiveness toward a goal and saw it as how quickly, inexpensively, and efficiently progress toward a goal occurs. Miles (1980) viewed organizational effectiveness as a

standard for evaluating organizational performance as a concept indicating how well an organization performs or how effective it is. Alternatively, Mott (1972) viewed organizational effectiveness as the ability of an organization to exert organizational capacity for production and adaptation and viewed the concept of organizational effectiveness as multi-dimensional.

Yuchtman and Seashore (1967) viewed the organization's ability to pioneer the environment to acquire scarce-valued resources. Etzioni (1964) argued that the actual effectiveness of an organization is determined by the degree to which it achieves its goals, and efficiency is the number of resources used to produce a unit of output. It was defined that this output is closely related to the organization's goals.

<Table 2> below summarizes the studies of these scholars. By summarizing the above contents, the researcher was able to know the viewpoints of various scholars on organizational effectiveness, and was able to acquire meaningful related knowledge prior to the main study.

*<Table 2> Definitions of Organizational Effectiveness*

<i>Scholars (Year)</i>	<b>Definitions</b>
<i>Banard (1976)</i>	The degree to which the cooperative action achieves the identified objective it is directed to
<i>Schein (1985)</i>	The degree of time cost-effectiveness for the goal
<i>Bennes (1962)</i>	Organizational health
<i>Mott (1972)</i>	The ability to mobilize an organization's center of power for activities, production, and adaptation
<i>Georgopoulos &amp; Tannenbaum (1957)</i>	The degree to which an organization achieves its goals without wasting the means and resources and without putting excessive tension on its members
<i>Caplow (1964)</i>	Organizational stability, integrity, spontaneity, and achievement
<i>Price (1972)</i>	The degree of achievement
<i>Seashore &amp; Yuchtman (1967)</i>	The ability of an organization to understand its environment in acquiring resources for maintaining organizational functions

***Components of Organizational Effectiveness***

From traditional to modern organizational theory, the core interest of organizational research is to maximize organizational effectiveness. Therefore, organizational performance has been the central topic of the research. It was reported that the past models of organizational effectiveness relate to a single criterion of organizational success, and profit maximization and satisfaction have been the most used criteria for organizational effectiveness (Gray, E, & Health, 1976). The meaning of success in EMS will be to provide quality services to citizens. Effective organizational management is essential for EMS, and its components of non-technical aspects include flexibility, adaptability, cooperation, and communication (McAleavy, Choi, & Arlikatti, 2021). In

this chapter, the researcher examines prior research regarding the components of organizational effectiveness and reviews how these components can be applied to EMS.

Campbell (1974) enumerates four variables that reflect organizational effectiveness for organizational effectiveness: overall performance measured by the evaluation of members or supervisors, productivity measured by current output data, and self-question lists the satisfaction of members and profit or return based on accounting data.

Price (1972), however, considered that effective goal achievement could be explained by four factors and analyzed the relationship between effectiveness and division of labor, communication, and scale. He also discovered a parameter that adjusts this relationship, and these parameters are listed as productivity, fitness, morale, adaptability, and institutionalality.

Dalton, Todor, Spendolini, Fielding, and Porter (1980) divided the evaluation indicators of organizational effectiveness into economic and psychological performance. They argued that existing researchers had conducted more studies on psychological performance indicators than on economic performance indicators. Economic performance indicators include profitability, growth potential, productivity, and total sales, and psychological performance indicators include morale, organizational commitment, and job satisfaction. Especially for this approach, psychological performance indicators are crucial points to evaluate EMS organizations' effectiveness (Cho, Ryu, & Lee, 2017; Kim, 2020; McAleavy, Choi, & Arlikatti, 2021). Steers (1975) presented 15 frequently used evaluation criteria for organizational effectiveness in the order of frequency of use: adaptability or flexibility, productivity, satisfaction, profitability, resource acquisition,

absence of tension, environmental control, developability, efficiency, staff retention, growth, integration, openness to communication, persistence, etc.

Robbins and Judge (2012) categorized the 30 effectiveness criteria Campbell (1974) suggested into three competing values. First, flexibility versus control was divided into adaptation, such as innovation, adaptability, and change, and maintenance, such as authority, order, and control. Second, individual welfare and development versus the welfare and development of the organization itself. This dimension has an upper layer of individual emotions and desires versus productivity and work achievement. Third, the means and goals are a dimension that reflects whether the organization should evaluate on a long-term or a short-term basis as it relates to the conflict between the process and the final product. In addition, Caplow (1964) suggests four variables: safety, integrity, spontaneity, and achievement.

<Table 3> shows the organizational effectiveness components of these scholars. While reviewing the descriptions of components of organizational effectiveness by various scholars, the researcher had the opportunity to consider what components the organization applied in this study would compose and was able to consider about what components would be needed by revealing the theories from the inductive qualitative study process.

**<Table 3> Components of Organizational Effectiveness**

<b><i>Scholars (Year)</i></b>	<b>Components</b>
<i>Gray et al. (1976)</i>	Cooperative action
<i>Campbell (1974)</i>	Performance evaluation by member or supervisor
<i>Dalton et al. (1980)</i>	Economic and psychological performances
<i>Steers (1975)</i>	Adaptability or flexibility, productivity, satisfaction, profitability, resource acquisition, absence of tension, environmental control, developability, efficiency, staff retention, growth, integration, openness to communication, persistence
<i>Robbins and Judge (2012)</i>	innovation, adaptability, change, and maintenance, individual welfare, productivity, work achievement
<i>Bennes (1962)</i>	Adaptability, the consciousness of oneness, reality verification ability, integrity
<i>Mott (1972)</i>	Productivity, adaptability, flexibility
<i>Georgopoulos &amp; Tannenbaum (1957)</i>	Securing productivity, flexibility, and securing human and material resources
<i>Caplow (1964)</i>	Stability, integrity, spontaneity, achievement
<i>Price (1967)</i>	Productivity, morale, fit, adaptability, institutionalization
<i>Seashore &amp; Yuchtman (1967)</i>	Business volume, production cost, new employee productivity, employee ventilation, business mix, labor growth, management emphasis, maintenance cost, employee productivity, market penetration

## **Organizational Commitment**

### ***Concept of Organizational Commitment***

The term commitment has been used by sociologists as an investigative concept when referring to the unique behavioral patterns of a particular individual or group (Becker, 1960). Since the 1960s, organizational commitment has been extensively studied in various fields, such as sociology, industrial psychology, and behavioral science. The critical reason organizational commitment has received attention is that members with a high level of commitment perform better and can make helpful predictive indicators of organizational effectiveness (Steers, 1977).

It is also because it has stability over a prolonged period, indicating the relationship between the attitudes and behaviors of organizational members (Angle & Perry, 1981). However, even though such organizational commitment has been studied from different perspectives, scholars still lack consensus on organizational commitment. Becker (1960) defined an individual as a state in which many interests are intertwined and bound in the continuum of activity by ancillary investments while serving in an organization.

Kanter (1968) described the will of social actors to focus their efforts and loyalty on the social system and the attachment of the personality system to social relationships viewed as self-expression. Hrebiniak and Alutto (1972) defined an individual's identity as an attitude or orientation toward an organization as a connection or association with an organization.

Buchanan (1974) defined the emotional attachment of organizational members to the goals and values of the organization or to their roles related to those goals and to the

organization itself. Salancik (1977) defined an individual as a state in which an individual is bound by his or her actions and beliefs to continue his or her activities and involvement.

Weiner (1982) defined it as the totality of internalized normative forces that motivate behavior to achieve organizational goals, and Wagner (1992) defined an employee's willingness to work hard in an organization and a desire to remain a member of the organization.

When combining the studies discussed above, organizational commitment is the degree of psychological attachment that an individual feels through emotions such as satisfaction, belonging, pride, loyalty to the organization, and the accumulated or incidental investment that may be lost by leaving the organization. Therefore, it can be said that the degree of personal experience that one feels remaining as a member of the organization and the psychological state that one feels about the organization through internalization of the organization's goals, values, and mission.

### ***Components of Organizational Commitment***

The inconsistent definition of organizational commitment is because organizational commitment is multi-dimensional but does not provide a perfect definition of whether the organizational commitment is an attitude or behavioral phenomenon (Steers, 1977). This conceptual difference can be found in the spread of terms such as emotional commitment, normative commitment, continuous commitment, value commitment, identification commitment, and improvement commitment, which commitment researchers used to study attitude commitment (Etzioni, 1964; Kanter, 1968; Meyer, Allen, & Gellatly, 1990; Staw & Salancik, 1977).



<Table 4> shows various scholars' components of organizational commitment. By summarizing this chapter, the researcher was able to compare this knowledge with his own views from actual experiences in the fields for more than six years in the firefighting organization. Also, the researcher was able to consider what components would fit with the society of first responders by conducting the inductive qualitative approach.

*<Table 4> Components of Organizational Commitment*

<b>Scholars (Year)</b>	<b>Components</b>	<b>Definitions</b>
<i>Etzioni (1961)</i>	Moral commitment	Positive disposition based on the internalization of organizational goals and values
	Arithmetic commitment	Propensity is based on the rational exchange of benefits and rewards
	Alienated commitment	Negative tendencies in exploitative relationships
<i>Kanter (1968)</i>	Continuous commitment	Efforts for organizational success in situations where leaving the organization is costly or impossible due to the effort and sacrifice made to the organization
	Cohesive commitment	Attachment to a social relationship with an organization due to a ritual to strengthen the cohesiveness of the group or the abandonment of social ties
	Controlling commitment	Attachment to organizational norms that seek to act in a desirable direction based on past norms or self-concept from the perspective of organizational values
<i>Staw &amp; Salancik (1977)</i>	Attitude commitment	Refers to solid identification with or attachment to the organization due to various factors (organizational behavioral approach)
	Behavioral commitment	Refers to the state of being bound by the organization by the sunk costs invested in the organization (Sociopsychological Approach)
<i>Allen &amp; Meyer (1990)</i>	Emotional commitment	Emotional attachment of members to the organization and identification with the organization
	Continuous commitment	Commitment attributable to costs incurred by members leaving the organization
	Normative commitment	A sense of duty to remain in the organization

## **Job Satisfaction**

### ***Meaning of Job Satisfaction***

To study EMTs' job satisfaction, it is necessary to understand the concept of job satisfaction. Numerous scholars have provided various definitions for systematic attempts on job satisfaction from the initial research of Hoppock (1935) to the present from various viewpoints and aspects. However, the definitions show considerable differences of opinion among scholars.

Smith, Smith, and Rollo (1974) stated that job satisfaction is an attitude that appears in the state of balance between all the likes and bad feelings that each experience on the job. Topper (2008) stated that job satisfaction is a function of the degree of desired satisfaction experienced or derived from the job.

Aziri (2011) defined it as the amount of positive emotion an individual has about his/her job, which means that an individual likes the job, place excellent value on it, and thinks positively about it. Locke (1976) defined job satisfaction as a positive and pleasant emotional state resulting from evaluating a job or job performance. Price (1972) defines job satisfaction as the positive orientation that members of a social body have as organizational participants in the system. It is also called an emotional state expressed by evaluation after the member perceives the job and the phenomenon or situation within the organization.

Since various aspects of job satisfaction have been studied about individual job conditions and characteristics or according to scholars' definition methods, it is challenging to define job satisfaction as one definition. In general, it means an

individual's general attitude to the job. High job satisfaction indicates an active attitude toward the job, and low job satisfaction indicates a passive attitude toward the job. This job satisfaction is related to the individual's perception of whether the job provides what he considers vital in the job situation (Aziri, 2011). In other words, job satisfaction refers to how everyone is with job satisfaction factors such as current work, public office, stability, leadership, personnel, remuneration, welfare, human relations, pride and self-esteem, sense of belonging, self-actualization, and work environment. It can be said that it is an emotional state of whether people feel friendly or not (Glick, 1992). Combining the above views, job satisfaction can be said to be the result of a comprehensive feeling about various variables that can affect individual behavior, such as individual values, personality, knowledge, and learning. This is because job satisfaction's importance significantly affects organizational effectiveness (Price, 1972; Sharma & Singh, 2019).

Today, with the innovative development of science and technology, organizations have become huge, diversified, and subdivided (Judge, Zhang, & Glerum, 2020; Loan, 2020). Organizations or members that adapt to change consider it challenging and rewarding if they are interested in their job. However, suppose they fail to adapt to the change and are dissatisfied with their job. In that case, organizational members become interested in their surroundings to obtain satisfaction from social needs in fields other than their jobs. They are separated from the organization or eliminated by neglecting their duties (Moon, 2004). A good organization is one with the most satisfied members of the organization. In other words, the job satisfaction of members is the most basic requirement in order to achieve the organizational purpose effectively, and it has a decisive influence directly or

indirectly on all actions related to the job of the members of the organization (Burhan Ismael et al., 2021; Cameron & Whetten, 2013).

The degree of job satisfaction of organizational members has been an essential criterion for evaluating the smooth operation of an organization. In addition, job satisfaction refers to the perceived response of organizational members to the extent to which individual intrinsic and extrinsic needs are being met in performing their duties. As it directly or indirectly affects all behaviors related to job satisfaction, job satisfaction is essential in the organization (Judge, Zhang, & Glerum, 2020). In order to maximize the productivity of the entire organization, an organization composed of the most satisfied members of the organization must be maintained. Also, management must be carried out that allows people to feel satisfied with their jobs and work in a satisfying work climate while the goals of the organization and individual goals are aligned (Loan, 2020; P. C. Smith et al., 1974). The degree of job satisfaction of organizational members is an essential criterion for evaluating the operation of an organization because organizational members have a significant impact on the development of the organization and individuals, depending on whether they are satisfied or dissatisfied with the job they are in charge of (Aziri, 2011).

### ***Components of Job Satisfaction***

Despite the studies and controversies of many scholars, there is no clear answer as to the job satisfaction factor. A job is not a single entity but a complex interrelationship of tasks, responsibilities, interactions, incentives, and rewards. However, general items such as wages, promotion, sense of achievement, and development are usually mentioned (Cho, Ryu, & Lee, 2017). It is challenging to identify the factors affecting job satisfaction because the complex interrelationships of the components need to be understood, but it is

judged that it is necessary to analyze the job as its components through the understanding of the attitude toward the job (Cho et al., 2017; Kwon., 2002).

Foippo (1980) defined job satisfaction factors as salary, stability of status, like-minded colleagues, recognition of job achievement, meaningful work, opportunities for development, comfortable, safe, and attractive work environment, competent and fair leaders, useful commands, and social status of the organization. Friedlander (1963) broadly divides economic remuneration and prestige, intrinsic gratification of pleasure from activities and achievements, and incidental social gratification.

March and Simon (1993) mentioned job satisfaction factors such as job compatibility with one's image, the predictive ability of job relationships, and harmony with job roles. Also, they mentioned that supervisors, work groups, work content, wages, opportunities for promotion, and working hours as job satisfaction factors.

Hulin and Smith (1965) selected financial factors, a sense of security, a working environment, human relationships, a sense of belonging, promotion, a sense of recognition, a sense of achievement, and prospect. Researchers selected the compensation relationship, working environment, a job in charge, interpersonal relationship, administrative management, and social stability as components of job satisfaction (Locke, 1976; London, Crandall, & Seals, 1977; Tietjen & Myers, 1998; Topper, 2008).

It was mentioned in Herzberg's (1966) two-factor theory and put policy, supervision, remuneration, interpersonal relationships, and working conditions into hygiene factors, job achievement, recognition for job achievement, and rewarding job content, responsibility, growth, and development as motivation factors. In the end, it was

considered that it is necessary to solve the dissatisfaction by satisfying these hygiene factors to increase productivity by giving satisfaction by satisfying motivation factors or satisfaction factors.

<Table 5> summarizes the discussion of these factors influencing job satisfaction. While summarizing this chapter, the researcher took time to consider the purpose of the inductive qualitative approach in order to confirm which theory from the job satisfaction of EMTs to be revealed in this study can be applied.

*<Table 5> Components of Job Satisfaction*

<i>Scholars (Year)</i>	Components	Definitions
<i>Herzberg (1959)</i>	Satisfaction factors (motivators)	Job achievement, recognition of job achievement, job content itself, responsibility, growth
	Dissatisfaction factors (hygiene factors)	Organizational policies and administrative supervision, remuneration, interpersonal relationships, working conditions
<i>Foippo (1980)</i>		Salary, stability of status, like-minded colleagues, recognition of job achievement, meaningful work, opportunities for development, comfortable, safe, and attractive work environment, competent and fair leaders, and reasonable commands, and the social status of the organization
<i>Friedlander (1963)</i>		Economic remuneration and prestige, intrinsic gratification of pleasure from particular activities and achievements, and incidental social gratification
<i>March and Simon (1993)</i>		Transfer, promotion, remuneration, essential aspects of the job, supervision, communication, work environment, social aspects of the job, welfare benefits
<i>Hulin &amp; Smith (1965)</i>		Sense of security, working environment, human relationships, a sense of belonging, promotion, a sense of recognition, a sense of achievement, and the prospect
<i>Topper (2008)</i>		Job duties, direct control, organization and management, promotion opportunities, remuneration, colleagues, work environment
<i>Locke (1976)</i>		The job itself, promotion, remuneration, recognition, welfare, supervision, colleagues, company management policy
<i>Seals (1977)</i>		Work, work, remuneration and workplace safety, working conditions, equipment, and supervision

## **Organizational Cultures and Organizational Effectiveness**

In the society in which humans live, culture is continually formed, and for humans, culture is like water and meat. However, because of their culture, anthropologists see rational humans as distinct from instinctive animals. The etymology of culture can be found in the Latin verb 'colere', which means to cultivate. It has been used as a concept in contrast to the meaning of 'nature' (Ouchi & Wilkins, 1985).

Traditional anthropologists view culture as a complex concept encompassing knowledge and beliefs, art, law, morals, habits, and other abilities acquired by humans as members of a particular society. In addition, culture is an integrated whole composed in part of the material, human and spiritual to overcome the specific problems faced by human beings (Isensee, Teuteberg, Griese, & Topi, 2020; Paais & Pattiruhu, 2020).

On the other hand, modern anthropologists believe that culture is an integrated form of behaviors and behavioral results learned by sharing and transmitting its various components by members of a specific society, and culture is language, social organization, values, beliefs, and manners. It stipulates that the system of lifestyles acquired by humanity, such as customs and customs, is shared by all or part of a group. Regarding the cultural concept of these anthropologists, sociologists believe that culture is a macroscopic and comprehensive concept that includes values, beliefs, ideologies and habits, and knowledge and skills shared by all people who make up society. It is also argued that culture is the totality of ideas, values, beliefs, knowledge, and habits passed down through generations in a social group (Elsbach & Stigliani, 2018; Isensee et al., 2020).

Since the question of the concept of culture was raised in anthropology in the late 19th century, the social sciences have included the beliefs, values, attitudes, ways of thinking, and ideas shared by only a specific organization or its sub-organizations or shared by members of a specific group (Gordon, 1991). Also, Hofstede (1986) defined culture as 'thinking that distinguishes one group from another, and patterns of thinking and feeling and potential acting' and viewed culture as a value system that forms the human mental structure. Moreover, culture begins with an understanding of the environment surrounding the organization and the interactions between past and present. Taking for granted the process of making decisions about how a particular group perceives, thinks, and responds to a variety of environments is called an implicit assumption. From this point of view, define culture as the totality of traditional behaviors developed by humanity and handed down from generation to generation and as a system of values, norms, meaning symbols, or basic premises (E. H. Schein, 1996).

