Original Article: A Comprehensive Model and Influential Factors in the Preparation of Combat Forces

Gholam Reza Godarzi[1]*, Hamzeh Isazadeh[2], Hadi Hedayati[3]

[1] PhD in Sports Management, Tehran, Iran

[2] PhD in Sports Management

[3] MSc in International Relations

Use yor device to scan and read the article online

Citation *Gh Reza Godarzi , H Isazadeh, H Hedayati, **A Comprehensive Model and Influential Factors in the Preparation of Combat Forces, AJMHSS,*** 2025; 1(1): 45-53.

https://10.5281/zenodo.15498885

Article info:

Received: 02.01.2025

Accepted: 10.02.2025

Checked for Plagiarism: Yes

Keywords:

Special Training, Military Physical Education, Model, DEMATEL Method

A B S T R A C T

The aim of this study was to present a comprehensive model and identify the influential factors in the preparation of combat forces. To achieve this goal, the researchers consulted experts from the Iranian Armed Forces and collected information through in-depth interviews. The data obtained from twenty interviews, as well as related documents and records, were coded and analyzed. A mixed-method research approach (qualitative and quantitative) was employed. Causal diagrams can transform complex causal relationships among criteria into a structured and observable model, providing precise insights for problem-solving. Additionally, by using causal diagrams to distinguish between cause and effect criteria, more informed decisions can be made. Therefore, the DEMATEL technique was used to identify key factors in the preparation of combat forces and any causal relationships between the criteria. The results of code categorization revealed fifteen components at three levels: military training, military physical education, and special training. Based on the research findings, the proposed model can serve as a foundation for successful preparation of combat forces. In military environments, combat forces are considered essential and central elements. Accordingly, the comprehensive model of influential factors in combat force preparation was extracted, validated, and the research framework was outlined and confirmed.

Introduction

Today, security issues form the foundation for a country's social, political, and economic development. Border security and the protection of border cities serve as a strong pillar for maintaining internal security in all its dimensions. Any instability in border cities can disrupt economic, cultural, political, social, and military systems within the country. A government that seeks to establish a constructive and developmental environment within its borders must ensure territorial integrity. Otherwise, security threats at the borders will hinder any form of national progress and dynamism. Internal security is effectively maintained when adequate

*Corresponding Author: ***Afarin Nourinejad*** *(afarinnourinejad@gmail.com)*

attention is given to border protection (Momen zadeh, 2008).

The deployment of forces in military planning holds significant importance and acts as a decisive and vital factor in both the planning and execution of operations (Ghanbari, 2014).

Possessing a well-developed character is an ideal and crucial attribute for military personnel. Due to the nature of their professional duties, military personnel face more occupational challenges and psychological pressures compared to other professions. The psychological stress associated with their job stems from complex missions, strict regulations, the risk of injury, disability, captivity, and even death. These factors are significantly more prevalent in military careers than in civilian occupations (Mohammadi et al., 2003).

Training programs and activities implemented during military education contribute to increased emotional stability, extraversion, self-confidence, and a sense of superiority among military personnel (Maleki et al., 2011).

Education is considered the foundation of development. As societies transition from traditional to industrial, and from industrial to post-industrial stages, sciences, technologies, and techniques continue to evolve and advance. In parallel with these changes, the significance, necessity, and attributes of education become increasingly evident. Some experts even state that "education is the key to the future," meaning that it should facilitate and accelerate future advancements (Hernandez, 2006).

Specialized Military Training

Various models exist for specialized military training, some of which are meticulously applied in military education across different countries. One of the widely used models in military training systems worldwide is the ADDIE model, which stands for five key stages in the training and program design process:

Analysis: Identifying and analyzing educational needs, including required skills, knowledge, and competencies in military training.

Design: Structuring and planning the training content based on identified needs, including learning objectives, necessary resources, teaching methods, and assessment strategies.

Development: Producing and preparing educational materials, instructional content, operational scenarios, and training resources.

Implementation: Executing the training program in operational or educational settings, where personnel receive the necessary instruction.

Evaluation: Assessing the effectiveness and outcomes of the training program to ensure quality and make necessary improvements.

This model is particularly beneficial in specialized military training, such as training for special-forces, commanders, and operational units in crisis situations. It ensures that training is designed to efficiently and effectively equip soldiers with the required skills. The ADDIE model is recognized as an effective framework for enhancing training performance, especially in complex operational environments and crisis scenarios (Reiser et al., 2012).

