

A Study on the Restoration Meaning In Life of First aider in the Disaster Activities

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〈Abstract〉

Many first aiders suffer from the stress of working in uncertain disaster sites. The stress of responding to disasters leads to an increase in post-traumatic stress disorder (PTSD) and a decrease in psychological well-being. It also has many negative effects on the meaning in life for first aiders. Reduced meaning in life will result in many societal opportunity costs due to decreased health and work engagement. To address this issue, this study conducted a survey to analyze the level of meaning in life of first aiders. The results indicated that the overall level of meaning in life of first aiders is very low. This issue needs to be addressed sooner rather than later, given the increasing trend of emergency response. Based on the results of the study, measures were proposed to reduce PTSD and psychological stability by restoring the meaningfulness of first aiders' lives.

Keywords : First Aider, First Rescuer, Activity In Disaster, Meaning In Life, PTSD

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1. Introduction

A firefighter is the most respected profession in public.[1] Unfortunately, many firefighters suffer from post-traumatic stress disorder (PTSD); 12 firefighters lost their lives due to PTSD in 2023.[2]

PTSD is a disorder involving mental and physical symptoms that can occur after a person has experienced a traumatic event.[3] This psychological reaction occurs after experiencing extreme, life-threatening stress. The prevalence of PTSD in firefighters is known to be 10.5 times higher than in the general population.[4] First aiders, particularly those who witness the devastation first-hand at the scene of an emergency, are susceptible to vicarious trauma as well as direct traumatic experiences.

Research has shown that many first aiders experience identity confusion and feelings of helplessness due to the stress of responding to disasters.[5] However, to date, research has not provided a clear alternative to the psychological well-being of first aiders.

In this study, we propose the meaning in life as an alternative to psychological well-being and support for first aiders in the operations of catastrophic disasters. Specifically, the policy aims to restore a sense of purpose in the lives of first aiders and help them overcome disaster response stress and PTSD.

2. Theory

2.1 Disaster activities

Disaster response activities are associated with the risk of various security incidents. They also included several unpredictable situations. The inherent risks of long-term job stress and fatigue negatively impact the health and quality of life of individual firefighters, leading to a decrease in job satisfaction and commitment, which, in turn, leads to a decrease in retention and an increase in disaster response stress.[6]

It operates mental health counseling, screening, and medical expense assistance projects to support the ongoing prevention and management of stress and psychological recovery after deployment to disaster sites. The project, which began in 2012, will provide benefits to 55,706 firefighters by 2022. As of 2023, 10% of 66,659 firefighters receive benefits each year.(Table 1)[7]

(Table 2) depicts the breakdown of rescue and first aider calls(Fig. 1) over five years .[8] There was a 43% increase in the number of rescue calls by 2018, with a 22% increase in first-aider calls. In the future, the number of rescue and first-aider calls is expected to increase as public demand for safety increases. This eventually leads to fatigue among first aiders and increased stress at the disaster

Table 1. Projects to support mental and health care (unit: one million won)

Division	Budget	Number of applicants
2018	467	6,249
2019	414	5,011
2020	367	5,799
2021	494	7,454
2023	556	7,932

Table 2. The number of dispatches

Division	Dispatch of rescue	Dispatch of aid
2018	837,628	2,924,899
2019	893,606	2,929,994
2020	838,194	2,766,136
2021	1,062,612	3,148,956
2022	1,199,183	3,564,720



Fig. 1 (a) First rescuer (b) First aider

site. Identifying meaning in life can be an important solution for reducing disaster stress.

2.2 Meaning in life

Meaning in life is defined as having a purpose in life, engaging in worthwhile behaviors, and being actively engaged in life.[9] Meaning in life is a buffer that

reduces the negative effects of personal distress and stress and helps individuals maintain a good sense of well-being.[10] Therefore, firefighters should be encouraged to value the meaning in life so that they can grow and overcome mental crises at various disaster sites.

Higher levels of meaning in life are associated with life satisfaction, happiness, high self-esteem, generosity toward others, conscientiousness, and positive attitudes toward life.[11] Higher levels of life meaning have been associated with lower depression and higher self-esteem.[12] Conversely, people with low meaning in life are more likely to be stressed, depressed, anxious,[13] and vulnerable to post-traumatic stress.[14]

Meaning in life has been shown to have a positive effect on reducing levels of depression in stressful situations,[15] and firefighters with high levels of meaning in life may better cope with post-traumatic stress at the scene of a disaster by mitigating the negative and enhancing the positive.

