

Review Paper

Understanding Core Native Human Effective Components in Crisis Management Is a Step Forward Towards Increasing Resiliency and Decreasing Stress Especially in Sudden Crises as a Sustainable Development Framework



Saied Sehat¹, Ali Delavar², Ahmad Jafarnejad Chaghoshi³, Bijan Yavar^{1*}

1. Department of Business Administration, Faculty of Management and Accounting, Allameh Tabataba'i University, Tehran, Iran.
2. Department of Deliberation and Measuring, Faculty of Psychology and Education, Allameh Tabataba'i University, Tehran, Iran.
3. Department of Industrial Management, Faculty of Management, Tehran University, Tehran, Iran.



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ABSTRACT

Background: In different crises without any exception, especially sudden emergencies, the role of human effective components (HECs), native human effective components (NHECs) (belonging to a specific space and location), and especially core native human effective components (CNHECs); and among CNHECs, level of management skills, ignorance, and manager's mind bandwidth are of vital importance in crisis management. These three specified CNHECs can affect crisis management and managers as well as the level of latency in planning, strategy, and management, and as such through a complexity of reactions (i.e. A. affective, B. behavioral, and C. cognitive reactions) to increase resiliency and decrease distress in metropolitan urban areas. The time limitation is also an important issue to be considered.

Materials and Methods: The type of review method has been integrative review. For a better review process, 200 articles during an approximately 50-year time (1972-2021) period during 3 years of the review process were studied and for the selection method, the well-known scientific databases and universities, the search terms, and inclusion/exclusion criteria were selected, analyzed, and summarized through a review protocol.

Results: We aim to shed light on HECs preparation of NHECs and CNHECs in disaster management which will generate a good understanding to increase the resiliency and decrease the distress in crisis managers in times of sudden emergencies in metropolises as a sustainable development framework for the future.

Conclusion: By creating the proposed taxonomy and classification of CNHECs in crisis management (managers), at first a better understanding will be obtained which in times of sudden crisis can increase resiliency and decrease distress generating a sustainable development framework.

* Corresponding Author:

Bijan Yavar

Address: Department of Business Administration, Faculty of Management and Accounting, Allameh Tabataba'i University, Tehran, Iran.

E-mail: yavar637@gmail.com

1. Introduction

A

clear model and related to that a clear native model for evaluation of a crisis management especially in enterprises especially the effect of human and details about it, is absent and organizations like humans need a model to assess and evaluate the crisis [1].

In relation to crisis human effects there is a meaningful lack of information which needs special attention [1].

Based on the reactions mentioned by Triage assessment system (TAS) which are: A. Affective, B. Behavioral and C. Cognitive reactions [1] the analysis of the reaction of the crisis management or to better say crisis managers has a complex context.

At first by the authors experience and then by the study of literature the human effective components (HECs) in crisis management is reviewed and extracted. Based on the same process meaning the experience and also literature review some of these HECs among all based on the different factors like culture, politics, economics, social, are being extracted [2-18].

The more likely to be effective in crisis managers in Iran and Tehran which will be called the native human effective components (NHECs) and will be effected by some special influencers (i.e. mind bandwidth, level of management skills and ignorance) which are different from different dimensions since it can affect other components with a higher rate to be called as core native human effective components (CNHECs) which the rate and scale yet to be under investigation by the researchers.

Next coming up will be the sorting of these NHECs for increasing resiliency and decreasing distress in an earthquake in Tehran metropolitan area as a study sample in crisis managers which is being extracted and analyzed through a hybrid method by combination of author's experience, literature review, outcomes from interviews at the first stage and questioners for the next stage to see which are the most human effective components in disaster and crisis management (crisis managers) which three of them by means of "level of management skills", "mind bandwidth" and "ignorance" has been extracted so far and the rest is being under investigation. Then the relationships will be studied which will be the topic of the next article.

To continue we will focus on the CNHECs which are among the NHECs in crisis management (crisis managers) which will affect resiliency and distress especially in sudden conditions like an earthquake in Tehran as a metropole so that the addressee can get more acquainted with these components.