Military Physical Training

Military physical training is a critical component of military education and preparation, aimed at improving physical capabilities, endurance, strength, and readiness for challenging operational and combat conditions.

Compared to general fitness programs, military physical training incorporates unique characteristics and methods tailored to the specific needs of armed forces.

The objectives of military physical training include:

- Enhancing Physical Endurance: Ensuring that personnel can sustain intense physical activities for extended periods.
- Improving Strength and Speed: Developing the ability to perform explosive and rapid movements, such as sprinting and swimming.
- Preparing for Harsh Environments: Equipping personnel to operate effectively in extreme conditions (mountains, deserts, jungles, etc.).
- Increasing Flexibility and Quick Response: Enhancing adaptability to rapid changes in operational environments.
- By incorporating these elements into their training, military forces can achieve optimal preparedness for various mission scenarios, ultimately improving their overall effectiveness in combat and operational settings.

Among the key principles, the following can be highlighted:

- Training Load and Performance Improvement: Adjusting the training load to prevent potential injuries.
- Variation and Diversity in Training: To avoid fatigue and monotony, training should be diverse and periodically emphasize different capabilities of the forces.

Readiness for Specific Environmental Conditions: For military forces, training should be tailored to various environmental conditions such as heat, cold, high altitudes, jungles, deserts, etc.

Challenges and the Future of Military Physical Training: With technological advancements and changes in warfare, military training systems must be continuously updated. Especially in emerging fields such as cyber warfare, educational systems must adapt to these transformations.

In the comprehensive education system of the armed forces, training is defined as a purposeful process aimed at enhancing knowledge, attitudes, and skills, as well as fostering desirable behaviors in personnel to perform their duties and responsibilities within the organization.

Given this context, attention to key components of educational system design is crucial for its effective implementation in military universities of the Islamic Republic of Iran (Zarif Manesh et al., 2021).

Research Background

A review of theoretical foundations and previous studies indicates that most research has focused on the quality of in-service training. However, no similar study on a model for preparing combat forces has been observed domestically, and only limited research abroad has emphasized combat force training. The researcher has not encountered similar studies in this regard.

Thus, the main research question is: What are the key factors influencing the preparation of combat forces? This highlights the necessity of addressing this issue and developing a comprehensive model for preparing combat forces. Therefore, the researcher seeks to identify the factors that influence combat force readiness.

Methodology

Since this study aims to present a comprehensive model of influential factors in combat force preparation, it requires a mixed-method research approach.

In the first stage, using a qualitative thematic analysis approach, the main and sub-themes related to combat force preparation were identified.

After identifying key indicators, the DEMATEL (Decision-Making Trial and Evaluation

Laboratory) technique was used to validate the findings quantitatively.

Thus, an exploratory mixed-method research design was employed.

The qualitative phase involved experts from the armed forces across the country as the study population. Theoretical saturation was achieved after conducting 20 interviews.

To ensure the validity of this research:

A comparison of findings with existing literature was conducted to confirm coherence and systematic relevance of the identified concepts.

Multiple sources of evidence were used, along with a rich description of data collection processes, definition of research boundaries, and preparation of a key draft.

Document analysis was also performed to enhance data validity.

In the interview phase, validity was ensured at each of the seven stages of the research process, including topic selection, design, interviewing, transcription, analysis, and confirmation.

Using the DEMATEL technique, which is a multi-criteria decision-making method, causal relationships among variables were identified. Eleven experts were asked to graphically depict the influence of factors based on their experiences. In total, interviews with 20 experts were conducted.

Results

Results and Key Findings

The study identified 15 key components influencing the preparation of combat forces, categorized into four levels, which include military training, military physical training, and specialized training.

Table 1: General Categories, Subcategories, and Core Codes Extracted from All Interviews on Combat Force Preparation

Row	Code	Concept	Category
1	Conducting regular training courses for military forces Conducting field exercises and simulating real defense scenarios Conducting training courses on threat identification and assessment	Military Training	Preparing the troops
2	Conducting physical fitness classes Hand-to-hand combat training Cold weapon training Pujil combat training	Military Physical Training	
3	Mountain warfare Desert warfare Snow warfare Jungle operations Airborne incursion Seaborne incursion Urban warfare Umbrella game Hostage rescue Diving	Special Training	

Summary of identifying factors affecting the preparation of forces

The following table presents the results of the available documents on identifying factors affecting the preparation of forces.