Ouchi (1981) asserts that organizational culture is the tradition and atmosphere of an organization and serves as a criterion for defining organizational values, creeds, and behavioral patterns, and Schein (1983) argues that organizational culture can be observed when people interact with each other. It is defined as a philosophy that guides the establishment of policies for organizational members and customers, as well as the rules of conduct that can be implemented and the dominant values emphasized by the organization. Also, according to the degree to which observers see cultural phenomena, the conscious components of culture are divided into three levels: artifacts, values, and basic assumptions (Paais & Pattiruhu, 2020). The fundamental level of organizational culture is a basic premise that includes the relationship between the organization and the



environment, the characteristics of time and space, the characteristics of human nature, and the characteristics of social relationships between people (Isensee et al., 2020).

Goffee and Jones (1996) stipulated that organizational culture consists of widely shared values, symbols, behaviors, and assumptions and that organizational culture refers to how work is managed within an organization. Also, Martin (1992) defines culture as various forms within an organization and a potential conflict between subcultures. Also, it was argued that the organizational culture was characterized by type as an agreement among the organization's members (Abdi et al., 2018). Paais and Pattiruhu (2020) argue that organizational culture is a unique individual characteristic that is not shared with others but with members of a specific group, differentiated from other groups, and shared with all people.

In addition, Frost, Moore, Louis, Lundberg, and Martin (1985) define organizational culture as an element or pattern in which shared beliefs or values within an organization unconsciously act for a long time and have an important influence on external adaptation to internal integration problems. Also, Shahzad, Luqman, Khan, and Shabbir (2012) also stated that organizational culture is a complex concept that includes values, beliefs, ideologies and customs, norms and traditions, and knowledge and skills dominantly shared by members of a specific organization. It is defined as a basic premise that directly and continuously affects the various actions of members.

<Table 6> shows various scholars' concepts of organizational cultures. In summarizing this chapter, the researcher aimed to acquire knowledge about the overall organizational

culture, and considered what theories the members of organizations participating in this study could apply through inductive qualitative research.

*<Table 6> Concept Definitions of Organizational Cultures*

<i>Scholars (Year)</i>	<i>Definitions</i>
<i>Ouchi (1981)</i>	A standard that defines an organization's values, creeds, and behavioral patterns is the tradition and atmosphere of the organization
<i>Deal &amp; Kennedy (1982)</i>	Values, heroes, rituals, procedures, communication
<i>Hofstede (1984)</i>	A comprehensive concept that includes values, ideologies, beliefs, customs, knowledge, skills, and symbols shared by members of a specific organization
<i>Sathe (1985)</i>	A set of essential assumptions universally shared by members of a community
<i>Schein (1985)</i>	Observable behavioral rules when people interact with each other are the dominant values emphasized by the organization and the philosophy guiding policymaking toward members and customers
<i>Goffee &amp; Jones (2000)</i>	How work is done within an organization is made up of widely shared values, symbols, behaviors, and assumptions
<i>Martin (1992)</i>	Things that are characterized by type that are almost consistent among members of the organization
<i>Paaïs and Pattiruhu (2020)</i>	A biological system of the human body that is not shared with others due to unique individual characteristics (personal character or personality), is shared with members of a specific group, is distinguished from other groups, and is shared with all people
<i>Frost et al. (1985)</i>	Factors in which shared beliefs or values within an organization act unconsciously for a long time and influence adaptation to the outside of the organization and internal integration problems

## **Job Stress**

### ***Meaning of Job Stress***

The term stress is derived from the Latin "Stringere" and has been used as a standard term to describe human experiences and behaviors in English for a long time. In the 17th century, stress meant difficulty, adversity, or hardship. Between the 18th and 19th centuries, stress was replaced by terms meaning force, pressure, physical strain, and effect. In this sense, stress is defined as resisting deformation by external forces in response to external forces affecting physical objects or human mental power. It also included the meaning of representing the essence of returning to its original state and maintaining unity. These meanings were taken over to the field of science and became the terms of physics and engineering. It later became a medical term, further reinforcing the widespread use of the word stress (Jaegal et al., 2019; Kim, 2020).

In the 19th and early 20th centuries, stress began to be regarded as a cause of poor health or mental illness, but at that time, it was used with an unscientific meaning. In the late 1930s and early 1940s, Selye (1979) presented the concept of stress for the first time in the scientific field by describing more detailed responses in experimental animals. He referred to external stimuli that cause stress as stressors. He also termed the non-specific response of the organism to these stressors as stress.

The mental reaction from stress was related to adrenocortical hormones and was thought to be caused by a state of volume imbalance. Because there are two types of positive stress (en-stress) and negative stress (dis-stress), positive stress means healing and pleasure, and negative stress is defined as illness and discomfort (M. J. Smith & Selye,

1979; Tanabe et al., 2022). <Table 7> below shows the changes in the meaning of stress over time.

*<Table 7> Evolutions of the Concept of Stress*

<i>Era</i>	<b>Concept of Stress</b>
<i>14th century</i>	-Meaning of anguish, oppression, hardship, adversity -Derived from the Latin 'stringere' (tighten)
<i>18th century</i>	-Meaning of a strong effect of force, pressure, tension, and effort related to a person's physical organs or mental power
<i>19th century</i>	-State of tension in which an object or human being subjected to a force resists pressure to maintain balance (used in a unique sense in the field of physics)
<i>1920's</i>	- In the medical field, it causes anxiety, tension, nervousness, worry, and expresses health as harm
<i>1960's</i>	-Moderate stress claims to play a positive role in health
<i>Present</i>	-When a harmful physical or mental stimulus is applied from the external environment, it is understood as a state of tension that occurs in restoring the original form by resisting it

(Selye, 1979)

Today, stress has been regarded as a phenomenon experienced in impoverished environments or after middle age. However, as society becomes more complex, modern people experience stress from various causes daily. In other words, the environment of modern society itself is the cause of stress, and any life of modern people may not be able to completely relieve stress (Backé et al., 2012).

Stress becomes a central part of our lives if the environment demands nothing of us, or our lives cannot avoid the challenges of the environment, and we are hoping for some life fulfillment ourselves. Stress is expressing a physiological, emotional, cognitive, or behavioral response to a situation in which an individual is evaluated or judged as threatening, harmful, or challenging that must be encountered. This definition includes

the viewpoint of seeing stress as a stimulus situation that gives psychological and physical tension to adaptation and the viewpoint of viewing it as a psychological and physical reaction situation induced by stress (Hong, 2000). Situational factors that cause stress include both positive and negative events, such as minor events or changes in daily life, as well as major disasters or crises. Determining which events are stressful situations may be relative because they are based on highly individual and subjective evaluations. Also, stress is not always negative. Stress is an unavoidable part of our daily life and, if not managed well, affects human health, productivity, creativity, and well-being. However, there is also a constructive aspect, for example, where students can grow a lot while working hard for an exam or a job (Jaegal et al., 2019; Russell & Lightman, 2019). The U.S. Department of Health and Human Services has declared that relaxation training and coping skills will be applied to reduce the negative consequences of stress as a priority for health promotion and disease prevention, which is a fundamental goal of the organization. At the same time, since seniors play an essential role, various methods to reduce stress and improve health are urgently required (Oh, 2003).

However, there is still a lack of agreement on the definition and composition of the basic concept of stress, so the theoretical and methodological limitations of stress research and confusion due to this are still being discussed by scholars. As a modified concept of stress, the job stress experienced by organizational members within an organization is also not clearly defined but is defined in several ways depending on the research purpose or approach (Igboanugo, Bigelow, & Mielke, 2021; Jaegal et al., 2019).

Unlike research in the medical field, an attempt to study job stress with a psychological approach is that Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) at the University of

Michigan's Social Research Institute found numerous factors that cause stress in the organization and found the relationship between mental and physical effects. For them, job stress occurs when the environment demands a job that exceeds the individual's ability, or the environment does not satisfy individual needs. This is because many negative aspects cause dissatisfaction, increase absenteeism and turnover, and decrease organizational commitment and productivity. Such job stress is an increasingly crucial social policy problem, a significant cause of economic loss, and a social factor affecting employees' well-being and organizational productivity (Hong, 2000; Tanabe et al., 2022).

### **Job Stress Effects on Society**

This section will briefly summarize how job stress affects society in general. As a result of the study on the working environment and stress factors of teachers, it was found that teachers suffered the most from job stress related to the working environment and administrative system. Also, among the detailed organizational variables (principal leadership, organizational effectiveness), the effect of organizational effectiveness on teacher job stress was found to be significant (Goo & Kim, 2014; Klassen, M, Chiu, & Ming, 2010). In addition, self-resilience, teacher efficacy, and social support, which are detailed variables related to regulation, were identified as essential resources that can buffer teachers' job stress (Anastasiou Sophia, 2014).

In addition, similar results were derived from a study that studied nurses' job stress and mental health. It was found that there was a significant difference in the job stress of the general subjects according to age and job change experience (Lee, 2012). Job stress was found to have a significant positive correlation with mental health. In addition, as major stress factors, excessive workload and intensity of work, complex and severe work

demands, dangerous work environment, and role and relationship conflicts were summarized as significant categories. In addition, there were additional categories such as insufficient nursing personnel, insufficient education and training, lack of support system, low financial compensation, and low internal compensation (Fasbender, Van der Heijden, & Grimshaw, 2019; Labrague, Nwafor, & Tsaras, 2020).

Furthermore, the researcher also looked at studies that derived a structural model from cause to outcome of job stress targeting social workers. Social workers have been considered as the occupational group most exposed to job stress in that they are on-the-job workers in charge of delivery and management of social welfare administrative services. Studies have shown that the poor level of the physical environment, job clarity, role conflict, workload, relationship with clients, and relationships with related organizations, which are suggested as inducing variables for social workers' job stress, have a significant effect on job stress (Gwan, 2006; Tesi, Aiello, & Giannetti, 2019). In addition, job stress showed a significant effect on turnover intention. Moreover, it was found that workload and customer relationships not only directly affect job stress, but also directly affect turnover intention (Geisler, Berthelsen, & Muhonen, 2019). These studies suggest theoretical policy implications that can promote positive work behavior and performance improvement by effectively managing job stress and reducing the turnover intention of public officials in charge of social welfare.

As can be seen from the above research, studies on job stress occurring in society have yielded similar results in Korea and foreign cultures. Based on this theory, it can be seen that people's perceptions and job difficulties show similar aspects even if the language or culture is different in society.

### **Prior Research on Organizational Effectiveness and Job Stress on First Responders**

In this section, Korean and foreign literature was reviewed to compare the organizational problems and stress-related problems of first responders. Job stress is the physical and psychological stress experienced by job performers about the job, and job satisfaction is a set of attitudes that job performers have toward the job.

Regarding the relationship between job stress and job satisfaction, it is divided into two views: the traditional view that the higher the job stress, the lower the job satisfaction, and the view that job stress does not necessarily have a negative effect on job satisfaction but can also have a positive effect in some cases. Interest in human beings within organizations started with the human relations theory centered on Mayo & Roethlisberger in the 1920s and 30s, and human management theory has been actively developed since the 1950s. The center of this human management theory is the motivation theory (Selye, 1979).

Usoro (2018) conducted a study on occupational stress and its effect on the job efficiency of instructors in Nigeria. The analysis found that stress-induced factors such as workload, facilities, career development requirements, and organizational environment significantly predicted instructors' job effectiveness.

Understanding and practicing how public safety personnel (PSPs) manage stress is vital to ensuring their and the public's safety. As an intervention effect, the participants learned about mental illness and its causes, had time to have a self-reflection process, and applied drugs or psychotherapy. The results from the survey conducted in British Columbia, Alberta, Saskatchewan, and Manitoba showed that PSP had the most efficient effect,



especially when using psychotherapy alone or combined with other interventions to overcome occupational stress. Participants also said that they could continually manage their stress thanks to the emphasis on necessary support from colleagues, family, and friends (Anderson, Ricciardelli, Tam-Seto, Giwa, & Carleton, 2022).

Khattak & Qureshi (2020) investigated the relationship between job stress and job satisfaction of first responders in Khyber Pakhtunkhwa; it was found that subjective job stress had a significant adverse effect on job satisfaction. Also, it was found that there was a significant correlation between job stress and job satisfaction of local rescue workers.

A study surveyed urban EMTs in the US shows that the main stress factor for field EMTs is patients. On the other hand, administrative EMTs felt that organizational stress was the major stressor (Cydulka et al., 1989). Shima et al. (2022) studied the relationship between job stress and work-related life quality. This study showed that most EMTs in Lorestan working in governments had high job stress and low life quality, especially from shift systems.

Swab and Donne (2019) analyzed the perceptions of stress management from EMTs in Western PA. In this study, it was revealed that the most of participants did not receive any stress management education from their training. Yun and Hong (2018) studied job stress and burnout in the quality of life among EMTs in South Korea. The significant finding from the research is that there are considerable differences in job stress and burnout from gender, service career, ranks, and health.

Kim Jong-suk (2004) studied the job satisfaction of public servants and empirically studied the relationship between job satisfaction influencing factors and job satisfaction variables. The sense of responsibility for the job, the will to serve citizens and society, and a sense of reward or achievement showed high satisfaction with an average score of 3.5, and relatively high satisfaction with an average of 3 or higher was related to interpersonal relationships, ability, and self-efficacy in work life. Satisfaction levels were relatively low, with an average of 2.5 or less regarding the working environment, promotion system, working hours appropriateness, and personnel appropriateness.

Kwon (2002) conducted a study to increase work motivation by suggesting improvement measures that can resolve dissatisfaction factors. Those with more than 20 years of work experience in the fire administration field were most satisfied with their self-esteem, recognition, and interpersonal relationships with their colleagues, and relatively low satisfaction with the workload, work type, remuneration, promotion, and education. Therefore, it was considered that the satisfaction of self-actualization needs, improvement of poor working conditions, rational improvement of promotion evaluation, and fair promotion should be achieved.

Jaegal et al. (2019), who conducted a study to predict the extent to which background variables affect the subjective attitudes of firefighters in job satisfaction, found that background variables such as age, working period, marital status, monthly living expenses, and peer relationships were related to job satisfaction. It had a significant effect on the composition of the firefighters, and the job satisfaction of firefighters was generally evaluated as low. According to Oh (2003), who conducted a study on job satisfaction for firefighters, 80.6% sympathized with the need to fill the ranks, 60.5% of

them complained of irrationality in granting promotion opportunities themselves, and 54.3% of them complained of fatigue due to overworking. In addition, 65.4% said they were worried about accidents, 88.7% said that a specialized hospital or a designated hospital needed to be established, and 76.4% said the difference in benefits by work department needed improvement.

Cho et al. (2017) showed that security of identity and economic safety were the main factors in choosing firefighters in the life evaluation. Job satisfaction showed the highest response in relationships with colleagues and superiors, and the most dissatisfying part was the work environment. They also recognized that firefighters were under deficient social respect.

Hong (2000) conducted a study on job satisfaction coping strategies for job stress targeting manufacturing job performers in Gyeonggi-do. The empirical analysis showed that the symptoms of job stress were higher among women than men. The lower the age, the higher the single, the lower the educational background, and the less religious.

Igboanugo et al. (2021) studied the psychological stressors of multinational firefighters working in Asian, American and European countries. The research found that firefighters experienced various emotional and psychological stress, such as interpersonal conflict and fairness in organizations.

Youngman Jung (1999) analyzed the effect of job stressors on organizational morale. Although most research hypotheses were adopted, except job stressors, the influence on loyalty was considered to have the most significant role overload. It was found to have

had an impact, and this was due to the change from work-centered to human-relationship-centered.

According to Ham Seong-cheol (2004)'s study of bodyguards and police officers as the characteristics of job stress in the security organization, the higher the age and the higher the income, the lower the job stress. In addition, it was found that job stress was lower in the security organization than in the police organization. Also, the higher the tenure, the higher the job characteristics and the lower the job stress.

As such, <Table 8> summarized studies on organizational stress and effectiveness in the emergency management fields. Interestingly, a review of studies conducted in various countries on job satisfaction, stress, and organizational effectiveness among first responders showed similar meanings of results. Regarding this, the researcher could expect that some parts of the outcomes from this research could be also similar in some manners. In summarizing this chapter, it was difficult to find inductive qualitative research in all sources regarding EMT and organizational effectiveness. Especially in Korea, since EMTs are in a unique position within the organization, the researcher could consider that inducing EMTs' perception through qualitative research would be a meaningful study to scrutinize negative issues in the firefighting organization and to find some suggestions to solve the grievances.

**<Table 8> Summary of Literature Review on Organizational Stress and Effectiveness**

<b>Researchers</b>	<b>Topic</b>	<b>Purpose</b>	<b>Variables</b>	<b>Major Findings</b>
<i>Usoro (2018)</i>	Occupational stress and job efficiency	The effect of job stress on job effectiveness	Workload stress scale, job efficiency	Organizational environments were significantly predictive of instructors' job effectiveness
<i>Anderson et al. (2022)</i>	Stress management of PSP	Stress coping strategies of PSP	Education, self-reflection, therapy	Psychotherapy alone or in combination with other interventions to overcome occupational stress
<i>(Khattak &amp; Qureshi, 2020)</i>	Relationship between job stress and satisfaction of first responders	Find the relationship between job stress and satisfaction	Job stress scale, job satisfaction Survey	Significant correlation between job stress and job satisfaction of local rescue workers.
<i>(Shima et al., 2022)</i>	The relationship between Job Stress and Work-Related Quality of Life among EMT	Determine the relationship between job stress and WRQoL	Job Stress (HSE) and Work-Related Quality of Life (WRQoL)	The majority of urban EMTs working in governments had job stress and low life quality, especially from shift systems
<i>(Swab &amp; Donne, 2019)</i>	EMS Stress Management Education Standards	Study evolution of EMS stress management educations	Experience survey on stress management from EMTs	The most of participants did not receive any stress management education from their training
<i>(Thielmann et al., 2022)</i>	Analysis of Work-Related Factors of EMT	Analyze critical reviews on the relationship between physical and psychological factors	Systemic literature reviews on workload, behavior, and welfare of EMS	EMS workloads are varied, so evaluations must be made on an organizational and individual basis
<i>(Cydulka et al., 1989)</i>	Urban EMT's occupational stress factors	Stress factors from the occupational environment	Working location, number of patients, Types of work	Field EMTs felt patients as the primary stressor. Administrative EMTs felt more organizational stress
<i>(Jaegal et al., 2019)</i>	Firefighters' job satisfaction, stress, and commitment	Effect on work attitude by job satisfaction	Personal characteristics, relationships, job performance	Generally low satisfaction except for age, service year, and colleagues' relationship
<i>(Oh, 2003)</i>	Job satisfaction among firefighters	Discover job satisfaction and dissatisfaction to reinforce systems	Workforce, promotion, environment, medical benefits	Improvement of fulfilling workforce and extra pay system is needed
<i>(Cho et al., 2017)</i>	Inner organization job satisfaction among firefighters	Maintain the talented firefighters	Designed sociodemographic and satisfaction questions for firefighters	Vision-based leadership and workload, innovation of organization is needed
<i>(Hong, 2000)</i>	Response measure for job satisfaction of stress	Discover factors that affect job stress and use their function	4 Stress factors, 3 Areas of meditating variables	Levels of stress differ from sociodemographic characteristics and control positions
<i>(Igboanugo et al., 2021)</i>	Health conditions from psychosocial stress in firefighters	Find work-related psychological and emotional stress	A systemic review of the psychosocial stressors and health outcomes	Firefighters experienced various types of emotional stress in organizations

## **Research Questions**

This study applies a qualitative research method in the context of EMTs in order to identify their deep inner grievances through an open-ended semi-structured interview. In qualitative research, researchers state research questions, not purposes or hypotheses. Accordingly, research questions in qualitative research take two forms, one is a central question, and the other supports the central question with sub-questions related to it (Palacios, 2014).