To overcome post-disaster PTSD, first aiders have to find meaning in their lives and set directions and goals for their lives. However, it is not easy for first aiders to find meaning in their lives because of frequent deployments, devastation at the disaster scene, and administrative work overload. Meaning in life is expected to play a positive role in psychological adjustment and growth to overcome disaster stress amid these challenges.

3. Method

3.1 Subjects

This study was conducted from July 20, 2023, to September 10, 2023, among firefighters nationwide to study the pursuit of meaning in life by first aiders. The survey utilized the national survey system for firefighter work management.

To determine the level of meaningfulness of life for first aiders, we compared them to first-time rescuers. A total of 222 and 103 first rescuers responded to this survey. By year of service, 122 respondents had 1-5 years of service and 10 respondents had more than 31 years of service. A total of 62 female and 263 male firefighters responded to the survey (Table 3).

Table 3. General characteristics of study subjects.

Division		N	%
Position	First aider	222	68.3
	First rescuer	103	31.7
Years of service (Year)	1-5	122	37.5
	6-10	73	22.5
	11-15	47	14.5
	16-20	33	10.2
	21-25	20	6.2
	26-30	20	6.2
	More than 31 years	10	3.1
	Sex	Woman	62
Man		263	80.9
Total		325	100.0

3.2 Meaning in Life Scale

The meaning in life scale used in this study was developed by Crumbaugh and Maholic. The scale consists of three main parts. The first part consisted of 20 questions, the second part consisted of 13 questions, and the third part described personal goals, ambitions, and objectives. It is a 7-point Likert scale, with higher scores indicating a higher level of life meaningfulness and lower scores indicating existential frustration and emptiness. The meaning in life scale used in this study was a 10-item scale adapted and restructured to fit the reality of first aiders (Table 4). The reliability analysis of the questionnaire indicated that Cronbach's α was 0.945, which is higher than the criterion value of 0.6, indicating internal consistency of the measurement data.

Table 4. Contents of the survey

Survey number	Content
1	I am motivated and energetic during field activities.
2	My firefighting life is a series of interesting events.
3	I have a clear goal in life as a firefighter.
4	I am very valuable as a human being.
5	My every day is always new.
6	My life is full of fun and interesting things.
7	I am a very responsible person.
8	I am capable of discovering my life's purpose.
9	My life depends on my will and I can make it as I wish.
10	The things I do, it is bringing to me joy and satisfaction.

3.3 Statistical analysis

The statistical processing of the data for the study on the pursuit of meaning in life of first aiders in disaster activities was analyzed using SPSS 28.0, and the specific data processing methods are as follows. First, frequency analysis was conducted to identify the general characteristics of the study participants, and frequencies and percentages (%) were calculated. Second, Cronbach's α coefficient was calculated to analyze the reliability of the meaning in life measurement tool. Third, descriptive statistics were used to analyze the overall meaning in life. Fourth, independent t-tests and one-way ANOVA were conducted to analyze the differences in the meaning in life between first aiders and rescue workers by job function and gender, and Duncan's test was used for post-hoc tests.

4. Results

4.1 Overall level of meaning in life

An analysis of the overall level of rescuers' and first aiders' sense of meaning in life indicated a statistically high mean of 5.01. Items such as "I am very valuable as a human being" (M = 5.66), "I am a very responsible person" (M = 5.66), and "My life depends on my will and I can make it as I wish" (M = 5.32) were established to be high (Table 5).

Table 5. General level of meaning in life.

Survey number	M ^D	SD
1	5.07	1.59
2	4.38	1.70
3	4.70	1.72
4	5.66	1.50
5	4.62	1.78
6	4.54	1.71
7	5.66	1.30
8	5.30	1.46
9	5.32	1.47
10	4.86	1.68

4.2 Analyze the meaning in life

When examining the differences in job-related meaning in life between rescue and first aiders, rescue respondents (M = 5.45) reported higher overall perceptions than first aiders (M = 4.81), with a statistically significant difference ($p < .001$). Specifically, rescuers (M = 5.64) were more likely than first aiders (M = 4.81) to agree with the statement "I am motivated and energetic during field activities." Rescuers (M = 5.64) perceived more than first aiders (M = 4.81) that "My firefighting life is a series of interesting events," and "I have a clear goal in life as a firefighter." Rescuers (M = 5.23) perceived this more than the first aiders (M = 4.45), "I am very valuable as a human being." Rescuers (M = 6.00) perceived this more than the first aiders (M = 5.51), "My every day is always new." Rescuers (M = 5.09) perceived this more than the first aiders

(M = 4.40), “My life is full of fun and interesting things.” Rescuers (M = 5.01) perceived this more than the first aiders (M = 4.32), “I am a very responsible person.” Rescuers (M = 5.90) perceived this more than the first aiders (M = 5.54), “I am capable of discovering my purpose in life.” Rescuers (M = 5.73) perceived this more than first aiders (M = 5.09) did, “My life depends on my will and I can make it my wish.” Rescuers (M =

5.68) perceived this more than the first aiders (M = 5.15), “The things I do, it is bringing to me joy and satisfaction.” Rescuers (M = 5.34) had higher perceptions than first aiders (M = 4.64) (Table 6).