Table 2: Main steps and frequencies extracted from all interviews

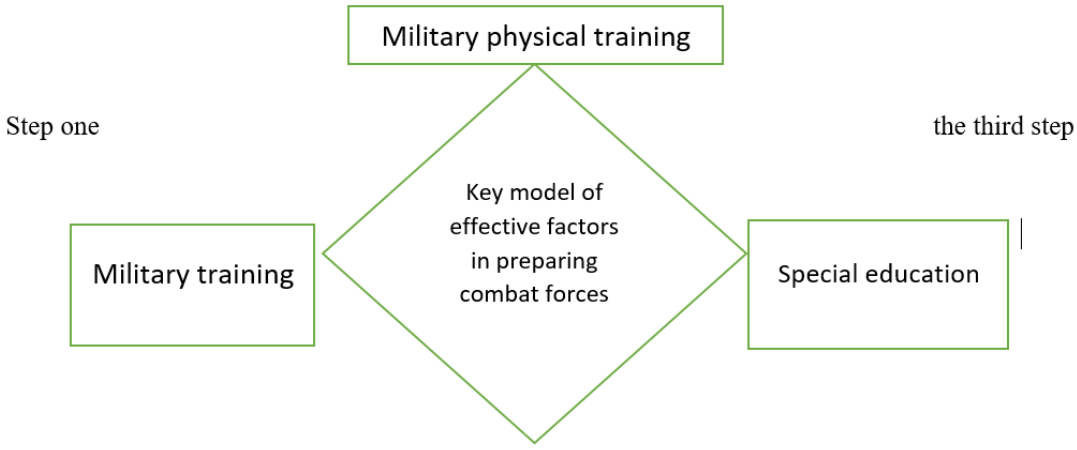
Percentage Abundance	Statistics of experts in the interview	Statistics of experts in the interview	Main steps	Row
100	20	20	Military training	1
90	18	20	Military physical training	2
85	17	20	Special education	3

Selective coding and open coding are performed simultaneously. In open coding, data are broken down to identify their features, concepts, and dimensions. In selective coding, the same data are re-connected in a new format by creating relationships between each category and its subcategory.

The model is a key factor in the success of military force preparation and includes the stages of military training, military physical education, and special education.

Model

A model is a small part of a large object that is functionally identical to the real object (Gorji, 2009). In social sciences, models include signs and symbols. A model is a representation of reality (Tavasli, 2010).



Key Model of Effective Factors in Preparing Combat Forces (Godarzi 2024)

Figure 1. The model

According to the main steps table obtained from all interviews, it was ranked and proven.

The DEMATEL method in a structural model

One of the most commonly used methods to find any cause-and-effect relationships between criteria is the DEMAT method. In addition to being able to rank and determine the importance of components, this technique also has the ability to identify the impact on the behavior of other factors or components and can provide quantitative criteria and consider the related structural model. This technique is based on diagrams that can separate the involved components into two groups of cause and effect. These diagrams depict the dependency relationship between the elements of a system. Causal diagrams can transform complex causal relationships between criteria into a visible structural model and provide accurate insight for problem solving. In addition, with the help of a causal diagram and recognizing the difference between cause and effect criteria, correct decisions can be made. To solve the complex and interconnected problems of the world, the D-model was presented and was considered in the strategic and objective goals of global issues, in order to reach appropriate solutions.

Table 3: How to answer the questions and the scoring pattern

Very high effect	High effect	Little effect	Very little effect	No effect
4	3	2	1	0

Pattern of relationships between variables

$$X = \begin{bmatrix} 0 & \cdots & x_{n1} \\ \vdots & \ddots & \vdots \\ x_{1n} & \cdots & 0 \end{bmatrix}$$

$$k = max\left\{max\sum_{j=1}^{n} x_{ij}, \sum_{i=1}^{n} x_{ij}\right\}; N = \frac{1}{k} * X$$

$$T = N \times (I - N)^{-1}$$

The DEMATEL technique was used to reflect the mutual relationships between the main criteria. Initially, 11 experts were asked to mention the degree of influence of the items on each other.

In general, in multi-criteria decision-making methods, a sample size of between 5 and 30 people is recommended (Habibi et al., 2014).

Sampling: The DEMATEL method requires that information be received and analyzed from experts. Since the goal of generalizing the results was not in question, a purposive sampling method was used to select the team of experts. The research process was carried out with the cooperation of 20 experts.

The DEMATEL technique calculation formula

In the first step, the main codes were named in the table.

Table 4: Symbols of research criteria

Criterion	symbol
C1	Military training
C2	Military physical training
C3	Special education

The data related to the average matrix of experts' opinions are entered in the table below.