### ***Central Question***

- What environmental stressors and organizational inefficiencies impact EMTs in Incheon, South Korea?

### ***Supporting Research Question***

- What EMS administrative factors impact the Incheon Fire Department?
- What environmental and organizational improvements are necessary?

## CHAPTER III

### METHODOLOGY

#### **Philosophical Paradigm**

Philosophical notions are often hidden within research itself: however, given their impact on the execution of research, they need to be overtly confirmed. The term worldview refers to ‘a series of fundamental beliefs that lead to action’ (Guba & Lincoln, 1994). Researchers also refer to the concepts of paradigm (Lincoln, Lynham, & Guba, 2011), epistemology, and ontology (Crotty, 1998) or universally recognized research methodology (Wahyuni, 2012). Accordingly, it is crucial to clarify the philosophical beliefs supported by those preparing research proposals or plans that clearly explain the chosen research methods (Creswell, 1994).

#### ***Constructivism***

According to Palacios (2014), individuals have their own perceptual views of the world. Constructivism or social constructivism (sometimes linked with interpretivism) is understood as an approach to qualitative research. Social constructivists postulate that they are attempting to understand the world in which they live (Berger, Luckmann, & Zifonun, 1967). Constructivism argues that meanings are driven by social interactions

and the empirical background of social and historical norms. The basis for adopting the constructivist approach within this study is informed by Crotty's (1998) organization of qualitative constructivist views:

1. Qualitative researchers conduct open-ended question interviews to gain interviewees' views.
2. Qualitative researchers try to gain information and understand the circumstances and environments of research participants by attending to their situations. Researchers' own experiences and backgrounds also drive interpretations.
3. Constructing fundamental meanings is always society-based and involves interactions between the human community. Also, the process of qualitative research is mostly an inductive approach, and researchers may also create meanings from information and materials acquired in natural fields.

The critical point of this study is to listen to and understand the perspectives of EMTs working at the Incheon Fire Department and to identify the organizational ineffectiveness and stress factors. This is the process of individuals interpreting the organization's social structure and finding meaning in it. The researcher intended to observe and interpret the organizational society of the Incheon Fire Department by profoundly understanding the perception and perspective of EMTs working in the field utilizing the constructivist paradigm. These characteristics of the constructivist approach fit the research purpose of analyzing the perceptions of EMTs in Incheon, South Korea.

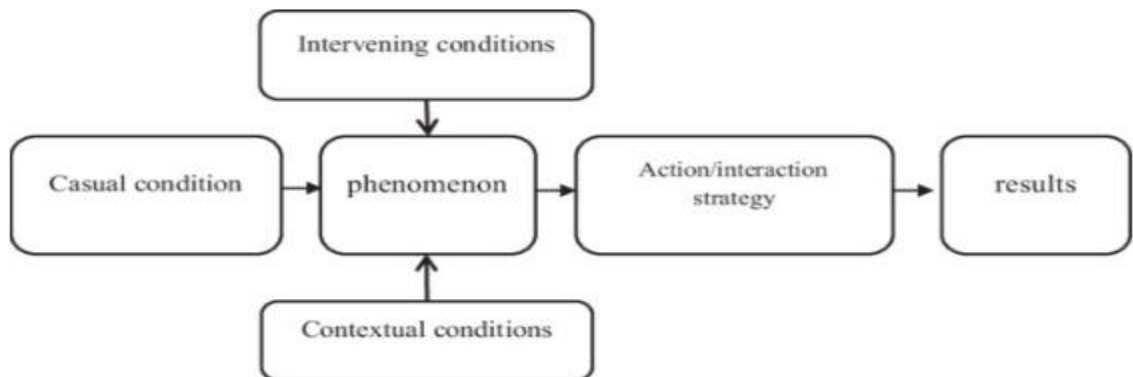


*System of Logic.*

*Grounded Theory.* Qualitative research is an approach to understanding and exploring the meaning of social or human problems from an individual or group. The research process goes through the generation and procedure of questions, data collection in the context of research participants, inductive analysis of data from specific topics to universal topics, and interpretation of the meaning of data (Jamshed, 2014). This qualitative study analyzed the data based on grounded theory. The grounded theory, developed by Strauss and Glaser in 1976, was based on qualitative research methodological thinking (Glaser, 1992).

The grounded theory is a theoretical development process applying a qualitative analysis method that inductively creates a theory based on data. It refers to a systematically collected and analyzed theory through qualitative research of a scheduled process based on symbolic interactionism (Strauss, 1988).

*<Figure 1> Paradigm of the Grounded Theory Analysis*



(Corbin & Strauss, 2008)

In grounded theory, data analysis proceeds in stages of open coding, axial coding, and selective coding. In open coding, the researcher categorized information about the phenomenon being studied by classifying the information. In axial coding, the researcher then systematically combines data, and in selective coding, the researcher writes a storyline that connects categories. Building a data set centers on the axis of theory construction and includes inductive and deductive thinking, which relate subcategories to one category (Creswell, 1994; M. B. Miles & Huberman, 1994). Grounded theory methodology has theoretical sampling and theoretical sensitivity. First, theoretically suitable subjects were sampled in selecting participants. Second, sampling becomes more purposeful and focused as the data is collected and proceeded until all categories are saturated. Third, the researcher is also a field response rescue worker in the fire department with experience in researching the U.S. and South Korea emergency management systems. Thus, the researcher's preparation for conducting research is critical as the researcher himself has been a vital tool within the research process, from data collection to analysis. As this study investigated the potential impacts of enhancing organizational effectiveness through the experiences and ideas of EMTs, this study adopted qualitative research methods that emphasized inductive findings derived from personal meanings (Palacios, 2014).

## **Data Collection**

The content of the researcher's role also leads to the stage of discussing issues related to data collection. The data collection stages included setting boundaries for research, unstructured and semi-structured observations, collecting information through interviews, documents, and visual data, and organizing plans for information recording (Wahyuni, 2012). The researcher selected research sites and individuals according to the purpose of the study. This qualitative research aimed to select participants and places according to the research purpose so that researchers could understand the perceptions of participants well. Discussions about participants and places included four aspects identified by (Miles & Huberman, 1994); 1) Place, 2) Interviewee, 3) Event (which is being done by an interview participant), 4) Process (the nature of the event developed by the study participant in the study).

***Place:*** The researcher targeted Incheon City, South Korea, as a multifunctional city that can be an excellent location for conducting qualitative research on ambulance services due to several factors that can provide valuable insights into the effectiveness of emergency medical services.

Incheon is a multifunctional city with a diverse environment that includes an international airport, sea, mountains, heavy highway traffic, and so on. Regarding this, Incheon has a relatively high accident rate due to its diverse environment (Kang et al., 2015). This diversity can provide valuable insights into the challenges ambulance services face in responding to emergencies in different environments. These factors present a unique opportunity to collect the dispatch effectiveness and the significant organizational inefficiency factors that EMTs have challenged.

Also, the high population density of Incheon provides an ideal setting for studying the effectiveness of ambulance services in a densely populated urban environment.

According to much research, the effectiveness of ambulance services can be influenced by large urban cities with population density, traffic congestion, and accessibility to medical facilities (Lee et al., 2015; Jarabo, 2020; Shima et al., 2022). ETMs working in the large population of Incheon, therefore, were assumed to provide suitable perceptions of the practical efficiencies of the organization in this regard. Also, the data can be used to examine ambulance service trends, identify service effectiveness gaps, and develop strategies to improve emergency medical services.

***Participants:*** This study utilized a purposive non-probability sampling method.

Purposive sampling is a method of intentional sampling cases that represent the population based on the subjective judgment of the researcher (Palacios, 2014; Turner III & Hagstrom-Schmidt, 2022). The basic assumption of purposive sampling is that intentionally sampling only representative cases according to appropriate judgment has the advantage of sampling that can represent the whole rather than the random selection method. In addition, since purposive sampling is based on the researcher's experience or professional insight, it can be easily sampled and has the advantage of saving costs (Creswell, 1994).

However, if the sample is recruited only based on the researcher's experience and judgment, there may be a possibility of deriving biased results. Therefore, the participants of this study were thoroughly vetted for objective sampling based on findings derived from literature reviews.

The selection criteria were based on the main reasons from prior research findings below. The first reason is employees working in large cities. This is because EMTs working in large cities are more likely to be under heavy workloads. Also, more EMTs analyzed higher stress in the heavy workloads of daily duties (Hong, 2000; Swab & Donne, 2019; Yun & Hong, 2018). In addition, the underpinning rationale for researching the perceptions of EMTs working in large cities is that there are many noted organizational problems related to the effectiveness of shift systems and a lack of workforce in large cities to serve large populations (Anderson, Ricciardelli, Tam-Seto, Giwa, & Carleton, 2022; Jaegal, Cho, & Jaegal, 2019; Shima et al., 2022; Tanabe et al., 2022).

Another criterion is that the findings from the literature review demonstrated that the opinions on organizational effectiveness and stress vary among various ranks, genders, and work experiences (Tolbert & Hall, 2015; Usoro, 2018). Regarding this, the second criterion for selecting research samples was the recruitment of diverse demographics.

Based on the criteria mentioned above, in-depth interviews were conducted with EMTs working in one of the largest cities, the Incheon Fire Department, South Korea.

Specifically, based on the result that heavy workload was a significant stress factor for first responders to fieldwork (Cho et al., 2017; Swab & Donne, 2019; Thielmann et al., 2022), the EMTs who experienced high volumes of dispatches under the Incheon Fire Department were selected. In addition, according to the study that stress levels of EMTs differ according to career, class, and gender, employees from various demographic categories were selected to listen in-depth to a broader range of opinions.

Two initial participants were selected by the purposive sampling method based on the purpose of the research from a theoretical perspective to conduct pilot interviews (Turner

III & Hagstrom-Schmidt, 2022; Wahyuni, 2012). A total of 30 interviews were conducted, including pilot interviews, to build sufficient data quality and quantity for the analysis (Creswell & Poth, 2016; Palacios, 2014).

**<Table 9> Research Participants**

	<i>Gender</i>	<i>Rank</i>	<i>Year of EMT</i>	<i>Interview Type</i>		<i>Gender</i>	<i>Rank</i>	<i>Year of EMT</i>	<i>Interview Type</i>
1	M	Senior Firefighter	8Y	Phone Call Record	16	W	Fire Sergeant	8Y	Phone Call Record
2	M	Senior Firefighter	6Y	Phone Call Record	17	M	Firefighter	3Y	Phone Call Record
3	M	Senior Firefighter	5Y	Phone Call Record	18	M	Fire Lieutenant	14Y	Written Interview
4	M	Senior Firefighter	7Y	Phone Call Record	19	W	Fire Lieutenant	15Y	Written Interview
5	M	Fire Sergeant	13Y	Phone Call Record	20	M	Fire Lieutenant	15Y	Phone Call Record
6	M	Senior Firefighter	6Y	Phone Call Record	21	M	Fire Sergeant	7Y	Written Interview
7	W	Senior Firefighter	10Y	Phone Call Record	22	M	Senior Firefighter	4Y	Phone Call Record
8	M	Senior Firefighter	8Y	Phone Call Record	23	W	Fire Sergeant	7Y	Phone Call Record
9	W	Senior Firefighter	8Y	Phone Call Record	24	W	Fire Sergeant	12Y	Phone Call Record
10	M	Fire Sergeant	10Y	Phone Call Record	25	M	Fire Lieutenant	16Y	Written Interview
11	M	Senior Firefighter	6Y	Phone Call Record	26	W	Senior Firefighter	6Y	Phone Call Record
12	M	Senior Firefighter	6Y	Phone Call Record	27	W	Firefighter	2Y	Phone Call Record
13	M	Firefighter	2Y	Phone Call Record	28	M	Firefighter	3Y	Phone Call Record
14	M	Fire Lieutenant	17Y	Written Interview	29	W	Senior Firefighter	7Y	Phone Call Record
15	M	Senior Firefighter	5Y	Written Interview	30	W	Senior Firefighter	5Y	Phone Call Record

**Interviews:** The semi-structured interview requires many resources and skill, time, and effort in planning and conducting the interview. In the case of an interview, open and unstructured questions were asked rather than structured questions used in quantitative research methods. This was because this qualitative research method focused on understanding the world and objects from the perspective of the research subject to discover new facts (Palacios, 2014; Wahyuni, 2012). In addition, the semi-structured approach is described as a suitable research method for grasping social problems because it could be the method of determining behavior according to how the research participants view the world and things (Natow, 2020). Since the qualitative semi-structured interview does not involve a hypothesis about a specific phenomenon, as in the quantitative method, the critical point of the qualitative approach was to start with an open and abstract question to get what the researcher wants from the interviews (Israel & Hay, 2006; Jamshed, 2014). When conducting an interview, the components of the strategy were selecting an appropriate interview time, structured question content, forming rapport between interviewees and the researcher, various questioning methods, asking more questions (probing), and setting a questionnaire (Creswell & Poth, 2016; Palacios, 2014). Changing the interview method according to the content of the questions, the natural flow of the story, emotional control and reflection during the interview process, and consideration for the ethical dimension of the interviewee were the point that the researcher faced before and during the interview process (Guest, MacQueen, & Namey, 2012; Leavy, 2011).

Data collection for this study was conducted through in-depth personal interviews from mid-October 2022 to the end of January 2023. Due to the COVID-19 situation in Korea,

the interview was conducted non-face-to-face, and the participants selected a desired time slot on their off-duty day. Semi-structured open-ended questions were organized to derive in-depth opinions from participants, and the researcher conducted 24 telephone interviews and six written interviews and. Before the interview, the researcher notified that interviews are conducted anonymously, and the participants could reject the interview or they could stop the interview at any time. As a detailed procedure, when interviewing EMTs in the city, interview notes were utilized while conducting semi-structured open-ended interviews, and the recordings were conducted simultaneously (Patton, 1990). Telephone interviews took approximately between 20 and 40 minutes. However, the average content volume of the written interviews was much shorter than the phone call interviews. In this regard, the researcher realized that the interviews with direct interactions, such as face-to-face or telephone interviews, were more effective ways to fulfill the purpose of the qualitative research.

### ***Interview Questions***

An interview questionnaire was prepared and used to maintain the consistency of the interview. The contents of the interview questionnaire were designed to collect information on research questions; the questions were structured based on the topic of the overall working system problems based on the environmental stressors of EMTs and organizational inefficiency (Hong, 2000; Khattak & Qureshi, 2020; Kim, 2020). Questions were formed to prepare the interview questionnaire, and questions were selected through literature reviews such as previous papers on EMTs stress, organizational effectiveness, and grounded theory papers. After completing the first prospective interview questionnaire and conducting pilot interviews with two EMTs, the



questionnaire was revised for the interview flow. Adjusted questions were confirmed as the final items through the final feedback of the supervisory committee who has much experience in official publications in qualitative research. <Table 9> below shows the list of questions.

*<Table 10> Interview Questionnaires*

<i>Question 1</i>	How long have you been as an EMT?
<i>Question 2</i>	What made you want to become an EMT?
<i>Question 3</i>	Can you talk to me a little bit about your job on an average day?
<i>Question 4</i>	What are the most stressful aspects of your job?
<i>Question 5</i>	How do you manage your stress?
<i>Question 6</i>	How would you describe the culture at your organization?
<i>Question 7</i>	How would you satisfy the salary at your organization?
<i>Question 8</i>	How would you describe the promotion system at your organization?
<i>Question 9</i>	Is there another role in the organization you would rather work?
<i>Question 10</i>	In what ways does your job affect your personal life or family life?

*<Table 11> Research Timeline*

<i>CONTENT</i>	<i>DATE</i>
<i>Final Review of Proposal</i>	Summer 2022
<i>Research Proposal</i>	Summer 2022
<i>IRB</i>	Fall 2022
<i>Recruit Participant</i>	Fall 2022
<i>Data Collecting</i>	Fall 2022 ~ Spring 2023
<i>Data Analysis</i>	Spring 2023
<i>Research Review</i>	Spring 2023
<i>Research Submit/Defense</i>	Spring 2023

## **Analysis Method**

### ***Transcription***

In order to start data analysis, the recorded voice files were transcribed into text. This process of recognizing speech and converting it into text is called speech-to-text (STT) and converting the interview into text data cannot include everything that occurs during the interview, but as many details as possible, such as non-verbal observations and patterns of participants' speech. Transcription is a fundamental process in the analysis of qualitative research data and must be done as precisely as possible to preserve the meaning of the data (Wellard & McKenna, 2001). All transcription work was done by the researcher (PI) and software called CLOVA Note was used. CLOVA Note is a representative STT tool and a recording tool that is helpful for qualitative research. CLOVA Note is a tool developed by Naver, Korea's representative IT company, and can be used for meetings, lectures, contracts, interviews, and consultations. In addition, it is an STT tool mainly used for qualitative research by Korean university professors and graduate students, and it is a tool that has a connection function with ZOOM. According to a study conducted at a university in Korea, the transcription accuracy of CLOVA Note's STT function was verified to be over 95% (Lee, 2022; Seocruzi, 2022). In this study, the ZOOM interlocking function was not used because the interviews were mainly conducted by recording phone calls. However, the recorded voice file was uploaded to the CLOVA Note program and transcription was performed. The researcher spent approximately one hour per interview reviewing and revising the software transcription. This process is to review the accuracy of software transcription as a task before translating Korean text into English. During the review process, a primary content

analysis was conducted, and new ideas were derived from the responses of the participants.

### ***Translation from Korean to English***

Original data transcribed in Korean were translated into English by the researcher. The researcher holds the Business English Translator certificate. This certificate is issued by the International Interpretation & Translation Association of Korea and is accredited by the Korean Ministry of Culture, Sports and Tourism. In addition, the researcher has experience in translating the white papers issued by affiliated the firefighting organization, and has performed various international exchange tasks run by the Korean Fire Agency.

A translator has two faces and must look at the author of the source language on the one hand and the reader of the target language on the other hand (Eoyang, 2003). In order to translate thoroughly, the translation was carried out by dividing the original text analysis stage, the transition stage, and the reconstruction stage (Nida & Taber, 1974).

In the original text analysis stage, the researcher reviewed the language knowledge of Korean, the starting language, as well as non-linguistic knowledge such as politics, society, and culture, in order to become a perfect reader who fully understands the original text. In addition, efforts were made to fully understand the meaning of the languages commonly used in disaster management organizations used by the research participants.

In the transition stage, what the original text wants to convey must be naturally expressed in the target language (Yuan, Jin, & Chen, 2021). The researcher analyzed and studied

the differences that may occur in the linguistic and cultural aspects of the source language and the target language in the in-depth structure, so that all necessary transitions can occur.

In the reconstruction stage, the researcher selected appropriate words and styles by adding, deleting, or replacing them in consideration of language formality, language difficulty, psychological distance between writer and reader, and expresses them in a natural target language that is closest to the meaning of the original text.