2. Materials and Methods

The methodological part of this review is mainly characterized by accurately describing how the relevant literature was selected (which database, which search terms, which inclusion/exclusion criteria) and how it was then analyzed and summarized which is called a review protocol.

The relevant articles are selected (by key search criterions and key words used, such as human impact, human efficiency, and human error related to human effective components (HEC) which can affect the crisis management process and also managers and also crisis management, sudden crisis, resiliency, distress and sustainable development framework and as such keywords in crisis and emergencies and also from different databases to include where necessary.

At least 200 articles were reviewed during at least a three year period of research which based on the topic of the article the section and the portion was selected which can be mentioned as a review structure with approximately 100 articles used for the review which some of them are only used for the structure, some for understanding the relations and the rest to be referred.

To explain the selection procedure of the articles reviewed, those related articles were selected which belonged to a well-known databases and those which are more cited and of course having something new to add to the subject. Since the review was prepared through a chronological set and based on time the repeated topics were gathered.

To check these papers for their reliability and validity to take as the final sample papers to review them, a set of well-known university professors and university research centers were nationally and internationally selected and referred for advice.

The type of reviewing method used in the article has been the integrative review because in some cases the authors had to integrate some reviews to reach to a better conclusion.

Finally, related materials from approximately 50 years ago to the recent date references were all under study to achieve a new view which can help generate the sustainable development framework through extracting the HECs from the literature review, next NHECs and also 3 main CNHECs were extracted (managerial level skills, ignorance and crisis managers mind bandwidth and their sub categories which is set for the first time in the world) among others by the authors view point to better understand the components to help increasing the resiliency and decreasing the distress to form a sustainable development framework. After shaping the CNHECs the sub categories is also formed to generate a better understanding in crisis management in sudden crisis.

For further research analyzing the three main CNHECs and the subsection relationships will be under study and the topic of the next article as the next step.

The articles and books published up to 2021 by means of a literature review method with chronological set based on a time period of approximately 50 years and authors' operational experience were under study to better understand the HEC to form NHECs and among them the most effective one as the three components mentioned as CNHECs.

This article is based on a unique research work and the analysis of the latest literature review up to date up to the year 2021 and experiences of the researchers and the study has been under deep research. The model is also being empirically under test which will be the topic or the future article

3. Results

There are some important factors in relation to HEC especially NHECs based on different angles such as social [1, 3, 6], economic [3, 9, 19], cultural [17], political [20], Physical [21, 22], ecological [3, 16, 19, 23-25], etc. which is mainly based on the human Mentality and as an oral context which should be revealed and to be written and evidenced so that it can be formulated, categorized and of course used as an experience for similar situations which relies on and is dependent to the crisis manager's CNHECs such as: Level of management skills, ignorance (ignoring ignorance), mind bandwidth, etc.

When the term native is mentioned in NHECs it's referred to the related space and location where HEC are studied.

When the term core is mentioned in CNHECs it's referred to the related more effective components in NHEC which in this article are managerial level skills, ignorance and crisis managers mind bandwidth and their sub categories which are studied.

SNHECs can cause a turning point towards success or failure or mismanagement in crisis managers through increasing or decreasing SNHECS depending mainly on CNHECs and next the NHECs (Figures 1 & 2).

Many crisis managers have many experiences which is a "not said stuff" and "in their mind "which always for different reasons stays in a conceptual and latent status.

The higher the level of crisis managers are, the higher the status of latency (intentional or unintentional) in crisis management is which slows down and causes defects and difficulties in the assessment and evaluation process of manager's functionality. Simply mentioning that the higher the level of management skills rises the higher the level of latent ignorance and other components can be can be.

Disaster and crisis manager's loyalty and faith is one of those human efficiency components which is vital from the enterprise and a person point of view.

The effectiveness and sensitivity of human components and factors will be gradually and sometimes suddenly change and reach to a higher level in each person as a crisis manager from time to time based on experience acquired and during a time period and based on the external factors i.e. social [1, 3, 6], economic (3, 9, 19), cultural [17], political [20], physical [21, 22], ecological [3, 16, 19, 23-25], etc. if the crisis manager tends to mislead and mismanage the condition through intentional latency by he/she's own will or by a higher level manager to acquire and achieve a higher goal which also may not suit a honest framework but will meet the crisis manager's needs being planned for will be a super complex condition in which a precautionary action will be possible only by professionals. This condition will concentrate on CNHECs such as level of management skills, ignorance, mind bandwidth, etc.