There were no statistically significant differences in the meaning in life by the first aiders’ gender for either the overall meaning in life or any of its subscales (Table 7).

Table 6. Meaning in life according to the position

Survey number	Division	M	SD	t	p
1	First aider	4.81	1.60	-4.521***	.001
	First rescuer	5.64	1.44		
2	First aider	4.16	1.65	-3.496**	.01
	First rescuer	4.85	1.72		
3	First aider	4.45	1.72	-3.913***	.001
	First rescuer	5.23	1.60		
4	First aider	5.51	1.55	-2.956**	.01
	First rescuer	6.00	1.31		
5	First aider	4.40	1.80	-3.315**	.01
	First rescuer	5.09	1.63		
6	First aider	4.32	1.74	-3.453**	.01
	First rescuer	5.01	1.56		
7	First aider	5.54	1.31	-2.355*	.05
	First rescuer	5.90	1.26		
8	First aider	5.09	1.49	-3.708***	.001
	First rescuer	5.73	1.31		
9	First aider	5.15	1.51	-3.041**	.01
	First rescuer	5.68	1.32		
10	First aider	4.64	1.73	-3.580***	.001
	First rescuer	5.34	1.47		
Total	First aider	4.81	1.31	-4.227***	.001
	First rescuer	5.45	1.19		

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 7. Meaning in life according to the gender of the first aider

Survey number	Division	M	SD	t	p
1	Woman	4.63	1.50	-.983	.327
	Man	4.87	1.63		
2	Woman	3.92	1.55	-1.327	.186
	Man	4.25	1.68		
3	Woman	4.38	1.65	-.329	.743
	Man	4.47	1.76		
4	Woman	5.45	1.62	-.344	.731
	Man	5.53	1.53		
5	Woman	4.42	1.87	.102	.919
	Man	4.39	1.78		
6	Woman	4.33	1.79	.093	.926
	Man	4.31	1.73		
7	Woman	5.50	1.27	-.281	.779
	Man	5.56	1.32		
8	Woman	5.17	1.56	.439	.661
	Man	5.07	1.46		
9	Woman	5.05	1.61	-.618	.537
	Man	5.19	1.48		
10	Woman	4.58	1.84	-.271	.786
	Man	4.65	1.69		

5. Discussion and Conclusion

Considerable research has been conducted on the relationship between meaning in life and PTSD. Previous research has indicated that people with high meaning in life experience positive emotions, and greater happiness and satisfaction. Contrarily, people with low meaning in life experience negative emotions, including depression and suicide.

This study analyzed the meaningfulness of life for first aiders working at the scene of a catastrophic disaster compared to rescue workers. The results indicated that first aiders had very low levels of meaningfulness compared to rescue workers.

The reasons for the lower meaningfulness of first aiders' lives, despite the higher number of calls, can be partially explained by in-depth interviews with 15 first aiders taking medication for depression.

This study analyzed the meaningfulness of life for first aiders working at the scene of a catastrophic disaster compared to rescue workers. The results indicated that first aiders had very low levels of meaningfulness compared to rescue workers. The reasons for the lower meaningfulness of first aiders' lives, despite the higher number of calls, can be partially explained by in-depth interviews with 15 first aiders taking medication for depression. The reasons for this include witnessing traumatized patients, dealing with fatalities, non-rescue calls, and excessive administrative work.

In the future, the number of first aiders prone to depression and PTSD will increase, which will eventually lead to a decline in the quality of public emergency services if not accompanied by active rescue policy considerations by fire organizations. Therefore, this study proposes the following recommendations for improving public emergency services by restoring the meaningfulness of the lives of first aiders.

First, the first-aid allowance has been 100,000 won for more than 30 years, since the establishment of the Fire and Rescue Service in the early 1990s. Owing to the efforts of many firefighters, the government has decided to raise the allowance to 100,000 won in 2024. However, given that the average annual inflation rate was within or outside 3%, this was a lukewarm increase. A significant increase in the fixed allowance for first aiders and realization of the current 3,000 won emergency dispatch bonus are needed to motivate first aiders to work in the future.