### *Qualitative Analysis Software*

After completing the translation of the original data into English, a full-scale analysis began using qualitative research software. This study utilized computer-assisted qualitative data analysis software called ATLAS.ti for the efficiency of data coding, which helps organize, classify, and analyze text, video, voice, and imagery. Following that, the qualitative data is efficiently classified and organized through data classification and organizational functions, as well as the function of searching for all coded texts. ATLAS.ti software can systematically implement findings from individual coding to group coding. Furthermore, various opinions of the study participants were summarized using open coding, axial coding, and selective coding functions that categorize data with a systematic approach (Friese, 2019; Smit, 2021).

In order to maintain the original nuance as much as possible, when analyzing and coding data, the English translation was placed under the original Korean corpus like subtitles so that researchers and readers could read the text in two languages. Throughout the data collection and analysis process, the researcher maintained theoretical sensitivity during

categorization using a strategy of continuous comparison and questioning. By categorizing the research results and data analysis, three themes, eight categories, and 24 codes were derived.

The criteria for the decision to continue or discontinue data collection through interviews and analysis was based on the time the theoretical saturation had been reached. (Creswell & Poth, 2016; Jamshed, 2014). This was monitored throughout the study while interviewing and analyzing simultaneously, and the researcher stopped the interview after conducting and analyzing 30 interviews under the guidance of the thesis committee members.

### **Reliability and Validity**

Qualitative research also needs to prove that the research conducted is reliable. In response to this need, Guba & Lincoln (1994) and Maxwell (1992) sought to devise universal procedures to ensure validity in qualitative research. As the above scholars' arguments drew attention, methods like member checking, triangulation, tick description, peer reviews, and external audits have been strategically applied in previous qualitative studies. Researchers should, therefore, explain their methodological choices and demonstrate that their findings are reliable (Merriam & Tisdell, 2015).

### ***Descriptive Validity***

Descriptive validity is related to the precision of the data collection process and refers to the accuracy of the description of the methods and technology used, and the events and behaviors, etc., reported by the researcher. In other words, descriptive validity is to verify whether the researcher accurately sees, hears, and reports the situation, events, and

actions that took place at the research site (Maxwell, 1992). It can be said that it is the basis for securing the validity of qualitative research to accurately describe the field data obtained by observation and questioning methods. Qualitative researchers must consider ways to overcome researcher influence (prejudice), and the representative strategy is reflection. Reflection means that researchers actively think critically about their potential biases and tendencies (Creswell & Poth, 2016). For the consideration of reflection for this research, the researcher's prejudice was alleviated by the combination of the researcher's practical experience and knowledge. In addition to conducting disaster-response tasks in the field, practical experience refers to prior research experiences in the United States and South Korea and the knowledge gained from those places. The researcher was able to try to minimize research errors and biases because the researcher understood and was well prepared for language and culture in the field of emergency management.

### ***Interpretative Validity***

Interpretative validity can be said to be a concept that corresponds to how accurately the meaning existing inside the study participants is described. Specifically, interpretive validity refers to how accurately the researcher understands and describes the study participants' inner world (views, thoughts, emotions, intentions, experiences, etc.) in the study report (Maxwell, 1992). In qualitative research, interpretation is expressed in a style in which the researcher describes the situation and is generated in the interaction between the researcher and the research participants (Merriam & Tisdell, 2015). A strategy that can increase interpretive validity is confirmation of participants so-called member checking. Member checking was performed by distributing the original data and analyzed codes to the study participants and requesting them to make comments and

explanations (Guba & Lincoln, 1994). Reviews were comprehensively analyzed again to reconstruct the researcher's description reflects the internal world of the research participants more faithfully. In addition, from the perspective that qualitative research faithfully reflects the internal world of the study participants, the researcher was allowed to contain the verbatim of the study participants (Creswell, 1994; Palacios, 2014). In this study, the researcher conducted member checking by showing participants the core findings, the topic's analysis content, and the ground theory description. This process included conducting follow-up interviews with participants and hearing their opinions to trim or reconstruct the results. Also, to verify the firm interpretative validity, with the member checking, the researcher utilized methodological triangulation with a combination of observation, interviews, and reviewing documents (Leavy, 2011).

### ***Theoretical Validity***

The aspect of the theoretical validity theory, there are two factors: 1) validity of concepts applied to the phenomenon, and 2) validity of the relationship assumed between concepts. The former can be said to be a brick used by researchers to build a model, and the latter can be said to be the validity of the method of stacking bricks. The development of theory requires an explanation of the phenomenon beyond just providing facts. Maxwell (1992) explained two factors in theoretical validity with the following example.

*“Researchers can classify the behavior of a student throwing an eraser as an act of resistance, and in turn link it to the teacher's repressive behavior, the social structure of the school, and class relationships in American society. Identifying throwing behavior as resistance constitutes the application of theoretical structures... (abbreviated) linking*

*throwing behavior to other study participants, schools, and communities constitutes the assumption of theoretical relationships between these structures (p. 291).”*

In the above example, a theoretical structure named 'resistance' was used to explain 'the behavior of a student throwing an eraser.' A theory can be developed in relation to other theoretical structures, and a theoretical structure called resistance can be associated with other similar theoretical structures (Maxwell, 1992).

Merriam and Tisdell (2015) argued that theoretical validity involves theoretical structures applied and developed by researchers while conducting qualitative research. A technique that can improve theoretical validity in qualitative research is long-term field observation. By spending sufficient time on the field observation as a fire rescue officer, the researcher has become confident by verifying that the types and relationships revealed in the research field work stably with the research participants, thereby establishing the basis for explaining such relationships and generating theories. The more time the researcher spends with participants in the field, the more accurate and valid the outcome will be (Creswell, 1994; Maxwell, 1992).

### **Ethical Consideration**

In addition to conceptualizing the process of drafting a research plan, researchers need to anticipate ethical problems that arise (Leavy, 2011). Researchers collect data about humans from humans. Researchers must protect research participants, trust them, ensure that the research is flawless, should not damage the research participants' organizations, and overcome emerging problems (Israel & Hay, 2006). In other words, it is necessary to



pay attention to ethical considerations at each stage in the process of collecting and analyzing data while reporting and sharing data at the beginning of the study.

This study was conducted only after obtaining approval by submitting a research plan to the Oklahoma State University Institutional Review Board in a prescribed form before data collection. When requesting an interview in advance, sufficient time was given for participants to take at least one week to decide to participate in the study. Before the interview, the researcher explained the purpose of the study in detail to the study subjects and explained the necessity of the study so that participants could understand. In addition, the method and time of the interview were explained and never seek consent under pressure. The researcher clearly explained that the study participants will be maintained anonymity and confidentiality on all matters when interviewing and coding the data (Jamshed, 2014). It also explained that even if it is conducted after the consent, participation in the study could be stopped during the interview. Furthermore, it was explained that when a participant wants to stop an interview, the researcher should not ask why. In addition, the act of recommending continuing the interview is prohibited, and these matters were detailed in the interview briefing note. The researcher also explained that data is not used for any other purposes than research. After collecting data through interviews, anonymous coding is performed and stored to prevent identification from others (Creswell, 1994).

## CHAPTER IV

### FINDINGS

#### **Introduction**

The analysis of the interview data in this study was conducted according to the coding order and method of Corbin and Strauss (1988), which is a traditional grounded theory analysis technique. In the process of analyzing these interview data, the researcher completed each coding task, reviewed by members of the doctoral thesis committee, and received feedback from the advisor to conduct the analysis.

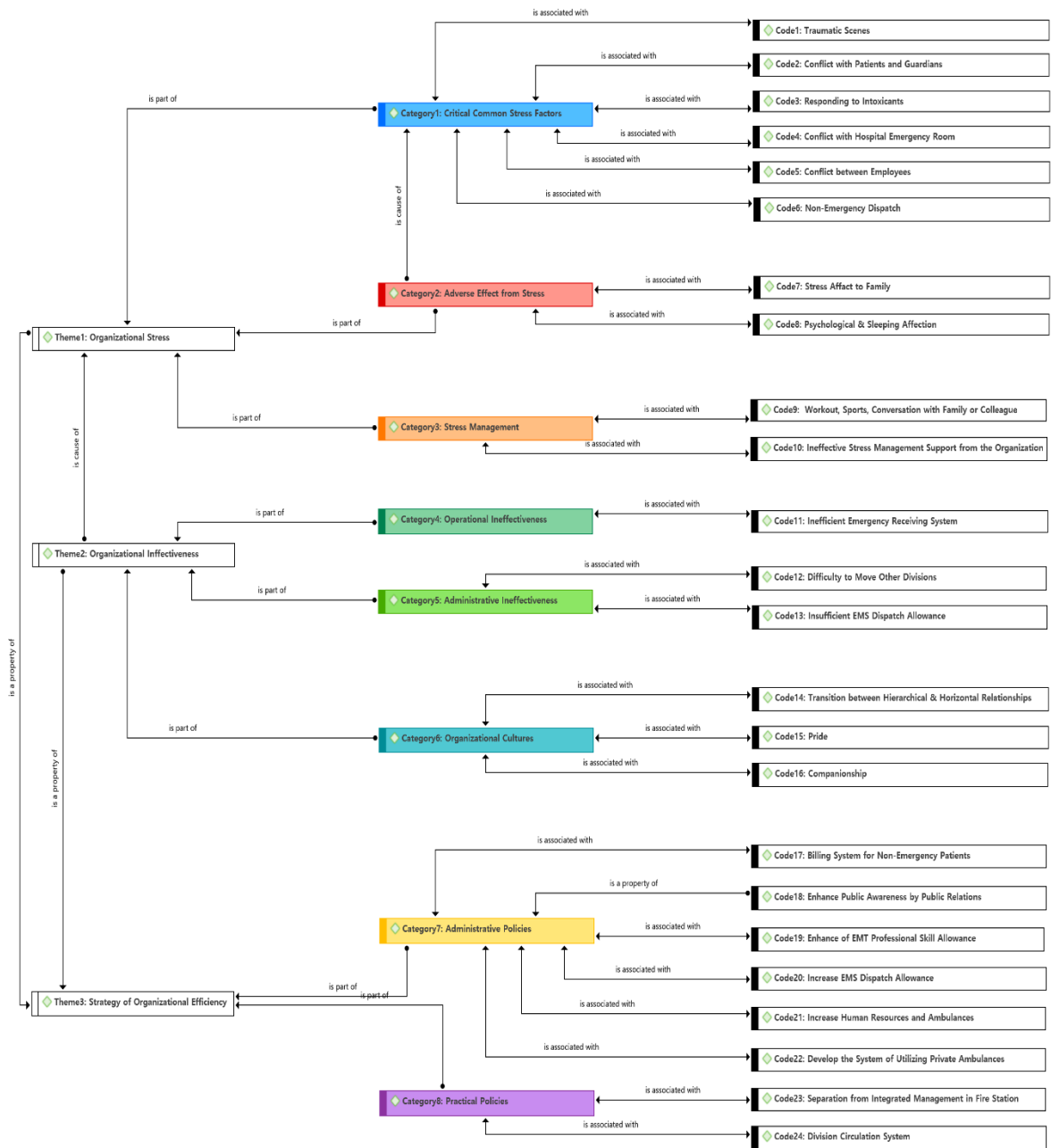
Firstly, open coding was conducted by reading and analyzing the transcript of the interview as a whole while recalling the interviews with the research participants. Among the words or phrases revealed in the paragraph of each sentence, the significant parts were named, conceptualized, and categorized again. Next, axial coding was performed. With the categories analyzed in open coding as the central axis, the relationship between subcategories was identified and analyzed through continuous analysis. The analysis was conducted by applying the paradigm model structure of Strauss, A & Corbin (1998), which is the analytical framework of grounded theory. Lastly, selective coding was performed to create core categories by integrating categories derived from axial coding

(Packer-Muti, 2009). Selective coding determines the core category. Accordingly, the core categories were revealed, and the outline of the story was constructed as a method of conceptual integration. This researcher tried to find a comprehensive concept that can comprehensively explain the concept of the story obtained through interviews with the participants. Therefore, EMTs experienced stress and ineffective organization during work, and in the process of encountering difficulties, measures to overcome them were derived. Through this process, the research results were integrated and elaborated.

### **Open Coding**

Essential matters in the statements of the participants were marked, and a code name was created separately to give meaning and conceptualize them. The data of this study were finally classified into three themes, eight categories, and 24 codes through open coding. In order to maintain the original nuance, the code quotation description was arranged in both Korean and English.

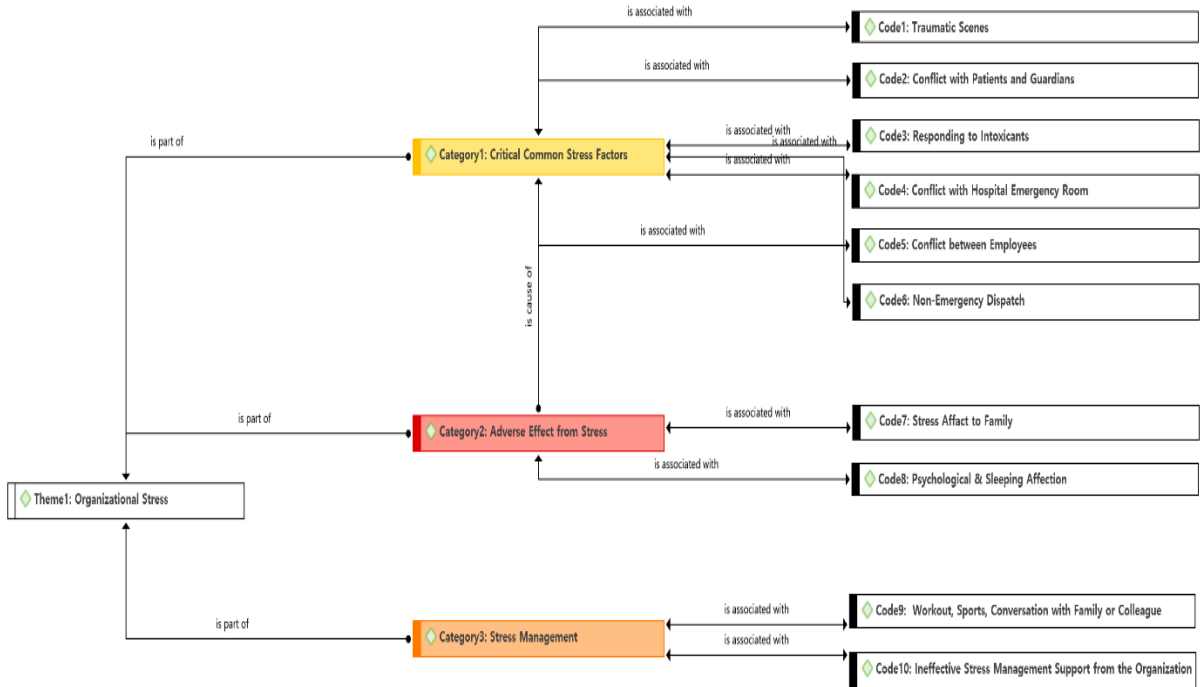
<Figure 2> Conceptual Diagram of 3 Themes, 8 Categories, and 24 Codes



### ***Theme 1 - Organizational Stress***

The first theme discovered according to the purpose of the thesis and the intention of the questionnaire was Organizational Stress. Theme 1 was further divided into three categories. The first category is Critical Common Stress Factors, and the main stress factors felt by EMTs were derived through interviews. The second category, Adverse Effect from Stress, describes the negative effects of job stress. The third category, Stress Management, describes how EMTs manage stress and how they think about stress management in their organizations (see Figure 3).

***<Figure 3> Theme 1 – Organizational Stress***



### ***Category 1 – Critical Common Stress Factors.***

In category 1, ideas were drawn about the major stressors of EMTs working in the field.

EMTs cited seeing horrific conditions in the field, dealing with uncooperative people, and having to make large amounts of non-emergency responses as the main factors.

#### *Code 1 – Traumatic Scenes*

First, there was a member who answered that having to see terrible scenes frequently was the most stressful factor. The member responded that it also affects his personal life in a psychological aspect.

“참혹한 재난현장 특히 자살 사망현장에서는 15 년 지난 지금도 PTSD 가 지속되어 귀소 후에도 한참 마음이 힘든경우가 많습니다.”

*“At the scene of a tragic disaster, especially at the scene of a suicide death, PTSD continues even after 15 years, and there are many cases where it is difficult for a long time even after returning home.” (Participant 19, P19)*

“저는 한동안 잠자기가 조금 힘들었어요. 조금 잔인한 장면 봤을 때는 밤에 좀 떠오를 때도 있기도 했고 그리고 또 그쪽에 지나다닐 때면 좀 생각도 나고 하더라고요.”

*“For a while, I suffered from insomnia. When I had to deal with graphic cases, they kept recurring in my mind, and I avoided the area where they occurred.” (P24)*

#### *Code 2 – Conflict with Patients and Guardians*

The second code that was organized among the grievances of EMT members was that they had to deal with uncooperative patients or guardians. Many EMTs reported experiencing being ignored by patients or guardians in the field.

“아무래도 구급대원들은 이제 사람을 상대하는 직업이다 보니까 이제 조금 욕을 하시는 분들도 있고 이제 불평 불만이 좀 많으신 분들도 있고 이제 좀 협조적이지 않은 분들을 대하는 게 가장 어렵죠.”

*“Apparently, EMTs are dealing with people, and sometimes some people curse a little, some people complain a lot, so dealing with people who are not cooperative is the most difficult.”(P24)*

“가장 특별하게 스트레스를 받는다고 생각하지는 않고 있는데 이렇게 우리가 이제 아무래도 현장 업무다 보니까 이게 민원인들을 상대했었을 때 민원인들이 소방관 또는 공무원의 직업을 좀 하대하는 약간 좀 함부로 하는 사람들을 만나면 그때는 조금 업무가 조금 힘들다라고 느끼는 적은 있었습니다.”

*“This is not that big of an issue, but I do feel mistreated by the people filing complaints against us; they show no respect for us, fire officers or civil servant; that serves as a psychological burden.”(P20)*

### *Code 3 – Responding to Intoxicants*

Among the stress factors, responding with the highest frequency was responding to drunkards. Dispatches related to drunk people have been a constant issue, but there is no way to confirm at the report reception whether they are simply drunk or have real injuries, so EMTs always have to go to the scene and respond. Response to a simple drunkard When going out on the road, the EMTs have to transport the patient to the hospital, but the drunkards do not cooperate and say that they do not go to the hospital, and there are many situations where arguments arise.

“제일 요즘 스트레스 받는 건 주취자 대응인데요 주취자가 있는 상황에서 이 사람은 이제 병원을 안 간다고 하고 근데 인계할 보호자가 없는 상황에서 이제 의료지도를 받게 되면 의료지도 의사는 병원에 꼭 가야 한다하고 환자는 설득이 안 되는 상황이거든요.”

*“The most stressful thing these days is dealing with a drunken person. In a situation where a drunkard is present, this person says he will not go to the hospital. It is a bad situation. However, there are situations in which the medical guidance doctor says that the patient must go to the hospital, but there are situations in which the patient cannot be persuaded.” (P16)*

“그래서 이 사람은 결국에는 이제 안 간다고 하니까 현장에서 이제 거부서를 받고 오는 상황인 건데 항상 의사가 말하는 건 이 사람은 주취자니까 법적 보호가 될 수가 없다 그런데 환자가 안 간다라고 하니까 이제 문제가 생겼을 때 내가 최대한의 보호를 받을 수 없는 상황이 조금 아이러니하더라고요.”