Smithson [26] has explained Ignorance (i.e. ignoring ignorance and other items explained as taxonomy of ignorance) and uncertainty which is of high importance. The more the crisis and disaster managers are ignorant the more the situation will be and turn into an uncertain status and condition. Based on the mentioned above, we suggest that Ignorance (i.e. ignoring ignorance, irrel-

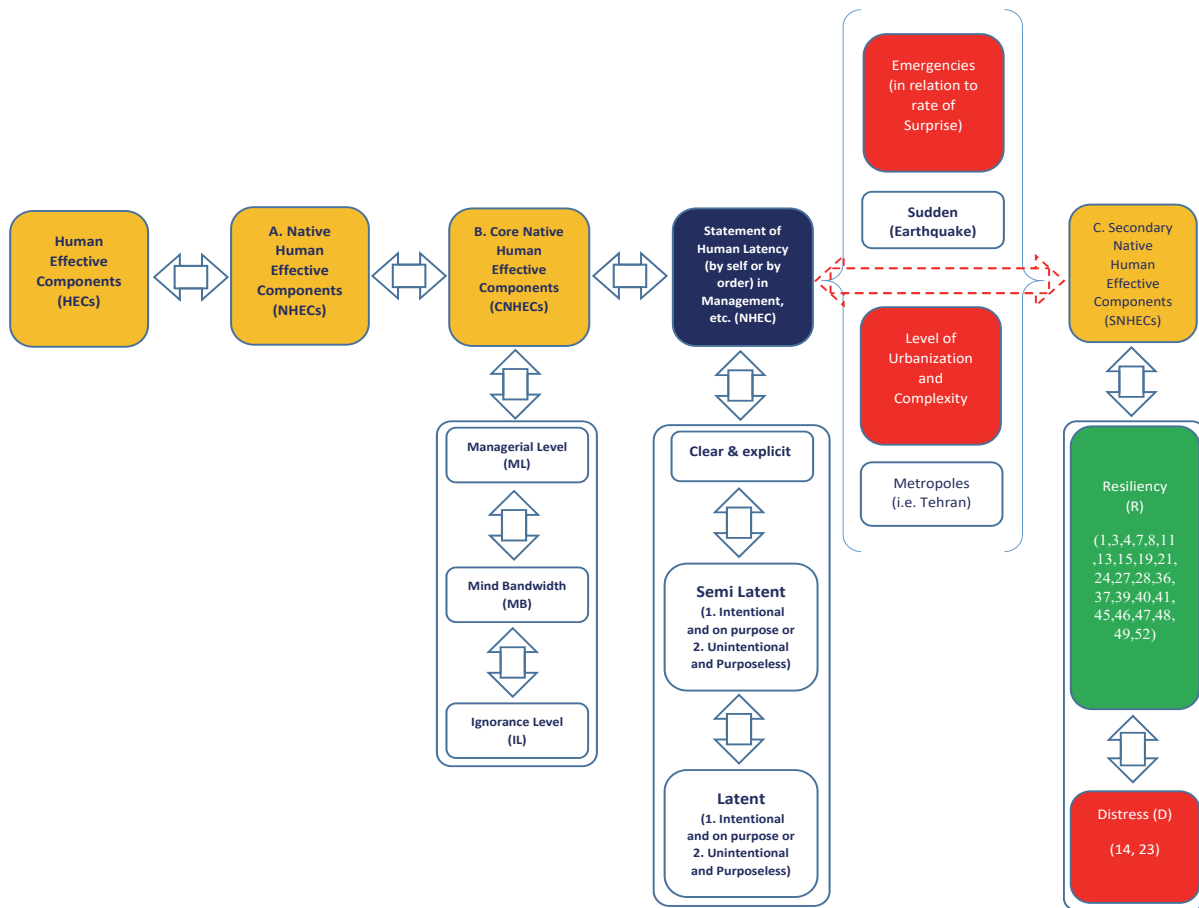


Figure 1. Relationship between A) NHECs, B) CNHECs, and C) SNHECs, which can cause a turning point towards success or failure or mismanagement in crisis managers through increasing or decreasing SNHECS depending mainly on CNHECs and the NHECs.