Second, it is necessary to establish a special leave system to prevent PTSD among first aiders responding to catastrophic disasters. Many first aiders use personal leave to visit hospitals and counseling centers at their expense for psychological stability after responding to horrifying accidents such as traffic accidents and suicides. It is necessary to establish a disaster response stress-leave system for at least one week to improve future leave policies.

Third, the current mental health counseling, examination, and medical expense support program for the ongoing prevention and management of stress and psychological recovery from disaster response by the Fire and Rescue Service currently benefits only approximately 1% of all firefighters annually. In the future, more firefighters should benefit from psychological counseling to prevent PTSD, with the attention and budget of policymakers.

Finding meaning in life is an important process for first aiders to overcome PTSD after disaster-site activities. However, it is not easy for first aiders, who are physically and mentally tired because of non-rescue missions, disaster site devastation, and excessive administrative work, to pursue the meaning in life. However, it is expected that in the future, policymakers will pay much attention and make efforts to overcome disaster stress through psychological stability and the growth of first aiders, despite the difficulties in reality.

References

- [1] Park, K.J., "A Study on the Reorganization of Fire Service Agencies," *Journal of the Korean Society of Industry Convergence*, vol. 26, no. 2, pp. 279-284, (2023).
- [2] Sunday Seoul, "Fact check, current status of firefighter PTSD" [Online] Available from: <http://www.ilyoseoul.co.kr/>, [Accessed: 23rd September 2023].
- [3] Park, K.J., "A Study on the Improvement of Disaster in Multiple Casualties," *Journal of the Korean Society of Industry Convergence*, vol. 26, no. 2, pp. 273-278, (2023).
- [4] Park, K.J., Lee, B.W., Lee, G.C., & Nam, K.H., "Study on the Adoption of Vocational Aptitude Test in the Fire Service," *Journal of the Korean Society of Industry Convergence*, vol. 22, no. 2, pp. 155-161, (2019).
- [5] Donald, M., Dower, J., Correa-Velez, I., & Jones, M., "Risk and Protective Factors for Medically Serious Suicide Attempts: A Comparison of Hospital-Based with Population- Based Samples of Young Adults," *The Australian and New Zealand Journal of Psychiatry*, vol. 40, pp. 87-96, (2006).
- [6] Kim, S.C., "An Empirical Study on the Factors Affecting the Korean Fire-fighting Officers' PTSD," *Doctoral Thesis, The Graduate School, Hansung University*, (2019).
- [7] National Fire Agency, "National Fire Agency Statistical Yearbook," 09. 18. 2023.
- [8] National Fire Agency, "National Fire Agency Statistical Yearbook," 01. 23. 2023.
- [9] Scheier, M.F., Wrosch, C., Baum, A., Cohen, S., Martire, L.M., Matthews, K.A., Schulz, R., & Zdaniuk, B., "The Life Engagement Test : Assessment Purpose in Life," *Journal of Behavioral Medicine*, vol. 29, pp. 291-298, (2006).
- [10] Steger, M.F., Frazier, P., Oishi, S., & Kaler, M., "The Meaning in Life Questionnaire: Assessing the Presence of and Search for Meaning in Life," *Journal of Counseling Psychology*, vol. 53, pp. 80-93, (2006).
- [11] Won, D.R., Kim, K.H., & Kwon, S.J., "Validation of the Korean Version of Meaning in Life Questionnaire" *Korean Journal of Health Psychology*, vol. 10, no. 2, pp. 211-225, (2005).
- [12] Steger, M.F., Mann, J.R., Michels, P., & Cooper, T.C., "Meaning in Life, Anxiety, Depression, and General Health Among Smoking Cessation Patients," *Journal of Psychosomatic Research*, vol. 67, pp. 353-358, (2009).

- [13] Debat, D.L., Drost, J., & Hansen, P, "Experiences of Meaning in Life: A Combined Qualitative and Quantitative Approach," *British Journal of Psychology*, vol. 86, pp. 359, (1995).
- [14] Kim, B.R., & Shin, H.C., "The Influence of Ego-Resilience and Meaning in Life on Post-Traumatic Growth: Mediating Effect of Searching for Meaning and Presence of Meaning." *Korean Journal of Health Psychology*, vol. 22, no. 1, pp. 117-136, (2010).
- [15] Shim, M.S., "The Role of Existential Meaning as a Buffer Against Stress," Master's Thesis, Catholic University, (2006).
- [16] Song, J.R., "Study on the Drama Therapy for Finding the Meaning in Life of Adolescents" Master's Thesis, Yong In University, (2018).

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