*“In the end, this person said he would not go to the hospital, so we are now in a situation where we received a refusal from the site, but the doctor always says that we cannot be legally protected because this person is a drunkard.. The patient said he would not go, so it is a little ironic that I cannot get the minimum amount of protection when a problem arises.”(P16)*

#### *Code 4 – Conflict with Hospital Emergency Room*

EMTs also reported feeling stressed in their relationships with hospital emergency rooms. In the past few years, there have been problems with hospitals and EMTs regarding patient transfers, especially during the COVID-19 period.

“현장 출동을 나가서의 스트레스는 일단 요즘 좀 코로나 때문에 병원도 많이 힘들겠지만 환자를 가려받게 되다보니까 당연히 받아야 될 사람들도 우리가 부탁해서 막 여기저기 전화를 20 통 넘게 돌려서 겨우겨우 받을 때도 요즘은 많아진 것 같아 그러니까 한마디로 병원 갑질이 좀 심해진 것 같아요.”

*“Concerning stress in the field, I am aware that COVID-19 wreaked havoc in many aspects, including hospitals. The thing is, hospitals autonomously select their patients for admission, so we have to make 20 or more calls before we finally find a hospital that would accept our patients. Simply put, they(hospitals) have a little too much power these days.”(P7)*



*Code 5 – Conflict between Employees*

EMTs responded that they were also stressed in their relationships with employees in their fieldwork on the scenes and daily work in the office. EMTs responded that the conflict between employees was divided into problems arising from conflicts of interest between the EMS division and other divisions in fire stations and problems among EMT members.

“네 맞습니다 저도 좀 지켜보고 또 저희 부서도 마찬가지겠지만 이렇게 통틀어서 현장과 행정 간에 그런 또 이해 충돌이 있고..”

*“I concur. There is a conflict of interest between field workers and office workers...” (P17)*

“구급대원이랑 다른 대원들이랑 업무가 좀 차이가 있다고 느끼는데 서로의 업무 영역을 잘 몰라가지고 서로의 고통을 이해해 주지 못하는 경우가 생기고 있다고 생각을 하고 있습니다.”

*“As a result, our jobs require different responsibilities, resulting in a lack of empathy for each other's suffering.”(P17)*

“아무래도 가족보다 더 자주 보는 그런 환경이기도 하고 네 그리고 사실 사람 성격이라던가 그런 것보다는 좀 환자를 대할 때 그런 스타일이 좀 더 큰 것 같아요.

좀 어느 정도 열정을 갖는 분들이 있는가 하면은 그냥 생계형 수단으로만 생각하시는 분들도 있고 그러다 보니까 제가 좀 마음가짐이 다른 직원을 만나다 보면은 좀 여기서 의견 충돌도 나오고 그래서 그럴 때는 조금 힘든 일이 생기기도 하고요..”

*“It is an environment that I see more often than my family, and yes, and actually, I think that style is a bit bigger when dealing with patients rather than people's personalities or things like that.*

*Some people have a certain amount of passion, while others just think of it as a means of making a living. So, when I meet an employee with a slightly different mindset, there are conflicts of opinion here, so sometimes it is a little tricky..”(P6)*

### *Code 6 – Non-Emergency Dispatch*

A large number of non-emergency dispatches were also identified as stressors for EMTs. It was found that many citizens call an ambulance with mild symptoms or treat it like a taxi service.

“물론 시민의 안정을 위하여 존재하는 것이 구급대원인 것은 맞지만 비응급 상황에서 구급차를 택시처럼 활용하려 하여서 좀 출동력이 낭비되는 것 같고 사람으로서 신체적 정신적 에너지가 그런 것에 좀 소비되는 것이 좀 스트레스인 것 같습니다.”

“EMTs should prioritize the public's health and comfort, but not to the point where they believe they have the right to use ambulances like taxis. That must have used up much of your physical and mental energy.”(P17)

“전체적으로 다른 나라에 비해 비응급 관련 출동이 많은 편입니다. 예를 들어 단순복통, 전신쇠약, 단순발열, 주취자 등 있으나, 비응급 가면에 가려진 잠재응급에 의심되어 구급출동 건마다 최선을 다하고 있습니다.”

“Overall, there are more non-emergency related dispatches than other countries. For example, there are simple abdominal pain, general weakness, simple fever, drunkenness, etc., but we are doing our best for each emergency dispatch case because we suspect that it is a potential emergency hidden under a non-emergency mask.”(P14)

### **Category 2 – Adverse Effect from Stress.**

Category 2 summarizes the negative effects of the major stress factors derived from Category 1. Among the parts that are most directly affected, they talk about the parts that affect their families and the parts that affect them personally, mentally and physically.

### *Code 7 – Stress Affect to Family*

They answered that job stress directly or indirectly affects families. Many respondents said they could not maintain a smooth home life while feeling mentally and physically fatigued due to the nature of their work.

“아이와 함께 놀아주기도 좀 힘든 경우도 좀 있고 그리고 이제 배우자한테는 이제 가사적인 부분에서 이제 그런 설거지나 청소 같은 걸 같이 도와주면 좋은데 그런 거 참여하기가 힘들니까 아무래도 그런 집에서의 생활이 조금 영향을 받긴 하죠.”

“There are times when it is hard to play with your child, and it is good to help your spouse wash the dishes and clean the house together, but it is hard to participate in it, so your life at home is affected.”(P2)

“그러니까 제가 필요할 때는 좀 가족들에게 미안한 얘기지만 좀 날카로워지는 경향이 없지 않아 있는 것 같고요.. 그니까 일을 하면서 일을 집안으로 끌어들이면 안 된다는 생각을 하는데 저는 일과 가정을 분리해야 된다는 생각을 하기는 하지만 네 어떤 육체적인 피로로 인한 부분들이 분명히 제 생활에는 영향을 끼친다고 생각을 합니다.”

“So when I need it, I feel sorry for my family, but it seems that there is a tendency to be a little sharper. Home and work have to be separated, but I think physical fatigue definitely affects this life.”(P5)

### *Code 8 – Psychological & Sleeping Affection*

EMTs said that they were psychologically affected by job stress and that it had a negative effect on sleep quality. There are cases where the situations they saw in the field remain as PTSD, and because the work itself is dispatched while staying up all night, this had an impact.

“어 우리가 봤을 때는 자주 그러는데 그런 출동을 다녀온 후에는 계속 그 당시의 상황을 또 생각하고 왜 그렇게 대응했는지 다시 계속 생각하고 노력하고 이외에도 많은 대응

방법들을 생각해서 많이 잡을 못 이루는 경우나 아니면 퇴근 후에도 계속 그 생각 때문에 일상생활에 집중 못하는 경우가 있어가지고 그런 쪽에서 사생활에 영향을 좀 미칩니다.”

*“Uh, it often happens when we see them, but after going to such a dispatch, we keep thinking about the situation at the time and why we reacted like that. Sometimes I cannot sleep because I think about it, or I cannot concentrate on my daily life because of that thought after work.”(P1)*

“아무래도 몸의 만성 피로가 계속 되고 일하면서 이제 아무래도 감정 소모를 많이 하게 되다보니까 사람이 좀 방어적이 된다고 하고 방어적이 되는 것 같아요 일상생활에서..”

*“I think people become more defensive because they are constantly tired and use up many emotions while working in one's daily life..”(P3)*

### **Category 3 – Stress Management.**

Category 3 summarized how EMTs manage stress. Employees who participated in the interview tended to manage stress in positive ways, such as using the counseling center, exercising, and talking. Opinions were also shared on the stress management program operated by the organization, but there were many negative responses.

#### *Code 9 – Workout, Sports, Conversation with Family or Colleague*

Employees who participated in the interview answered that they often relieve stress through conversations with employees or their families, and tended to manage stress in positive ways, such as through exercise and sleep.

“네 저는 웨이트 트레이닝이랑 골프를 좋아하는데요. 이제 시간이 날 때 이제 집에 가서 좀 고중량으로 웨이트 트레이닝을 하면 스트레스가 좀 많이 해소가 되더라고요. 그리고 골프 드라이빙 레인지나 아니면 스크린 골프장 같은 데 가서 골프 연습을 하면은 이제 그것도 스트레스 해소에 많이 도움이 되는 것 같습니다.”

*“Yes, I like weight training and golf. When I have time, I go home and do weight training to*

*relieve stress. And if I go to a golf driving range or a screen golf course and practice golf, I think that helps me relieve my stress a lot.” (P2)*

“주로 운동 많이 하는 것 같아요. 헬스장을 가서 운동을 하든가 축구동호회나 야구 동호회를 하고 있거든요. 그래서 네 그래서 그런 걸로 이제 좀 더 업무에 대한 생각을 없애려고 그러고 있습니다.”

*“I think I do many exercises. I go to the gym to work out, or I have soccer or baseball clubs. So yes, that is what I am doing now to get rid of my thoughts about work.”(P4)*

“해당 관련일을 동료와 함께 대화를 나누곤합니다. 서로 공감하는 부분이 있어 그런대화를 통해 고립된 마음이 조금 나아지는것같습니다.”

*“I often have conversations with my co-workers about this. There is a part in which we can sympathize with each other, and through such conversations, it seems that the isolated mind gets a little better.”(P18)*

#### *Code 10 – Ineffective Stress Management Support from the Organization*

When asked about the stress management system currently operated by the organization, the majority of respondents gave negative answers to the stress management program operated by the organization.

“그게 조금 그리고 그런 PTSD 이런 거 상담 많이 이제 그런 거를 도입하려고 하긴 하잖아요. 근데 이제 저희도 일과 시간에 이제 그분들이 찾아와서 상담을 하다 보니까 그런 게 제대로 안 이루어져서 딱히 뭘 스트레스 관리를 해주는 측면은 없는 것 같고 좀 휴게 시간을 좀 눈치 안 보게끔 더 편하게 설 수 있는 환경을 조금 만들어줬으면 좋겠어요.”

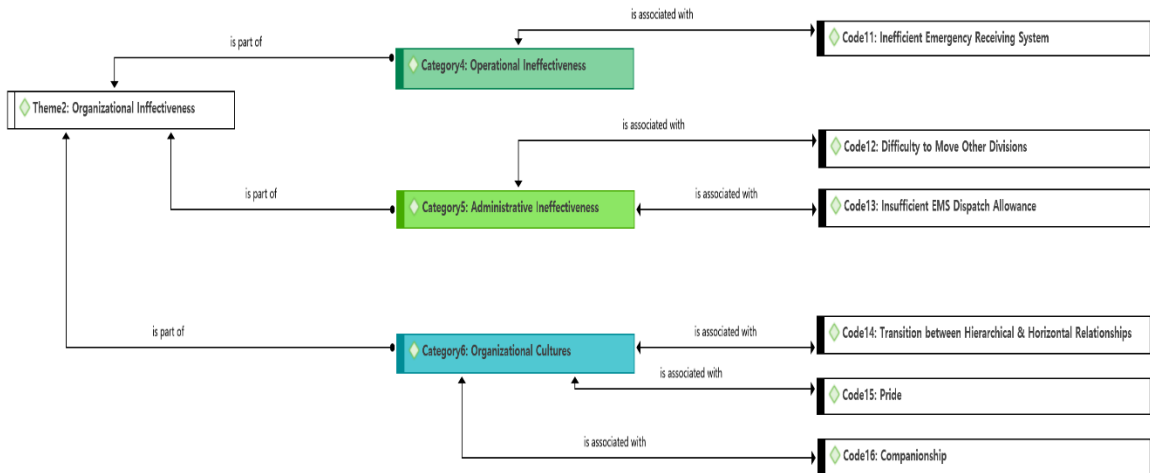
*“They attempted to implement PTSD therapy sessions. However, it consumes our working hours, so we do not get the full effect. I just wish they would create an environment where we EMTs do not have to look over our shoulders when taking a break.”(P26)*

“네 근데 그게 다 저희한테 진짜 실질적으로 도움을 주는지는 잘 모르겠어요. 그래서 딱히 스트레스 관리해서 저희한테 도움을 준다 이런 거는 딱히 없는 것 같아요.”  
 “Yes, but I am not sure if all of that really helps us in a practical way. So I do not think there is anything specific about stress management run by an organization that helps us.”(P27)

### **Theme 2 - Organizational Ineffectiveness**

The second theme was organized around organizational inefficiency, and three categories were formed under the theme. In Category 4 Operational Inefficiency, opinions were derived about inefficiencies in field operations. In Category 5 Administrative Ineffectiveness, inefficiency in the administrative part was derived. Finally, Category 6 Organizational Culture summarizes opinions about the culture of the organization that is currently formed (see Figure 4).

**<Figure 4> Theme 2 – Organizational Ineffectiveness**



#### ***Category 4 – Operational Ineffectiveness.***

Category 4 summarized problems with the accident receiving system in the situation room. Many EMTs argue that the improvement of filtering non-emergency calls for dispatches.

#### *Code 11 – Inefficient Emergency Receiving System*

Many opinions were expressed that it would be positive if unnecessary reports could be avoided. However, during an interview with an incumbent dispatcher with EMT experience, he also talked about the reason why emergency medical dispatchers (EMD) could not choose and receive the number.

“그리고 구급대원 자체 내의 매니지먼트 전체적으로 매니지먼트를 총괄해가지고 이제 구급대원들의 그런 관리를 해 주는 역할 그리고 내부적인 그냥 시스템 문제 그 예를 들어서 상황실에서 좀 이제 걸러준다거나 일반 환자 같은 경우는 일반 환자나 이런 걸 좀 자세하게 걸러줄 필요가 있고요.

그래서 구급대 직업에 대해서 스트레스 받는 부분을 감축시킬 수 있는 그런 부분이 있다 그냥 그런 생각이 듭니다.”

*“And the role of overseeing and managing overall management within the EMT itself is important. And internal system problems, for example, filtering out cases like normal patients in the situation room, or needing to be detailed.”(P8)*

“실질적으로는 범제화 돼 있지 않죠 일단 저희는 저희 범상으로는 뭐든지 현장 부서에서 확인하게끔 돼 있잖아요 저희가 임의적으로 판단해서 출동을 지령을 안 내거나 그럴 수는 없는 상태고 저희는 어차피 그냥 유선으로만 듣고 출동 지령을 내리는 거고요 저희는 신고자의 말을 100으로 신뢰할 수밖에 없어요 불이 났다면 불이 난 거고 그때부터 시작을 하는 거니까 사람이 아프다면 거짓으로 신고를 해도 그 시발점 자체가 그때부터 시작하는 게 아니고 사건이 터졌다는 인지하에 시작을 하는 거니까요 그거에

대해서 오인 출동일지 거짓 출동일지 그냥 단순 민원 건일지는 확인을 할 수가 없어요 예.”

*“It is not actually legislated. First of all, according to our law, we are supposed to check everything in the fieldwork division. We cannot arbitrarily judge and order to dispatch, or it is impossible to do so, and we are just listening to the wire and issuing an order to dispatch anyway. We have no choice but to trust the reporter's words 100%. And it starts from then, so if a person is sick, even if you report it falsely, the starting point itself does not start from then, it starts with the awareness that the incident has occurred.”(P10)*

### **Category 5 – Administrative Ineffectiveness.**

In Category 5, administrative and budgetary issues were drawn from within the organization. The derived codes include Difficulty to Move Other Divisions and Insufficient EMS Dispatch Allowance, and detailed opinions were shared.

#### *Code 12 – Difficulty to Move Other Divisions*

EMTs are firefighters belonging to the fire department and have the right to work in other departments (fire suppression, rescue, administrative positions) after working for a certain period of time if they wish. However, due to personnel issues within the organization, there were many restrictions on moving to departments.

*“부서이동에 장애 요소는 있습니다. 우선은 1 급 그러니까 응급구조사 1 급이라는 자격증을 가지고 있기 때문에 지금 구급대로 넘어올 수 있는 인력이 우선 부족한 게 사실이고요 그렇다 보니까 구급 1 급자들이 다른 업무로 갈 수 있는 상황 갈 수 있는 갈 수 없는 게 현실이기는 합니다. 인력 부족으로 인한 그런 부분들이 조금 해소는 돼야...”*

*“There are obstacles to move other divisions. First of all, it is true that there is not enough manpower to come over to the ambulance. As a result, it is a reality that first-class EMTs cannot go to another division where they want to go to experience new tasks. Some of those issues due to the lack of manpower that should be resolved...”(P5)*



“물론 제가 다른 타 부서를 가기 위해서 소방 안전 교육사도 따고 이런 자격증을 갖고는 있지만 현장에 1 급이 부족하다는 이유로 현장에 남아 있는 상태입니다.”

*“Although I do have licenses like Fire Safety Educator in case they are needed for changing divisions, they remain useless because there are not many 1st class EMTs on -field.”(P9)*

“사실은 제가 지금 여기 소방서 오면서 4 년 내내 고충도 쓰고 이제 다른 부서도 되게 지원을 많이 했는데 아까 말씀드린 것처럼 이력 때문에 현장에 1 급이 부족하다는 이유로 그게 다 잘렸어요. 네 그렇기 때문에 이제 어쨌든 자발적으로 자기가 다른 걸 하고 싶어 해도 혹은 그 반대라든가 그럴 수 없는 구조예요. 그래서 시스템이 침체되어 있고 이게 악순환이거든요.”

*“After I started working here, I have been applying to other divisions for 4 years straight.*

*But, I always got rejected because there was a ‘shortage of 1st class EMTs in fields’.*

*Even though you want to change professions or even the opposite, you cannot. So the system remains stagnant; it is a vicious cycle.”(P10)*

#### *Code 13 – Insufficient EMS Dispatch Allowance*

Currently, the EMTs can earn an EMS dispatch allowance of 3,000 won per dispatch only from the 4th to 14th dispatch cases (10 cases; 30,000 won allowed per day), and no additional allowance is added for dispatches after that. In fact, in busy cities, there are many cases of dispatching more than that, so there are many dissatisfactions with the dispatch allowance.

“출동 가산금이라는 제도를 지금 운영을 하고 있지만 그 부분을 조금 더 개선을 하고 출동 가산금에 대한 어떤 금액적인 부분을 올려준다면 고생하고 있는 만큼의 어떤 보상을 받는다고 생각을 하기 때문에 구급대원들 입장에서든 그 부분은 좀 개선되어야 돼야 한다는 의견들을 저도 많이 들었고 동료들도 많이 하기는 합니다.”

*“We are currently operating a system called the EMS dispatch allowance, but if the organization improve that part a little more and raise some amount of the EMS dispatch allowance, we think that we will receive some kind of compensation as much as we are suffering. Many of my colleagues think that area needs to be improved.”(P5)*

*“근데 이거 출동 가산금이 지금 현재 네 건부터 3천 원으로 측정이 되는데요. 이게 조금씩 이게 좀 오래됐다고 그러더라고 이 3천 원에 계속 머물러 있다고 하더라고요 이게 한 5천 원 정도만 돼도 조금 그런 좀 좋을 것 같습니다.”*

*“For the dispatch allowance, since a long time ago, it has been measured at 3,000 won for the fourth dispatch, and it would be nice if it could be raised to about 5,000 won.”(P11)*

### **Category 6 – Organizational Cultures.**

In category 6, the contents of the overall organizational culture were derived. As a result of the analysis, Transition Period between Hierarchical & Horizontal Relationships, Pride, and Companionship were derived as sub-codes from conversations with employees.

#### *Code 14 – Transition Period between Hierarchical & Horizontal Relationships*

When asked about organizational culture, several conflicting views emerged. Some employees still spoke of the negative aspects of bureaucracy and class society in the organization. On the other hand, there were also comments that said the organization was gradually permeating a horizontal culture.