Note: The numbers in the parentheses indicates the references supporting the topic and the discussion

evance, error, etc.) mind bandwidth (considering: Experience, imbecility, related educational background skills and futures study) and level of management skills based on different managerial levels consisting of: top, middle, operational and technical level management which are mentioned as NHECs and on the other hand based on the reactions mentioned by TAS which are: A. Affective, B. Behavioral and C. Cognitive reactions proposed by Myer and his colleagues in [1] the outcome of NHECs are not a single reaction but most probably as a complexity are a mixture of these three kind of reactions and because of many problems mentioned by different crisis managers will from now on be called: “CNHECs” by the authors that can in a good condition be a turning point towards increasing resiliency and decreasing distress especially in time of sudden emergencies such as earthquake in metropolitan areas like Tehran.

Figure 3, a combination of smithson [26] & Yavar [27, 28] taxonomy of only three of the CNHEC’s. Explains details and sub categories of ignorance, level of management skills and mind bandwidth and the “taxonomy of 3 components among the CNHECs” in crisis management for increasing resiliency and decreasing stress (distress) in times of sudden emergencies (i.e. earthquake) in metropolises and mega urban areas like Tehran.

NHEC’s especially status of “ignorance” and the disaster and crisis managers “mind bandwidth” and of course “level of management skills” which can form a new format and be called the CHEC’s can be a turning point especially in sudden emergencies towards success or failure and can also cause more complexity for latency or clearness.