Calculation of matrix of experts' opinions

A table number 5 of the matrix

In the matrix of experts' opinions, the opinions of several experts are used and we form a direct correlation matrix with a simple arithmetic mean Calculate α

According to the formula, the α value is obtained and multiplied by the matrix items to obtain the N matrix and normalize the M matrix.

Normalizing factor 0.140449438

The following matrix is called the influence matrix of unscaled direct relationships

Table 6: The effect matrix of unscaled direct relationships

C3	C2	C1	نسبت به
0.462078652	0.537921348	0	C1
0.310393258	0	0.355337079	C2
0	0.311797753	0.338483146	C3

The above matrix shows the effect of unscaled direct relationships. In this step, direct relationship matrices (works) are prepared.

Table 7: M table number 7 matrix

C3	C2	C1	نسبت به
-0.462078652	-0.537921348	1	C1
-0.310393258	1	-0.355337079	C2
1	-0.311797753	-0.338483146	C3

Inverse matrix

Table 8: Inverse matrix

C3	C2	C1	نسبت به
1.404245326	1.522449218	2.016296033	C1
1.059440306	1.883190604	1.027770136	C2
1.805644483	1.102497999	1.002938643	C3

The matrix of relations of the total matrix

Table 9: The total direct effects matrix

C3	C2	C1	نسبت به
1.404245326	1.522449218	1.016296033	C1
1.059440306	0.883190604	1.027770136	C2
0.805644483	1.102497999	1.002938643	C3

Table 10: Indirect matrix

C3	C2	C1	نسبت به
0.942166674	0.98452787	1.016296033	C1
0.749047048	0.883190604	0.672433057	C2
0.805644483	0.790700247	0.664455497	C3

Table 11: Analysis of DEMATEL indicators

Calculation of influence indicators and effectiveness of the main criteria

تجزیه و تحلیل شاخص های دیمل				
Di-Ri	Di+Ri	Ri	Di	عوامل
0.895985765	6.989995389	3.047004812	3.942990577	C1
-0.53773678	6.478538867	3.508137821	2.970401046	C2
-0.35824899	6.18041124	3.269330115	2.911081125	C3

According to Table 12 of the analysis of the DEMETL indicators, the military training criterion has the most impact, and morale and motivation in this area are in the next stage.

The threshold value is 1.0916081

Table 12. Threshold limit

C3	C2	C1	نسبت به
1	1	0	C1
0	0	0	C2
0	1	0	C3

According to the results of the above table, it can be determined which of the factors has a significant effect on which of the other factors has it. Threshold value can be determined based on research literature or experts' opinions.

We find out only the relationships that are significant and their value is greater than the threshold value

According to the relationship pattern, a causal diagram can be drawn based on Table 12