*“조직의 문화는 약간 수직적인 문화가 강한테 그래도 요즘은 많이 이제 유연해져가지고 예전에 비해서는 좀 이제 부드러워진 것 같습니다.”*

*“The culture of the organization has a strong vertical culture, but these days it has become a lot more flexible and it seems to be softer than before.”(P30)*

“지금 상당히 대한민국 소방 조직은 지금 좀 저 입사했을 초기보다도 많이 발전이 되어 있고 서로 간에 상호 존중하는 문화들이 지금 많이 퍼져 있기는 하지만 아직도 예전에 어떤 경직된 문화들이 존재하는 것은 사실이기 때문에 그런 부분들은 시간이 지나면 개선될 거라고 저는 생각을 합니다.”

*“Currently, the Korean firefighting organization is much more developed than in the early days when I joined here, and although a culture of mutual respect for each other is spreading a lot now, it is true that some rigid cultures still exist in the past, so those parts will pass over time. I think it will improve.”(P5)*

“공무원이라는 강직 된 문화 이지만 시대의 흐름에 따라 자율적이고 개방적으로 변화 되고 있습니다.”

*“It is a rigid culture of civil servants, but it is changing to become autonomous and open according to the flow of the times.”(P25)*

#### Code 15 – Pride

Through the interview, it was found that the employees felt considerable difficulties while performing their duties, but in the midst of this, as EMTs, they felt that their pride was quite strong, and derived a code called Pride as one part.

“위급상황에서 최초 반응자로서 보람과 자부심을 느끼면 구급대원이라는 직업에 매우 만족하며 생활 하고 있습니다.”

*“As a first responder in an emergency situation, I feel rewarded and proud, and I am very satisfied with my EMT job.”(P25)*

“아무나 할 수 없는 일이라고 생각하기 때문에 굉장히 자부심 가지고 일하라고 있고요 스트레스에 놓이는 상황도 있지만 보람감이 주어지는 상황이 그래도 더 많기 때문에 현재로서는 만족하고 있습니다.”

*“It is not a job that everyone can do; it takes much dedication, so despite the difficulties I face, I am proud of what I do.”(P17)*

“소방공무원의 특성상 신뢰받는 직업이며 반대로 위험한 직업이라는 인식은 개인, 가정 모두에게 영향을 미치는 것으로 생각하고 개인적으로는 소방공무원이라는 직업은 명예로운 직업이며 긍정적인 요소가 많다고 생각합니다.”

*“I think that the perception that firefighters are a trusted job due to their nature and, on the contrary, a dangerous job, affects both individuals and families. Personally, I think that the job of a firefighter is an honorable job and has many positive elements.”(P15)*

“가족들은 좀 많이 힘들지 않냐고 많이들 걱정하시고요. 그리고 저는 저희는 자부심 많이 가지고도 다들 근무하니깐요 자부심으로 그냥 근무하는 것 같습니다.”

*“My family is worried that I am having a hard time. And I think we all work with much pride. It seems that I just work with pride.”(P11)*

#### *Code 16 – Companionship*

When interviewed about cultural characteristics, many employees talked about Companionship. Teamwork based on camaraderie was emphasized as a workplace culture where people spend much time together and live together.

“그럼에도 불구하고 또 이제 같이 한 팀을 이루어서 이제 같이 현장 활동하고 같이 식사도 하고 같이 보내는 시간이 많기 때문에 또 이제 서로 정도 많고 서로 이제 많이 친해지게 되면 또 재밌게 지내고 이제 좀 끈끈한 정이 있는 그런 문화가 있죠.”

*“Nevertheless, we have much time together to work as a team, eat together, and spend time together. If we get close, we have a culture where we have much fun.”(P2)*

“네 그렇죠 같이 보내는 시간이 기니까 저희는 24 시간 근무도 하고 야간 근무도 하고 그렇다 보니까 이제 전체적인 분위기는 좀 경색돼 있지만 그래도 이제 같이 보내는 시간이 많다 보니까 또 서로 친하게 지내 다른 직업보다는 좀 더 끈끈한 그런 유대감이 있는 것 같아요.”

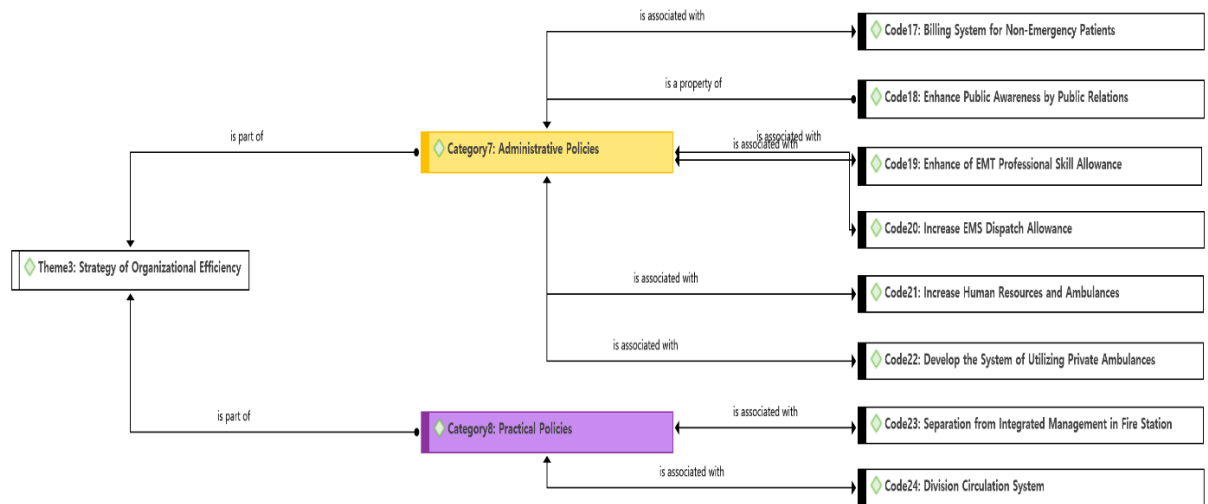
“Yes, that's right. Since we spend a long time together, we work 24 hours and work nights. The overall atmosphere is a bit strained. But since we spend much time together, I think we have a stronger bond than other jobs.”(P15)

### Theme 3 - Strategy of Organizational Efficiency

In Theme 3, among the opinions of the participants in the research interview, the contents mentioned about the development plan for organizational effectiveness were summarized.

As a subcategory, Administrative Policies and Practical Policies were developed. Under the categories, the actual organizational efficiency that employees said was coded and opinions were distributed in detail (see Figure 5).

<Figure 5> Theme 3 – Strategy of Organizational Efficiency



### ***Category 7 – Administrative Policies.***

Category 7 coded what the interviewees said about how the organization should change in the future by adapting the administrative policies. 6 sub-codes were derived, and opinions such as EMS fee payment, public interest promotion, EMTs' rights enhancement, EMS dispatch allowance increase, manpower and equipment replenishment, and professional skill allowance establishment were suggested.

#### *Code 17 – Billing System for Non-Emergency Patients*

Since a significant portion of dispatches are non-emergency dispatches, this affects the quality of service for emergency patients. As a result, many participants mentioned the EMS charge system or partial charge system.

*“사회적 합의가 있어야 하지만 비응급환자는 유료 응급환자는 무료로 정말로 위급한 상황에 신고할 수 있도록 제도가 변경되어야 한다고 생각합니다.”*

*“There must be a social consensus, but I think the system should be changed so that non-emergency patients can use it for a fee and emergency patients can report to a real emergency situation for free.”(P14)*

*“이 부분에 대해서는 공론화를 통해서 제도적 개선이 가능하다면 반드시 필요하다고 생각하는데 병원이나 보험사에서 사용하는 질병코드가 있는데 이 부분에 대해서 연구해서 119 구급차를 이용하는 환자들 중에 의사에 의한 진료 후 비응급에 해당하는 질병코드로 판명이 나면 서비스 비용을 청구하는식으로의 제도 개선을 시도해보는것도 좋을거라 생각합니다. 아무래도 비응급 환자에 대한 유료화가 실시되면 실제 응급환자들의 119 이용빈도가 현격히 낮아질것이고 그렇게 되면 구급차들이 비응급환자를 처치하느라 정말 구급서비스를 필요로하는 사람이 구급서비스를 못받게되는것도 많이 예방할수 있을거고 비응급환자에게 비용청구를 한 돈으로 구급서비스 발전에 필요한 예산으로 활용한다면 좋지 않을까 생각합니다.”*

*“Regarding this part, I think it is absolutely necessary if the institutional improvement is possible through public discussion. There is a disease code used by hospitals or insurance companies. If it turns out to be a disease code that does, I think it would be good to try to improve the system by charging service costs. If charging is implemented for non-emergency patients, the actual use of 119 by non-emergency patients will significantly decrease, and this will prevent people who really need emergency services from being unable to receive emergency services while ambulances are treating non-emergency patients. It will be possible, and I think it would be nice if the money, billed for non-emergency patients, will be used as a budget necessary for the development of emergency services.”(P21)*

#### *Code 18 – Enhance Public Awareness by Public Relations*

Participants said that improving citizens' awareness of EMS through public relations promotion should be a priority. So many EMTs expressed their opinion that public relations should be promoted as a way to reduce non-emergency reports.

*“개인적으로는 구급차는 보다 응급 상황에 투입되어야 한다는 인식이 필요한 것 같습니다 국가 차원에서 좀 대국민 홍보로 국민들의 인식을 바꿀 필요가 있다고 생각합니다 또 구급차를 유료화하는 방법도 하나의 방안이지 않을까 생각하고 있습니다.”*

*“Personally, I believe that EMTs should be dispatched in actual medical emergencies rather than simply assigned to ambulances. I anticipate that the government will support this by making public service announcements and raising awareness. Additionally, charging fees for ambulance use could be an option.”(P17)*

*“지금 아무래도 대대적으로 무분별한 119 신고에 대한 공익광고가 필요한거 같은데 응급환자는 이런 분들이고 이런 분들을 위한 119 라는 거들에 대한 홍보가 좀 필요하다고 생각해요. 대대적인 홍보가 필요하다고 생각을 해가지고...”*

*I think we need a public service advertisement for reckless 119 reports now. It is necessary to*

*inform citizens of their awareness of emergency patients and promote that 119 should be used only in the event of an actual emergency. I thought it was necessary to promote it extensively.”(P3)*

“소방차 길 양보하기’ 홍보 처럼 비응급 상황시 119 신고 자제와 같이 대국민 홍보등을 통한 시민의식 개선이 필요할 것 같습니다.”

*“It seems that it is necessary to improve civic awareness through publicity, such as refraining from calling 119 in non-emergency situations, like promoting the campaign 'give way to fire trucks'.”(P25)*

#### *Code 19 – Enhance of EMT Professional Skill Allowance*

There were employees who pointed out that the allowance of rescue and rescue activities, which had been paid since 1995, is still the same amount (100,000 won) 27 years later.

“수당은 구조, 구급수당이 90년대 이후 한번도 바뀌지않은 것을 여러 번 건의하였지만 아직도 검토만하고있죠. 물론 저희 직업은 봉사를 토대로 하는 직업이지만 금융치료의 개념에서 수당이 받쳐준다면 조금이나마 기피하는 부서의 구급대원의 사기진작이 되지않을까요?”

*“The allowance has been suggested several times that the rescue and EMS allowance has not changed since the 1990s, but it is still being reviewed. It is a job that requires a spirit of volunteerism, but would not an improvement in benefits help boosts the morale of EMTs?”(P19)*

“현행 구급수당이 굉장히 긴시간동안 증액없이 월 100,000 원으로 고정되어있는데 이부분은 당연히 증액을 논의가 필요하다고 생각합니다. 아무래도 대민 서비스이고 워낙에 육체적 정신적 피로도가 높은 업무이다 보니 그에 대한 충분한 보상은 반드시 필요하다고 생각합니다.”



*“The current EMS allowance has been fixed at 100,000 won per month without any increase for a very long time, but this part seems to need to be discussed, and I think a sufficient increase is needed. Since it is a public service and it is a job that requires much physical and mental fatigue, I think sufficient compensation for it is absolutely necessary.”(P21)*

#### *Code 20 – Increase EMS Dispatch Allowance*

As mentioned earlier, in terms of administrative inefficiency, the EMS dispatch allowance is far less than high dispatch volumes. Many employees mentioned the development plan for the dispatch allowance.

*“현 출동 가산금제도를 유지 하되 물가 상승률을 적용하여 점차 금액적인 부분을 증가하는 방법을 도입했으면 합니다.”*

*“I would like to introduce a method of gradually increasing the small amount by applying the inflation rate while maintaining the current dispatch allowance system.”(P25)*

*출동 가산금을 좀 올려주거나 상한치를 없애면은 출동이 많은 것에 대한 금전적 보상이라도 잘 이루어지지 않을까 생각이 됩니다 저도 이제 출동이 많아서 상한치를 넘어선 출동을 나가다 보면 더 이상의 보상이 주어지지 않는다는 좀 아쉬운 마음이 좀 나쁘게 들 때가 있습니다. 이게 좀 보상이 늘어난다면 격무지에 대한 깊이 현상도 좀 줄어들지 않을까 이런 생각도 듭니다*

*“They must improve the quality of monetary compensation by removing the upper limit on EMS dispatch allowance or simply increasing EMS dispatch allowance. I have to respond to a large number of calls, so I work well above the upper limit. So I get the impression that I am working without being compensated, which hurts my motivation. Less EMTs would avoid hard labor if they could improve our monetary rewards.”(P17)*

*“사실 누구나 구급대원이라면 공감하는 거지만 일단은 체계가 좀 변해야 된다고 생각하면은 네 건 이상부터 이제 측정하는 출동 가산금을 첫 출동부터 지급하면 좋을 것*

같고요 그런 수동 가산금 자체가 3 천 원에서 한 5 천 원 정도로 오르면 오히려 출동에 대한 마음가짐이나 이런 게 좀 더 달라지지 않을까 싶습니다.”

*“In fact, everyone agrees with EMT, but if you think that the system needs to change a bit, it would be nice to pay EMS dispatch allowance for dispatch from the first dispatch, which recognizes from the fourth case. If the EMS dispatch allowance for dispatch itself rises from 3,000 won to about 5,000 won, I wonder if the attitude toward dispatch or something like this will change a little more.”(P12)*

### *Code 21 – Increase Human Resources and Ambulances*

Many EMTs responded that the first thing to be done in order to improve the current organizational inefficiency is to increase manpower and ambulances. In particular, they responded that in order to handle the increasing EMS dispatches, it is necessary to recruit personnel and supplement equipment in line with the current trend.

“일단 출동 자체가 많은 거에 대해서는 이제 인원 증가나 차량 증가가 제일 우선된다고 생각을 하고요 이제 아무래도 차량 증가 인원 증가가 되다보면은 오히려 출동은 더 많아지겠지만 그래도 분담되는 게 더 많은 차들에 분담이 되니까 개인적으로 받는 부담감은 조금 적어질 거라고 생각합니다.”

*“First of all, the most important thing is to increase the number of people and vehicles for the large number of dispatches. That will increase a number of dispatches, but I think the personal burden will be less if many cars are shared.”(P3)*

“그냥 단적인 예로 좀 제가 10 년간 소방에서 얘기하는 격무서에 계속 있었거든요. 십 년 가량을 그쪽에 있으면서 느낀 거는 차 증차 증차 부분이 가장 큰 것 같아요.”

*“Just a simple example, because I have been in a heavy-duty area in the fire department for 10 years. What I felt after being there for about 10 years is that the increased number of vehicles is the biggest.”(P10)*

“이제 요즘 본부에서도 그렇고 구급차를 이제 증차하면서 이제 조금 이제 구급대원들의 업무 하중을 조금 내려주려고 하는 거 같은데 이제 인원은 거의 그대로인데 차만 늘어나다 보니까 사실 그다지 효율적이지 않은 제도인 것 같거든요 이제 가장 우선시 돼야 되는 건 아무래도 구급대원들 인력이 좀 더 보강되어야 되지 않나라고 생각하고 있습니다.”

*“It seems that these days, the headquarters is trying to lighten the workload of the EMTs a little bit now by increasing the number of ambulances. However, the number of employees is almost the same, but only the number of cars is increasing, so it seems to be a system that is not very efficient. I think the most important thing now is that the number of EMTs should be reinforced.”(P22)*

#### *Code 22 – Develop the System of Utilizing Private Ambulances*

An EMT suggested that an ambulance owned by a private hospital could be used as a dispatch vehicle if there were organizational limitations to replenish the shortage of manpower and equipment.

“아니면은 병원에도 구급차가 있거든요. 근데 환자 중환자 구급차 이런 게 있는데 네 그런 쪽에서도 좀 출동할 수 있으면 어떨까..”

*“Otherwise, the hospital has an ambulance. However, there is an ambulance for critically ill patients, but what if the ambulance operated by private hospitals can also be dispatched..”(P29)*

### ***Category 8 – Practical Policies.***

Category 8 coded what the interviewees said about how the organization should change in the future by adapting practical policies. Two sub-codes were derived, and opinions, such as separation from integrated management in the fire station and division circulation system.

#### *Code 23 – Separation from Integrated Management in Fire Stations*

Currently, the EMTs share the same office with the firefighters, and one center manager supervises the firefighters and the EMTs. Among the contents of the interview, a development plan for Separation from Integrated Management in Fire Stations was derived.

“소방공무원의 특성상 상명하복 문화가 있으며 센터에서 화재, 구급이 함께 근무하는데 응급의료서비스에 관련 전문성이 없는 팀장, 센터장이 구급대원들까지 관리하여 대원들과의 소통에 조금은 문제가 있다고 생각하며 소방구조대가 분리 운영하듯이 구급대도 독립 운영해야 한다고 생각합니다.”

“Due to the nature of the job, there is a top-down culture, and the fire team and the EMS team work together in the same office. I believe that the EMS team should operate independently as the rescue team operates separately.”(P14)

“어 전반적으로 조금 분리가 됐으면 좋겠어요. 저는 개인적으로 구조 구급 화재 이쪽으로 좀 분리가 좀 됐으면 좋겠고 그에 맞는 센터장님이라든가 이것도 다 분리가 좀 됐으면 하는 생각이 좀 있기는 해요. 이제 아무래도 화재가 대부분 차지를 하고 있는데 구급대원이 이제 아래분들이 되게 많으셔서가지고 뭔가를 하기에는 조금 차이가 좀 있거든요.”

“I wish there was a clear distinction between subdivisions like rescue, firefighting, and EMTs. They should report to separate division heads rather than a single leader. This is because the way we work differs depending on which division we are from.”(P24)

*Code 24 – Division Circulation System*

EMTs also gave many opinions on the efficient operation of the rotation system. The reason why efficient rotation is needed is to relieve the fatigue of EMTs, who have a much higher dispatch volume than other divisions. It is also to understand the grievances among employees by rotating tasks within the organization.

“아무래도 구급대원이 같은 소방공무원으로 임용이 된 것이라면 순환보직을 시키는 방안도 하나의 방법이지 않을까 생각이 듭니다 서로의 고충을 알고 업무를 서로 배워야 한다고 생각을 하고 있고요 또 미래에 지휘관의 입장에서든 여러 직원들을 또 잘 통솔할 수 있지 않을까 이런 생각을 하고 있습니다.”