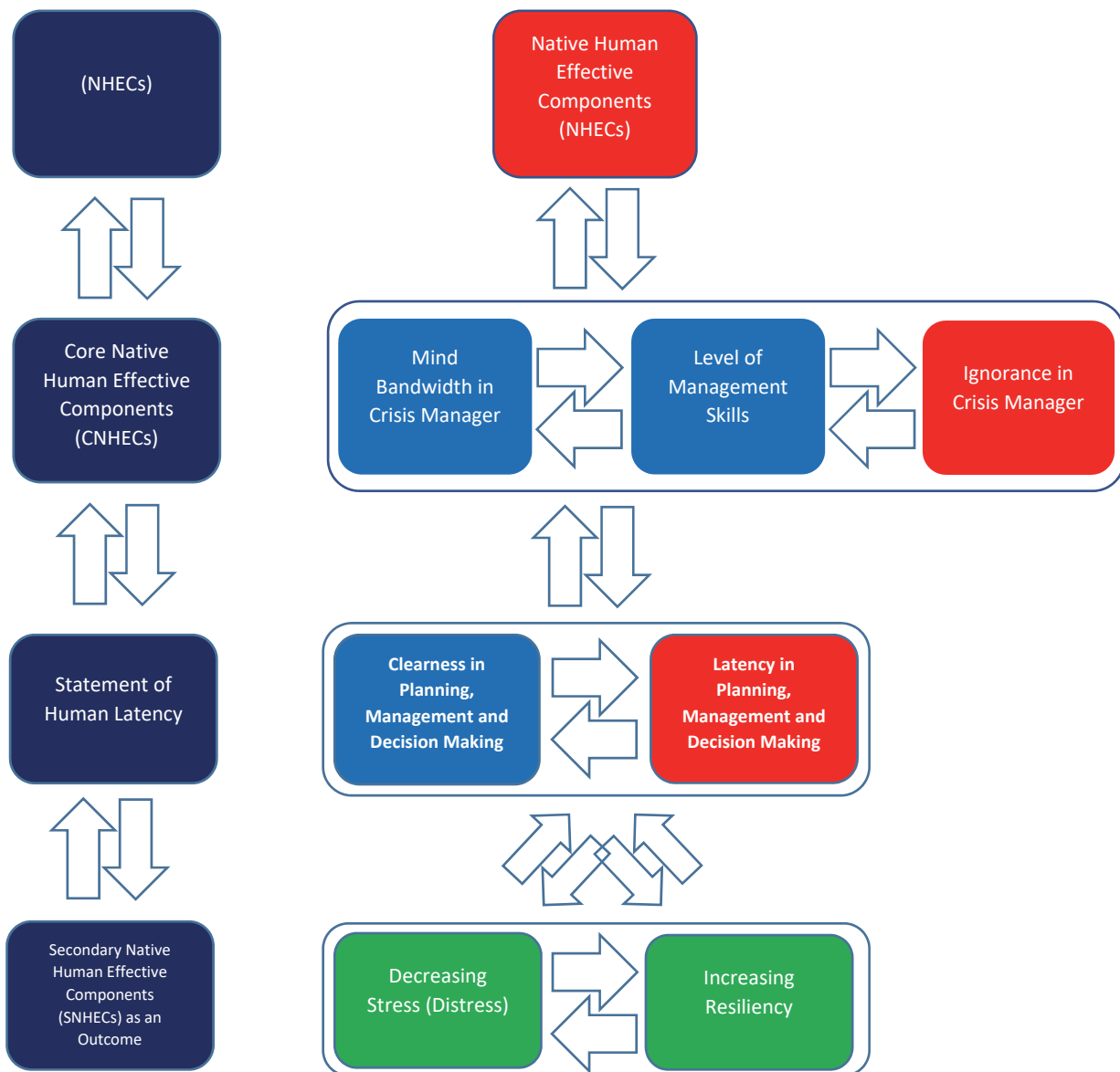


Figure 2. Secondary native human effective components such as stress decrease and resiliency increase can be a good outcome if the CNHECs are analyzed optimally and appropriately, especially in sudden emergencies and vast areas of human settlements like Tehran with different complexities

Statement of latency in crisis managers as a result of CNHEC's, which can face 3 main categories which are as the following:

- A. Clear & explicit
- B. Semi latent (B.1. Intentional and on purpose or B.2. Unintentional and purposeless)
- C. Implicit & latent (C.1. Intentional and on purpose or C.2. Unintentional and purposeless)

4. Discussion

Based on this research the literature reviewed, evidence and studies undertaken by the researchers shows that a taxonomy and model for NHECs and much more accurately the CNHECs in crisis management or to better say crisis managers meaning the period of management during the emergency and when the occurrence of the hazard has taken part especially in sudden situations and crisis such as an earthquakes in metropolises and metropolitan areas like Tehran are missing which is of high importance and the lack of these models can cause dif-