Graphical chart

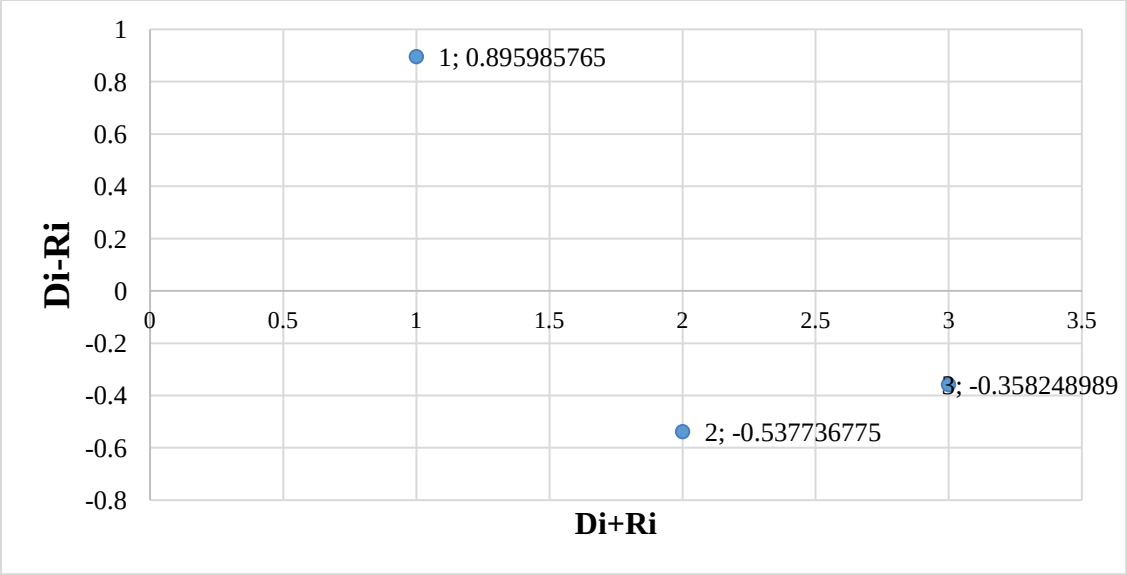


Figure 2. Cartesian DEMATEL coordinates

Above the horizontal line, military training is based on the Cartesian coordinates of the Demeter. The indicators that are above the horizontal line are classified as influential or causal indicators. Also, the indicators that are below the horizontal line have a negative net effect and are clustered as dependent indicators. Below the horizontal line, military physical education and special education are located and their degree of influence is higher. Based on the results, it was determined that military training is the most influential component.

Discussion and Conclusion

The aim of this study is to present a comprehensive model and identify the effective factors in the preparation of combat forces. The researchers referred to armed forces experts and collected information from them through interviews. Then, the data obtained from the interviews were coded. The grouping of codes determined three levels in the preparation of combat forces. Existing experiences indicate that the effective factors in the preparation of combat forces are an important item in the output of the entire armed forces. The steps of these levels include these items.

The first step is military training, which includes holding regular training courses for military forces, conducting field exercises and simulating real defense scenarios, and holding training courses on identifying and assessing threats. The second step is military physical training, which includes conducting physical fitness classes, hand-to-hand combat training, cold weapon training, and pistol combat training. The third step is special training, which includes mountain warfare, desert warfare, snow warfare, jungle operations, air infiltration, sea infiltration, urban warfare, parachuting, hostage rescue, and diving. The most important feature of these steps is achieving the goals of preparing combat forces by creating a systematic system in defense. It goes without saying that with the development of combat force preparation, we will witness its direct and indirect effects on the sustainable development process of the country.

Suggestions

The impact that military physical training has on the preparation of combat forces can be measured by various criteria.

Acknowledgements

We would like to express our gratitude to all the professors of the armed forces for their effective assistance.

References

[1] Ghanbari, Ali Asghar. (2015). A Study of Military Geography of Kurdistan Province with Emphasis on the Strategic Axis. First Year, First Issue.

[2] Gagné, R. M., & Briggs, L. J. (1974). Principles of Instructional Design.

[3] Hardman, A., Jones, C., & Jones, R. (2010). Sports Coaching, Virtue Ethics and Emulation. Physical Education and Sport Pedagogy, 15(4), 345-359.

[4] Harrison, S. (2015). The Role of Physical Training in Military Readiness. Journal of Military Health and Performance.

[5] Hernandes, Karavos - Mayer, Rashmi; Translated by Keyghobadi, Marzieh - Boushehri, Alireza - Vahidi Motlagh, Vahid. (2006). Learning for the New Millennium - Challenges of Education in the 21st Century. Center for Future Studies in Science and Defense Technology, Educational and Research Institute of Defense Industries.

[6] Maleki, Behnam, & Sanaei, Saeed, & Borhani, Hossein, & Ghavami, Akbar. (2011). The Impact of Military Training Course on the Personality Traits of Military Students. Military Medicine Journal, Vol. 13, No. 4.

[7] Mohammadi, Zahra - Rezghi Shirsavar, Hadi - Sadeghi Ziaei, Mahmoud - Hashemnia, Shahram. (2019). Identifying the Components of In-Service Training and Determining Their Relationship with Improving Employee Performance. Scientific-Research Quarterly "A New Approach in Educational Management," Vol. 10, No. 1.

[8] Mohammadi, G. (2003). Investigation of Effective Factors of Job Satisfaction on Military Forces. Tehran: Sepah's Women's Affairs Office.

[9] Reiser, R. A., & Dempsey, J. V. (2012). Trends and Issues in Instructional Design and Technology.

[10] Schmidt, R. A., & Lee, T. D. (2011). Motor Learning and Performance.

[11] Sherrill, C. (1998). Adapted Physical Activity, Recreation, and Sport: Crossdisciplinary and Lifespan.

[12] Zarifmanesh, Hossein, Bagheri Hoshi, Mehdi, Hamedi Sanjani, Alireza. (2021). Meta-synthesis of the Design of the Educational System in the Universities of the Armed Forces of the Islamic Republic of Iran. Strategic Defense Studies Quarterly, No. 85.

This journal is a double-blind peer-reviewed journal covering all areas in Humanities and Social Science field. **AJMHSS** is published quarterly (12 issues per year) online and in print. Copyright © 2025 which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.