*“If an EMT is assigned to the same field of work as a firefighter, they should rotate jobs so that the EMTs and firefighters can understand what each other is going through, and aspiring potential captains can learn how to effectively command their subordinates.”(P17)*

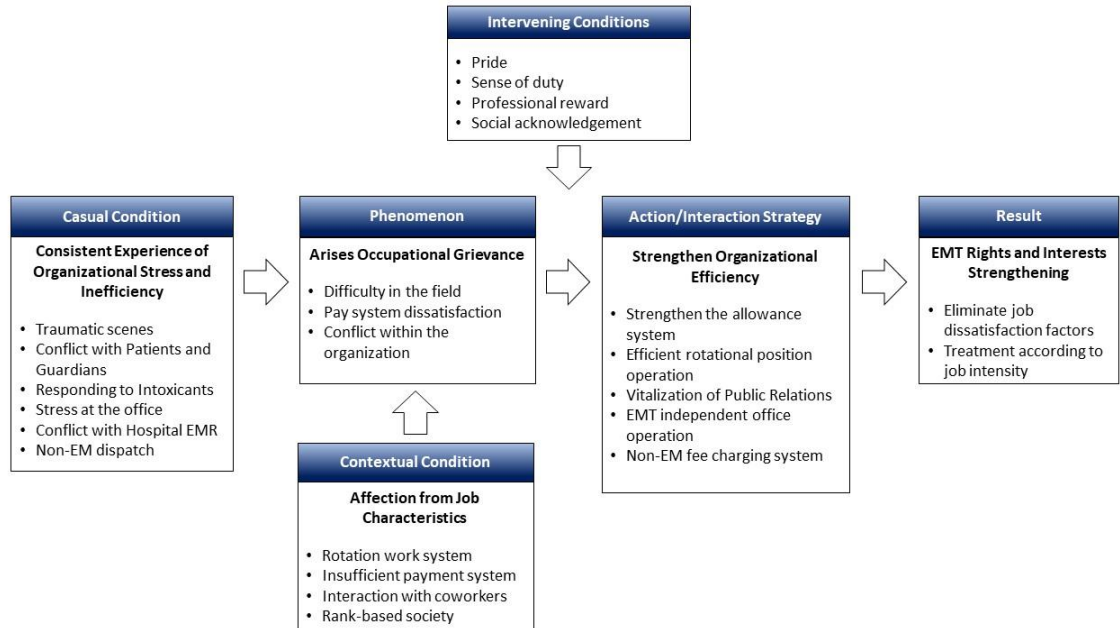
“늘상 말하는 인원을 늘려주고 현장경험이 10 년이상된 직원은 타보직에 원하는 곳으로 우선 배치해주는 치유의 시스템이 필요합니다. 많이 고생한 직원에게 배풀어주고 배려해주는 조직이 되야 힘들더라도 나중이라는 희망을 가지고 조금 덜 힘들게 현장활동을 하지않을까 싶습니다.”

*“We need a healing system that increases the number of people first as always speak, and prioritizes employees with more than 10 years of field experience to other positions. If it becomes an organization that gives back and cares for the employees who have worked hard, I would like to think that even if the employees are having a hard time, they will have hope and work a little less hard.”(P19)*

### **Axial Coding - Category Analysis by Paradigm**

Paradigm analysis is the analysis of how action/interaction strategies change over time as part of axial coding and category construction (Strauss & Corbin, 1988). Based on the contents derived from axial coding, the researcher analyzed job stress factors felt by EMTs and measures to cope with organizational inefficiency. In this study, the framework of axial coding was developed. The part of causal condition includes 'Stress on the scenes', 'Stress at the office', 'Operational inefficiency', and 'Administrative inefficiency'. For phenomenon, 'Difficulty in the field', 'Pay system dissatisfaction', and 'Conflict within the organization' appeared as key categories. As contextual conditions, 'Rotation work system', 'Dealing with patients and guardians', 'Interaction with coworkers', and 'Rank-based society' were derived. As intervening conditions, 'Pride', 'Sense of duty', 'Professional reward', and 'social acknowledgment' were derived. As action/interaction strategies, 'Strengthen the allowance system', 'Efficient rotational position operation', 'Vitalization of public relations', and 'EMT independent office operation' were derived. The final results were derived as 'Eliminate job dissatisfaction factors' and 'Treatment according to job intensity' (see Figure 6).

<Figure 6> Paradigm of the Grounded Theory Analysis



### Selective Coding

Selective coding is the process of integrating categories derived from axial coding to create core categories (Strauss, A. & Corbin, 1988). It is done through the interaction between the researcher's data by integrating the stories of the participants. Selective coding is the determination of key categories, and outlines a story, uses diagrams, and organizes and reviews notes as a method of identifying key categories and integrating concepts. Through this method, it is helpful in integrating and elaborating the research results by identifying the relationship between concepts by presenting the direction of sampling and organizing thoughts (Strauss & Corbin, 1994).

The researcher tried to find a comprehensive concept that can comprehensively explain the concept of the story obtained through the interview. Therefore, the results were drawn to find out what development plans EMTs have to improve the stress they experience during job performance and the organizational inefficiency they feel. Through this process, the research results were integrated and elaborated.

### *Core Categories*

Based on the results of this study, the core categories explaining the job stress and organizational inefficiency of EMTs could be defined as Category 1: Critical Common Stress Factors, Category 4: Administrative Ineffectiveness, Category 7: Administrative Policies, and Category 8: Practical Policies.

EMTs always experience difficulties during disaster field activities. It can be the mental and physical stress of having to deal with a horrific scene. In addition, the feeling of emptiness while going to the dispatches of non-emergency patients, such as those who are drunk, is also a major stressor. In addition, EMTs in large cities are always burdened with several dispatches. However, most of the participants felt that the organization's recognition or financial compensation was lacking compared to a high volume of dispatches. Also, even if they want to do other work besides EMS work while working within the fire department, it is almost impossible to transfer to another department due to the extreme lack of workforce.

In this situation, it was found that there were many dissatisfied parts among the employees and the grievances deepened. However, it was found that if organizational inefficiency is improved through strengthening allowances, improving job rotation efficiency, activating public service advertisements, and strengthening the independent



authority of EMTs, it will reduce dissatisfaction between jobs and help promote the rights and interests of EMTs.

### ***Storytelling***

Through the categories derived from this study, the researcher tried to understand the improvement plans for EMTs' job stress factors and organizational inefficiency through storytelling.

EMTs within firefighting organizations have consistently experienced job stress and organizational inefficiencies. There are various difficulties when performing ambulance activities in the field, and especially the number of non-emergency dispatch cases increases fatigue. Specifically, dealing with a drunkard is the most stressful factor cited by almost all participants. In addition, when faced with a terrible situation in the field, it was found that they were stressed enough to affect the psychological part and the part of sleep. In addition to fieldwork, conflicts with members of other departments in the office were also identified as stress factors. It was said that conflicts of interest with employees in other divisions, such as divisions of rescue, firefighting, and administrative work, sometimes cause trouble.

Working in a large city, they had to deal with a large number of dispatch cases, but the lack of a system to filter out unnecessary non-emergency or drunken reports was also found to be an inefficient part of field operation. In addition, the lack of dispatch allowances compared to the number of dispatches to EMTs was also a factor that lowered morale. Furthermore, it is a major inefficiency of the organization that it is exceedingly difficult to transfer to another department when you want to experience the work of another department within the firefighting organization.

These causal conditions are combined with contextual conditions to derive a central phenomenon. Contextual conditions begin with the basic work environment, where the work system involves working shifts and staying up all night at the fire station. EMTs are working with civil petitioners in the field and interacting with colleagues in the office. In addition, as an organization that wears a uniform by default, there are still many rank-based organizational operations. These conditions are converged to derive the organizational grievances of EMTs. Compared to grievances in the field, the main grievance was not receiving efficient financial compensation, and the part where they did not fully understand each other with other divisions' personnel was another central phenomenon.

In order to overcome these difficulties, the researcher listened to and organized the opinions of the participants regarding the strengthening of organizational efficiency. First of all, they responded that in order to provide financial compensation suitable for the workload of employees, things like dispatch allowances and professional allowances should be strengthened. In addition, in order to resolve conflicts with employees of other departments, the rotational position system should be streamlined and the environment in which firefighters can experience the work of other departments should be well organized. As an intervention factor that can reduce the number of non-emergency patients, awareness improvement through public service advertisements appeared as an implementation strategy. In addition, when an EMT office is operated inside the organization and the ambulance is dispatched independently, the system must be improved so that it can receive the command of the ambulance chief.

In addition to these policy strategies, a mediating condition that employees feel themselves is professional pride. It is something that no one can do, and they take great pride in being the first to arrive on the frontlines and take care of injured people. In addition, the sense of vocational calling was also found to have a mediating effect, with EMTs responding that being a socially supported and trusted job was a major factor in enduring difficulties for EMTs. Ultimately, the goal is to promote the rights and interests of EMTs by using these strategies and reduce the grievances between work and life.

## CHAPTER V

### DISCUSSION AND RECOMMENDATIONS

In this chapter, a discussion is conducted by combining the themes derived from the research. In particular, the main job stress factors of EMTs derived from the previous analysis part and the organizational inefficiency they think are reviewed again and development plans are presented. In detail, discussions are conducted by linking the problems and improvement measures derived from the previous coding. As for the development plan, practical developments are made from the data, and comprehensive or detailed policy proposals are implemented.

#### **Recommendation of Administrative Policies**

A large number of employees expressed considerable fatigue from heavy volumes of dispatch. The basic measurement for this issue is increasing personnel and ambulances. However, the budget has been restricted with a certain limitation; so, it is hard to enhance the number of EMTs and equipment in a brief time. Regarding this, it is necessary to find alternative ways to solve the high burdens of dispatch. Following that, non-emergency dispatches, public relations, cooperation with private ambulances, improving the dispatch allowance, and establishing a special skill allowance for EMTs are derived.

### ***Non-Emergency Report Fee System***

Non-emergency dispatches cannot be skipped on EMD's own in the control room, as many EMTs wish. This is because if a situation agent does not send a dispatch based on a judgment after receiving a phone report, excessive responsibility can be obtained if it turns out to be an emergency accident later. Regarding this part, it is absolutely necessary to develop the fee system for the non-emergency report if the institutional improvement is possible through public discussion (Bai, Chanmugam, Suslow, & Anderson, 2019; Birmingham, Arens, Longinaker, & Kummet, 2021). Specifically, there is a disease code used by hospitals or insurance companies. If it turns out to be a disease code that does, it would be good to try to improve the system by charging service costs. Also, charging those non-patients for no more than a taxi fee might raise awareness regarding this problem. If charging is implemented for non-emergency patients, the actual use of 119 by non-emergency patients will significantly decrease, and this will prevent people who really need emergency services from being unable to receive emergency services while ambulances are treating non-emergency patients. It will be possible, and it would be nice if the money billed for non-emergency patients were used as a budget necessary for the development of emergency services.

### ***Public Relations***

It is necessary to improve public awareness through publicity, such as refraining from calling 119 in non-emergency situations. In Korea, there has been still an immature civic awareness of disasters, so a few years ago, the government made a large-scale public service advertisement called 'give a way to fire trucks', and after that, citizens on the road were asked to cooperate well when emergency vehicles such as fire trucks passed by and

a great effect was seen (Huh, 2022). However, there has never been a public service announcement about the indiscriminate use of an ambulance. In fact, just as one study showed that rapid on-site treatment can greatly increase the survival rate in the event of an emergency, it is necessary to instill awareness through advertisements that reporting non-emergency patients can threaten the lives of people in real emergencies.

### ***Cooperation of Private Ambulances***

In the case of the United States, all states have different emergency medical systems, and it is quite difficult to analyze them uniformly. In addition, private companies are also participating in emergency services as part of the project by utilizing ambulances.

Reporting and reception are unified with 911, and the location of the caller is displayed to the fire department or police according to the automatic caller location display device, and the phone number is displayed at the nearest emergency information center.

However, this information is also linked to private companies to adjust the ratio of the dispatch volume of fire department ambulances and private ambulances according to the situation of each state. On the other hand, like Korea, the United Kingdom provides ambulance services free of charge. The UK ambulance services are provided with public funds by the central and local governments, though patients may be charged for certain ambulance-related services, such as treatment and medication (Lim, 2007; Meisel et al., 2011; Newton, 2012). Although Korea also has private ambulances in hospitals and so on, all dispatches through 119 emergency calls are carried out by fire department ambulances. If the policy of using private ambulances is carefully sought, it will be an opportunity to reduce the dispatch burden of on-site EMTs, especially in large cities.

However, since the premise that operating a private ambulance incurs costs cannot be omitted, a sufficient social consensus must be reached in advance.

### ***Enhancement of EMS dispatch allowance***

The Incheon Fire Department is currently operating a system called the EMS dispatch allowance, but if the organization improves that part a little more and raises some amount of the additional dispatch charge, EMTs might think that they receive some kind of compensation as much as they are suffering. Currently, the dispatch allowance is 3,000 won per case, and it is set from the fourth dispatch. After that, a total of up to 10 cases will be added and cannot exceed 30,000 won per day (Ministry of Government Legislation, 2023; Park, 2022). However, if we looked at the statistical documents in 2022, the total number of ambulance dispatches per year for the ten fire stations of Incheon Fire Station is 173,247 cases, and even if you take an approximate average, the number of dispatches per ambulance per day is much higher than the limit of the dispatch allowances (Incheon Fire Department, 2022). In order to improve this system, there is a way to expand the scope of the budget and increase the dispatch allowance of 3,000 won per case to more than that or remove the limit of 30,000 won per day. Compared to other disaster departments, financial compensation must be provided for the welfare of EMTs who are dispatched far more frequently than other divisions.

### ***Enhancement of EMT professional allowance***

The firefighting organization pays 100,000 won per month as a rescue & EMS allowance to rescuers and EMTs under the concept of special technical allowances. However, the amount of rescue & EMS allowance has not changed since the 1990s. It has been suggested many times over the years, but it is still under review (Park, 2022). Of course,

the job of public service is based on volunteer work, but if the allowance is supported in the concept of financial treatment, it would be a boost to the morale of emergency workers in the first responding organizations. Regarding this, the allowance for professional skills for EMTs should be changed as the general price in society is increased. If incentives are strengthened for these specialized skills, the researcher consider it can increase the motivation to become professional EMTs and increase the survival rate of emergency patients.

### **Recommendations of Practical Policies**

In interviews, EMTs made many comments about organizational inefficiencies for the practical areas. The key point was that the EMTs felt that they were not getting the recognition and treatment they deserved compared to what they were struggling with. Based on the data, key development plans were derived, such as division circulation system vitalization and operation of a separate office for the EMS team in the fire stations.

### ***Independent Operation of EMS Team from the Integrated Management***

Due to the nature of firefighters, there is basically a top-down culture. Currently, fire and EMS work together in the same office at each fire center. However, the head of the fire center, who have no expertise in emergency medical service, even manage EMTs, so it is true that there is a little problem in communicating with the crew. On the other hand, the rescue team is operated separately with a system using the independent office with separate rescue team leaders. In this regard, the EMS team should also be operated



independently to strengthen independence and professionalism to improve inefficient current work system.

### ***Division Circulation Working System***

As we saw earlier in coding, almost all EMTs interviewed want to work in other divisions in the fire station, such as the rescue team, the fire extinguishing team, and administrative teams. Because EMTs are also firefighters belonging to the firefighting organization. Legally, after three years (Ministry of Government Legislation, 2020), there are grounds for working in other divisions, but in a situation where the number of EMTs is insufficient, they responded that there are many restrictions on going to other divisions within the organization. Fundamentally, the only way to solve this problem is to hire more EMTs or get people from other divisions to receive basic EMS training and join the EMS team. However, firefighters, from other divisions who received basic EMS training, have tended to avoid going to the EMS team because of the heavy workload. In order to overcome this, there needs to be a plan to make a regulation that the personnel receiving basic EMS training must work in the EMS team for a certain period of time. If this rotational work pattern is created, it will be easier for the personnel currently working as EMT to move to other divisions within the organization.

## CHAPTER VI

### CONCLUSION

#### **Introduction**

This chapter drew the conclusion by summarizing the key findings from the data analysis. While clarifying the main research results, the researcher also expressed how these results will contribute to society and organizations. In addition, the limitations felt by the researcher during the research were described, and additional future research proposals were discussed. The aim of this study was to critically evaluate Emergency Medical Technician-related environmental stressors and organizational inefficiencies in Incheon, South Korea. This includes (Central Question) what environmental stressors and organizational inefficiencies impact EMTs in Incheon; (Supporting Questions) What EMS administrative factors impact the Incheon Fire Department and (Supporting Questions) What environmental and organizational improvements are necessary.

The research was conducted using grounded theory and open-ended semi-structured interview questions were prepared. The research interviews were conducted with the 30 EMTs who belong to Incheon Fire Department. After the interviews, transcription, translation, and qualitative analysis were conducted, and the analysis was conducted using the ATLAS.ti software, an analysis tool specializing in qualitative research.

Through qualitative research, three main themes, eight categories, and 24 codes were made, and in the analysis process, open coding, axial coding, and selective coding were subdivided to conduct a multi-dimensional analysis.

## **Key Findings**

### ***Theme 1 - Organizational Stress***

The first theme derived was job stress within the organization. Three categories were derived here, and the first category was *Critical Common Stress Factors*. As for the details described by the participants, confrontation with the guardian was the most common stress factor for patients, followed by dealing with drunken people, and frequent non-emergency dispatches. What was unusual here was that EMTs considered dealing with civil complaints on the spot as a greater psychological stress than experiencing the horrific scene.

The second category was *Adverse Effect from Stress*. The majority of employees were psychologically under stress and pressure, which had a negative effect on sensitively reacting to their closest family members. Also, there were many employees who responded sensitively while maintaining a sense of distance when dealing with others. In addition, there were many employees who felt uncomfortable sleeping due to job stress, including breaking their biorhythms while working the night shift.

The third category was *Stress Management*. None of the employees interviewed in this part had inappropriate stress management, such as alcohol or drug abuse. Most of the employees responded that they managed physical stress through workouts or sports

games and managed psychological stress through conversations with family or colleagues. A unique situation in this part is that the employees did not use the stress management program operated by the organization and chose to solve it on their own.

### ***Theme 2 - Organizational Ineffectiveness***

The second theme derived was occupational inefficiency within the organization. Three categories were derived, and the first category was *Operational Ineffectiveness*. When asked about organizational inefficiency, many employees felt that there were too many non-emergency dispatches and responded that this was a problem with the emergency reception system in the situation room, and immature public awareness. Practically in the real field, it is not easy to guess and judge the actual emergency and non-emergency in the situation room. This is because there might be situations such as EMTs do not dispatch to scenes because it was judged to be a non-emergency, but it was an emergency and the patient's condition could get worse. It has been a problem that needs to be improved in citizens' consciousness, and to solve this problem, it is necessary to review ways to use non-emergency reporting charges and long-term public service advertisements.

The next category derived is *Administrative Ineffectiveness*. Most employees who responded to the interview wanted to experience work in other divisions besides the EMS division as firefighters in the organization. However, due to the lack of a number of first-level EMTs, the operation of rotation work to other divisions was in a situation where

there were many obstacles. Accordingly, the improvement plan of the rotational position operation system should be studied in depth.

Also, in this section, the researcher had an in-depth conversation about *Organizational Culture*. To the question about organizational culture, participants answered that a bureaucratic culture with hierarchical relationships and a modern organizational culture that values horizontal relationships coexisted. Also, most of the employees felt great pride in the work they were doing and said it was a rewarding job that saved lives. In addition, there were many employees who valued their relationships with colleagues and perceived their colleagues who worked 24 hours a day as like family members.