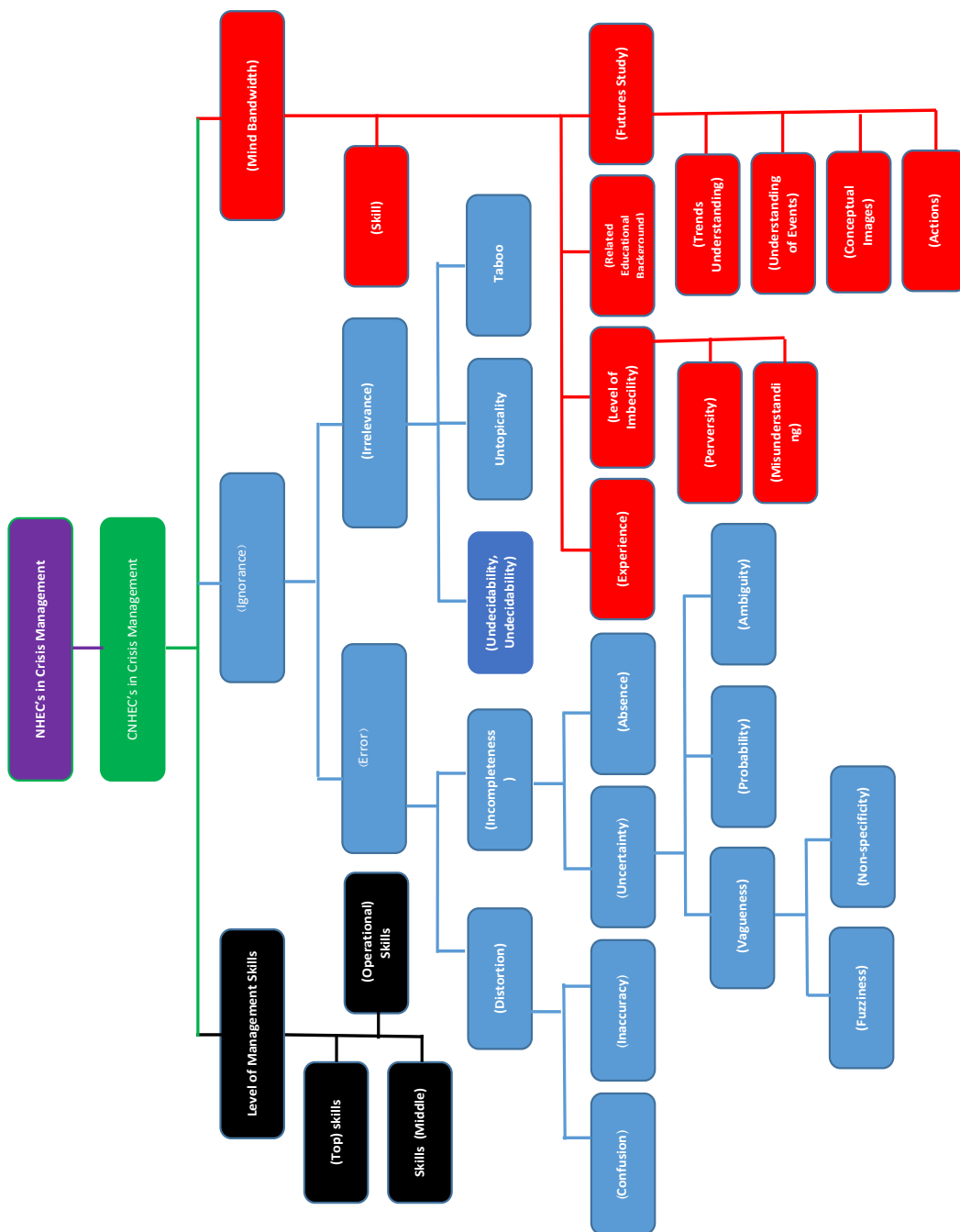


Figure 3. Michael Smithson [26] and Bijan Yavar [27, 28], taxonomy of three main components among crnhes consisting of management level skills, ignorance, and mind bandwidth in crisis management (managers) effective on resiliency and distress in sudden emergencies in metropolies (i.e. Tehran metropole).

ferent types of emergencies itself in terms of understanding the components and can cause deeper latent status in relation to planning, strategies, management, etc.

With special consideration and focus on CNHECs the more the latent the status of the components are and they are not clear in context the more they cannot be recognized in the behavioral and cognitive reactions and for this it will be much more complicated to assess and in case the crisis manager tends or there is a will for latency the context of emergencies will be very sophisticated and complicated to manage in relation to cascade and domino effects as well, because some people intentional (based on self-understanding and will or either by the order of a higher level manager which is a must and out of the person's span of control) or unintentional and the crisis manager tend to hide the information for what so ever reason it may be that can cause further crisis as mentioned by Yavar on Fukushima power plant [27].

The reactions of a crisis manager should be under investigation and through different managing levels, different training and education, exercises and what so ever it may be should be correctly in place and implemented to empower crisis managers at different levels to increase their managerial skills and ability through CNHECs to better respond and manage the emergencies especially in sudden occurrences in large scale urban areas and metropolises.

So as we can see extracting HECs and then NHECs and of course the study and finding, formulating and extracting the CNHECs and then designing a native model for it can help to better act in time of emergencies from the management point of view by increasing the crisis managers resiliency and decreasing their distress especially in sudden crisis like earthquake and metropolises like Tehran as a sample.

In this article we are tending to shed light on this fact that the better we understand NHECs and CHEC's especially from the natives factors point of view such as Ignorance (i.e. ignoring ignorance) and crisis manager mind bandwidth and management level (top, middle, operational and technical level) skills in crisis management or to better say the crisis managers are a step forward towards increasing urban resiliency and decreasing stress (distress) especially in sudden crisis like earthquakes which a quick and prompt action is requested and make a big difference.