### ***Theme 3 - Strategy of Organizational Efficiency***

Finally, the theme derived was a summary of the organizational inefficiency improvement measures that the research participants responded to. In this topic, researchers have constructed two categories: administrative policy and practical policy. First, in *Administrative Policies*, a billing system for non-emergency patients, raising public awareness through long-term publicity, strengthening EMT professional skill allowance and EMT dispatch allowance, and developing cooperation with private ambulances were derived. These policies are aimed at achieving the main policy goal of reducing fatigue from heavy volumes of dispatches. Also, the idea was to strengthen the allowance system so that EMTs can be compensated for their heavy workload with professional expertise.

The last category is *Practical Policies*, which describes policies to enhance the rights and interests of EMT members who conduct field activities. Currently, EMTs share offices with firefighters and operate in a system where one commander manages firefighters and EMTs. In this regard, it is necessary to establish an EMS division with expertise by recreating an office dedicated to the EMS team and the position of the commander of the EMS division.

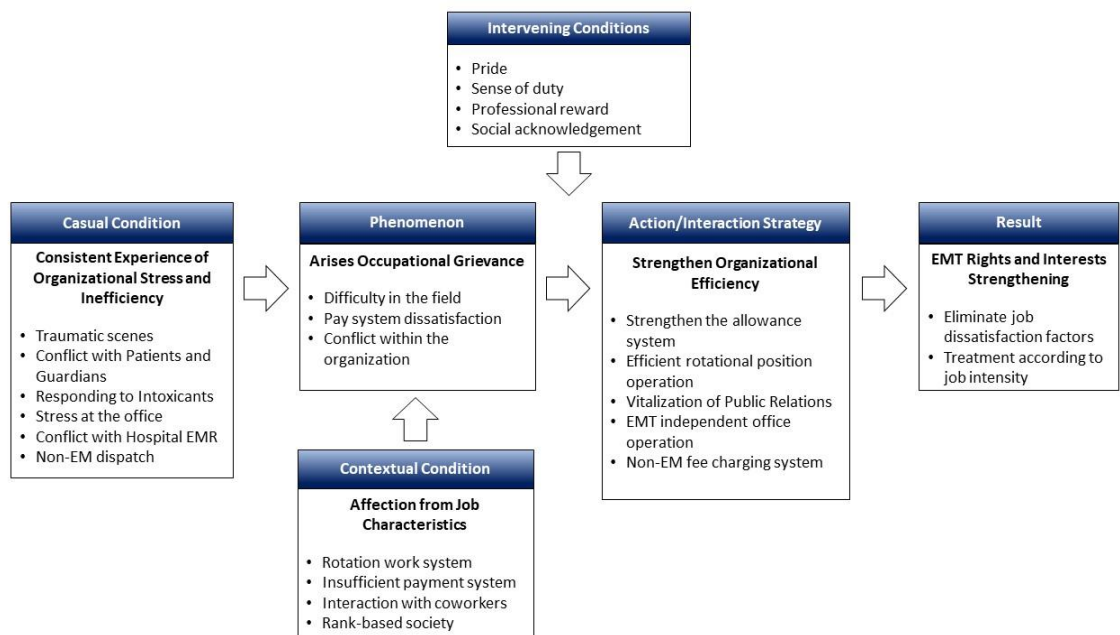
In addition, EMT members belonging to firefighting organizations have legal grounds for moving to rescue teams, firefighting teams, and administrative positions after a certain period of time, but it was also found that department rotation is not properly performed due to a lack of first-level EMTs.

### **Contribution to Knowledge**

When the researcher produced the idea of this research, the researcher could not find any study on the administrative inefficiency of EMTs belonging to the Korean fire service while searching domestic and foreign literature. Therefore, the purpose and originality of this study are meaningful. Therefore, the results of this study should be shared with various stakeholders in multiple directions. In addition, this study is an ideal study that has not been attempted before in Korean emergency services-related studies. The researcher thinks it is a great significance, that in-service rescuers who can observe EMTs in the field and in the workplace, to listen to the thoughts deep in the hearts of EMTs through in-depth interviews based on qualitative research. In addition, most of the previous literature studies are related to EMTs' PTSD, stress, and job satisfaction, but this study is significant in that it derived the position of EMTs within the firefighting organization and the organizational inefficiency they have thought and experienced. The

grounded-theory paradigm derived from this study will serve as an opportunity to share the reality of the working environment of Korean EMTs through the publication for emergency-related researchers and practitioners. It will also be an influential citation for related research that other emergency researchers or in-service EMTs may conduct further research in the future.

**<Figure 7> Paradigm of EMS Organizational Efficiency**



The results derived from this study will also be used as policy ideas for the Korean firefighting organization. Currently, in-service EMTs are constantly limiting policies on the development of ambulance rights and organizational inefficiencies. However, there were few papers published in related academic societies in advanced countries, so there were many restrictions on the parts that could be cited. Accordingly, this thesis will be a profound reference material when EMTs as well as this researcher make policy proposals in the future.

## **Limitations**

This study conducted an open-ended interview with 30 EMTs in the Incheon area and derived the results through a qualitative research analysis method. Clearly, meaningful results can be derived from the data collected from a limited number of study participants, but studies using a larger number of samples will be needed to generalize these results. However, as mentioned in the methodology, written interviews had less content than phone-call interviews; therefore many phone-call interviews or face-to-face interviews will be needed to achieve the purpose of qualitative research well.

This limitation may pose a challenge for related studies conducted in the future. First, it will be a meaningful research idea that is to expand the research sample limited to the Incheon area nationwide. If a qualitative research method conducted in this study is conducted on EMTs in each region of the country to confirm whether similar research results are derived, it will play a role in attempting to generalize the results. After that, if a quantitative study is conducted on all EMTs nationwide through the survey, the data will be an opportunity to generalize more clearly. In addition, in this study, conceptual advice was mainly provided in the policy proposal parts by synthesizing the organizational inefficiency that the participants thoughts. Research that digs deeply into each part of the idea in the recommended section will also be of significant help in the realization of the policy.



## **Future Research**

For future research, there are several potential areas of study related to emergency medical technicians (EMTs) and pre-hospital care in South Korea, particularly in the context of the country's aging population and lack of workforce. Some possible research topics could include:

1. **Branding and Perception:** As in other countries, branding and marketing strategies could be used to improve the public's perception of EMTs in South Korea. Research could explore how different branding strategies, such as social media campaigns, advertising, and community outreach programs, could be used to help build positive perceptions of EMTs and the work they do, even in the context of a limited workforce.
2. **Community Paramedic Programs:** Community paramedic programs could be an effective tool for addressing the healthcare needs of South Korea's aging population, even in the context of a limited EMT workforce. Research could examine the effectiveness of these programs in improving patient outcomes, reducing healthcare costs, and addressing healthcare disparities.
3. **Aging Society and Workforce Solutions:** Another potential area of research is exploring workforce solutions to address the healthcare needs of South Korea's aging population. This could include identifying strategies for recruiting and retaining EMTs, as well as exploring new models of care delivery, such as telemedicine or home-based care, that could help address workforce shortages and improve patient outcomes.
4. **Comparison Study with Other Countries:** A comparative study with other countries

could be conducted to identify best practices for providing pre-hospital care in the context of an aging society and workforce shortages. This could involve exploring how other countries have addressed similar challenges, such as other Asian countries and western countries and identifying strategies that could be adapted for use in South Korea.

Overall, there are many potential research areas related to EMTs and pre-hospital care in South Korea. By exploring these topics, researchers can help identify best practices for enhancing organizational effectiveness, and providing effective pre-hospital care to patients, even in the context of workforce shortages, and strengthen the reputation of EMTs and other pre-hospital care providers in the country.

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## APPENDICES

### Appendix A. Approval Letter from the OSU-IRB



#### Oklahoma State University Institutional Review Board

Date: 10/06/2022  
Application Number: IRB-22-406  
Proposal Title: Environmental Stressors and Organizational Inefficiencies:  
A Critical Analysis of Emergency Medical Technicians in Incheon, South Korea

Principal Investigator: Byunggi Choi  
Co-Investigator(s):  
Faculty Adviser: Tony McAleavy  
Project Coordinator:  
Research Assistant(s):

Processed as: Exempt  
Exempt Category:

#### Status Recommended by Reviewer(s): Approved

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The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in 45CFR46.

**This study meets criteria in the Revised Common Rule, as well as, one or more of the circumstances for which continuing review is not required. As Principal Investigator of this research, you will be required to submit a status report to the IRB triennially.**

The final versions of any recruitment, consent and assent documents bearing the IRB approval stamp are available for download from IRBManager. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be approved by the IRB. Protocol modifications requiring approval may include changes to the title, PI, adviser, other research personnel, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms.
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any unanticipated and/or adverse events to the IRB Office promptly.
4. Notify the IRB office when your research project is complete or when you are no longer affiliated with Oklahoma State University.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact the IRB Office at 405-744-3377 or [irb@okstate.edu](mailto:irb@okstate.edu).

Sincerely,  
Oklahoma State University IRB

Appendix B. Translation Certification of the Researcher



## Appendix C. Participant Information Form



Fire and Emergency Management Program

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### **PARTICIPANT INFORMATION FORM**

Environmental Stressors and Organizational Inefficiencies:  
A Critical Analysis of Emergency Medical Technicians in Incheon, South Korea

#### **Background Information**

You are invited to be in a study on structure emergency medical service organizational effectiveness. We ask that you read this form and ask any questions you may have before agreeing to be in the study. Your participation in this research is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this project at any time. You can skip any questions that make you uncomfortable and can stop the interview/survey at any time.

This study is being conducted by: Byunggi Choi, Fire and Emergency Management Program, Oklahoma State University, under the direction of Dr. Tony McAleavy, Fire and Emergency Management Program, Oklahoma State University.

#### **Procedures**

If you agree to be in this study, we would ask you to do the following things: Firstly, we will contact with you to schedule an interview date and location. The interview can be conducted either in person or untact methods (telephone or Zoom). During the interview, we are conducting interviews to gain the perspectives of organizational stressor and ineffectiveness in your organization. You will be asked 10 questions regarding job stress and ineffectiveness and an interview may take approximately between 20-40 minutes. This research will benefit the EMS organizational effectiveness by providing a theory that will describe future development strategies to structure better organizational effectiveness.

#### **What Steps Are Being Taken to Reduce Risk of Coronavirus Infection?**

The following steps are being taken to address the risk of coronavirus infection:

**Screening:** Researchers and participants who show potential symptoms of COVID-19 (fever, cough, shortness of breath, etc.) will NOT participate in this study at this time.

**Physical distancing:** Whenever possible, we will maintain at least 6 feet of distance between persons while conducting the study.

**Mask/Covering:** Researchers and participants will be required to shield their mouth and nose with a cloth face cover or mask during the study, even when maintaining at least 6 feet of distance. Tissues will be available to cover coughs and sneezes.

**Handwashing:** Researchers and participants will wash hands before/during interview or use a hand sanitizer containing at least 60% alcohol.

**Disinfecting materials:** When feasible, researchers will clean and disinfect surfaces between participants, using an EPA-registered disinfectant or a bleach solution (5 tablespoons of regular bleach per gallon of water) for hard materials and by laundering soft materials. Disinfected materials will be handled using gloves, paper towel, plastic wrap or storage bags to reduce the chance of re-contamination of materials.

**Electronics:** Alcohol-based wipes or sprays containing at least 70% alcohol will be used to disinfect shared touch screens, mice, keyboards, etc. Surfaces will be dried to avoid pooling of liquids



Approved: 10/06/2022  
Protocol #: IRB-22-406

### **Compensation**

You will receive no payment for participating in this study.

### **Confidentiality**

The information you give in the study will be stored anonymously. This means that your name will not be collected or linked to the data in any way. Only the researchers will know that you have participated in the study. The researchers will not be able to remove your data from the dataset once your participation is complete.

The information that you give in the study will be handled confidentially. Your information will be assigned a code number/pseudonym. The list connecting your name to this code will be kept in a locked file. When the study is completed and the data have been analyzed, this list will be destroyed. Your name will not be used in any report.

The researchers will make every effort to ensure that information about you remains confidential, but cannot guarantee total confidentiality. Your identity will not be revealed in any publications, presentations, or reports resulting from this research study.

We will collect your information through interviews with audio recordings. This information will be stored in a restricted access folder on an encrypted, cloud-based storage system, etc. The audio recording will be transcribed. The recording will be deleted after the transcription is complete and verified. This process should take approximately two months after data is collected.

### **Contacts and Questions**

The Institutional Review Board (IRB) for the protection of human research participants at Oklahoma State University has reviewed and approved this study. If you have questions about the research study itself, please contact the Principal Investigator at 82-10-2402-7079, [byunggi.choi@okstate.edu](mailto:byunggi.choi@okstate.edu). If you have questions about your rights as a research volunteer or would simply like to speak with someone other than the research team about concerns regarding this study, please contact the IRB at (405) 744-3377 or [irb@okstate.edu](mailto:irb@okstate.edu). All reports or correspondence will be kept confidential.

### **Statement of Consent**

**Participants:** I have read the above information. I have had the opportunity to ask questions and have my questions answered. I consent to participate in the study.

**If you agree to participate in this research, please contact the Principal Investigator, Byunggi Choi by email or telephone message.**



Approved  
Protocol #

## Appendix D. Participant Information Form (Korean)



오克拉호마 주립대학교 소방방재학과

### 연구참여자 정보 제공서

Environmental Stressors and Organizational Inefficiencies:  
A Critical Analysis of Emergency Medical Technicians in Incheon, South Korea

#### 연구 정보

저희 연구팀은 긴급 응급 의료 서비스 조직 효율성에 대한 연구에 당신은 초대합니다. 연구에 참여를 결정하기 전에 이 양식을 읽고 궁금한 점이 있으면 질문해 주시기 바랍니다. 이 연구에 대한 당신의 참여는 자발적인 것입니다. 참여거부에 대한 위약금은 없으며 언제든지 본 프로젝트에 대한 동의 및 참여를 철회할 수 있습니다. 불편한 질문은 건너뛸 수 있으며 인터뷰를 언제든지 중지할 수 있습니다.

연구 책임자: 박사 후보생 최병기(소방방재학과, 오克拉호마 주립대학교)가 지도 교수인 Dr. Tony McAleavy (소방방재학과, 오克拉호마 주립대학교)의 지도아래 이루어집니다.

#### 연구절차

이 연구에 참여하기로 동의하는 경우 다음 작업을 수행할 것을 요청합니다. 우선 인터뷰 날짜와 장소들 정하기 위해 연락드리겠습니다. 인터뷰는 직접 진행하거나 비접촉 방식(전화 또는 줌)으로 진행할 수 있습니다. 인터뷰 동안, 우리는 조직의 스트레스 요인과 조직의 비효율성에 대한 관점을 얻기 위해 인터뷰를 진행하고 있습니다. 직무 스트레스와 비효율성에 대한 10 가지 질문을 받게 되며 인터뷰는 약 20~40 분 정도 소요될 수 있습니다. 본 연구는 보다 나은 조직 효율성을 구축하기 위한 미래 개발 전략을 기술하는 이론을 제공함으로써 EMS 조직 효율성에 도움이 될 것입니다.

#### 코로나 바이러스 감염 예방을 위한 조치

코로나바이러스 감염의 위험을 해결하기 위해 다음과 같은 조치를 취하고 있습니다.

선별: 코로나 19의 잠재적 증상(열, 기침, 호흡곤란 등)을 보이는 연구자와 참여자는 이번 연구에 참여하지 않을 예정입니다.

물리적 거리두기: 가능한 조건을 만들어, 우리는 연구를 수행하는 동안 사람 사이의 거리를 최소 6 피트 이상 유지할 것입니다.

마스크/덮개: 연구자와 참가자는 최소한 6 피트 거리를 유지하는 경우에도 연구 중에 천으로 된 얼굴 커버나 마스크로 입과 코를 막아야 합니다.

손 씻기: 연구원들과 참가자들은 인터뷰 전/중 손을 씻거나 최소한 60%의 알코올이 함유된 손 세정제를 사용하여 손을 소독할 것입니다.

소독: 연구원들은 인터뷰 장소에 검증된 소독약제를 사용하여 철저하게 소독을 실시할 것입니다. 소독된 자재는 장갑, 종이 타월, 비닐 랩 또는 브란 가방을 사용하여 처리하여 재오염 가능성을 줄이겠습니다.

전자 제품: 알코올이 70% 이상 함유된 알코올 함유 폴리슈나 스프레이를 활용하여 공유 터치스크린, 마우스, 키보드 등을 소독하는 데 사용될 것입니다. 또한, 액체가 고이지 않도록 표면이 건조시킬 것입니다.



Approved: 10/06/2021  
Protocol #: IRB-21-406



### **보상**

이 연구에 참여하여도 금전적 보상을 받지 않습니다.

### **기밀 보장**

연구에서 제공한 정보는 익명으로 저장됩니다. 즉, 사용자의 이름이 수집되거나 데이터에 연결되지 않습니다. 연구자만이 당신이 연구에 참여했다는 것을 알 수 있습니다. 일단 당신의 참여가 완료되면 연구원들은 당신의 데이터를 데이터 세트에서 제거할 수 없을 것입니다.

연구에서 제공하는 정보는 기밀로 처리됩니다. 귀하의 정보에는 코드 번호/가명 번호가 할당됩니다. 사용자의 이름을 이 코드에 연결하는 목록은 잠긴 파일에 보관됩니다. 연구가 완료되고 데이터가 분석되면 이 목록이 삭제됩니다. 귀하의 이름은 어떤 보고서에도 사용되지 않습니다.

연구원들은 당신에 대한 정보가 기밀로 유지되도록 모든 노력을 기울일 것입니다. 본 조사 결과 어떠한 출판물, 발표물 또는 보고서에도 귀하의 신원은 공개되지 않습니다.

연구팀은 오디오 녹음을 동반한 인터뷰를 통해 당신의 정보를 수집할 것입니다. 이 정보는 제한된 접근 폴더, 암호화된 클라우드 기반 스토리지 시스템 등에 저장됩니다. 또한, 오디오 녹음이 기록됩니다. 기록 내용은 전사 완료 및 확인 후 삭제됩니다. 이 프로세스는 데이터를 수집한 후 약 2개월이 걸립니다.

### **연락처 및 질문**

오克拉호마 주립대학의 IRB(Institutional Review Board)는 인간 연구 참여자 보호를 위한 이 연구들 검토하고 승인하였습니다. 연구조사 자체에 대한 문의는 주 연구자 최병기 82-10-2402-7079, [byunggi.choi@okstate.edu](mailto:byunggi.choi@okstate.edu) 에게 문의하시면 됩니다. 연구 지원자로서의 권리에 대해 질문이 있거나 본 연구에 대한 우려에 대해 연구팀 이외의 사람과 이야기하고 싶은 경우 IRB (405) 744-8377 또는 [irb@okstate.edu](mailto:irb@okstate.edu) 로 문의하십시오. 모든 보고서나 서신은 기밀로 유지됩니다.

### **동의문**

연구 참가자: 나는 위의 정보들 읽고 이해했습니다. 또한 연구에 대해 궁금한 사항에 대해 질문을 하고 답변을 듣는 기회를 가졌습니다. 나는 본 연구에 참여하는 것에 동의합니다.

본 연구의 참여에 동의하는 경우, 이메일 또는 전화 메시지로 연구자 최병기에게 연락 부탁드립니다.



Approved: 10/06/2022  
Protocol #: IRB-22-406

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