To generate a sustainable framework especially in time of emergencies and crisis we have to at first be aware

of the functions of CNHECs consisting of i.e. "level of management skills", "ignorance" and "mind bandwidth" that has a special status which can affect the level of latency in planning, strategy, management, etc. and their effects on the decision making process and the outcome as a sustainable, reasonable and logical affective, cognitive and behavioral reactions or a mixture and complex of these reactions which will end up as a context of resiliency and also distress which are dependent to the better understanding of the person and better knowing the environment it can finally cause a turning point to mention a success or a failure.

To collect "not said stuff" by the crisis managers, we should strengthen the documentation and documentary process as a sustainable framework through processes like debriefing and as such.

This study should be continued to help an optimum and a much better crisis management in sudden emergencies in metropolises to generate a sustainable framework and also to reveal and display other angels of CNHECs in disaster management.

Mind bandwidth and Ignorance

The crisis manager's mind bandwidth, level of management skills and also rate and statement of ignorance as CNHECs should be under control if not it can cause biases, pre judgements and may lead the crisis managers towards a misunderstanding which will end in a way that may cause latency in management, Strategy, planning and what so ever it may be. Of course this can be of higher importance in sudden emergencies that can turn an emergency of any kind towards a turning point [23, 29] of being positive or negative which mainly will rely on the human factors.

When the disaster and crisis managers use ignorance to ignore their own difficulties which is called Ignoring Ignorance the problem just starts! By this means the situation is not only managed but also will for sure be misleading to a situation with a more complexity and misunderstanding status where management is not easy and to overcome the condition and emergency will be difficult action.

In sudden emergencies the cascade and domino effects will be started start as soon as possible and emotions are in a much higher level in relation to logical, thinking and conceptual processes, actions and decisions which the person as a crisis manager will be under super pressure to overcome this and of course other challenges which will

for sure effect the decision making process by the crisis managers effected by human effective components. For example the more sensitive the crisis manager with other positive factors is, the better the crisis management process will take part and will be implemented and more optimum functions especially in sudden emergencies like earthquakes for example in Tehran will be fixed in place.

If the statement and status of latency in different areas (strategy, management planning, etc.) would be purposeful or intentional, or self-organized by the crisis manager or order to he or she, the problem will turn into a much complicated form and set that can cause a serious of disorders as cascade and domino effects.

The mind bandwidth can be consisting of experience, educational background, skills, level of imbecility, and futures study and as such which can affect other NHECs as the CNHECs. So as we can see, crisis manager's mind bandwidth can quickly reverse the effects of a disaster and a crisis dependent to the person to act in disaster or crisis management system.

As Heller [29] explains an emergency or to better say a crisis is defined as: "turning point for better or r worse", also a "decisive moment", or a "crucial" or critical time. Also he adds that the crisis can also be defined and explained as a circumstance and situation which has come to a vital and critical Phase and status. The more the emergencies are sudden the more the mind bandwidth of a crisis manager through human efficiency components can affect the situation and can increase the status of resiliency and decrease distress or the other way around. Just to consider that the relation between resiliency and distress is reverse. The more the resiliency increases the lower the stress (distress) becomes.

It's important to consider that based on researches completed, the human and people having stressful jobs and busy in such workplaces are four times more under distress and stressful pressures in relation to people with ordinary jobs. The wider the mind bandwidth is the more sustainability and resiliency the person has.

Many credible studies and evidences such as Chernobyl, Fukushima and similar crisis show that different large scale disasters are caused by deficient safety culture as a human efficiency component [30, 31]. So as we can see there should be more attention to be concentrated on Safety culture which can directly be effected by human efficiency components causing human error.

In case of Fukushima case the context of latency in management effected the situation which through mind bandwidth was caused by human factor or to better say human error and although was undertaken for saving measures but the human being was the main cause of the cascade and domino effects which ended up as a crisis not the tsunami as a disaster [27].

Reactors used in Fukushima atomic plant were boiling water reactors (BWR) which had been made in general electric company in the US. According to the safety guidelines these kind of atomic reactors should have been removed and stopped being used 25 years ago all over the world before the 2011 tsunami occurred and hit japan. Unfortunately these reactors weren't been removed and replaced for saving and economic measures which ended up in the atomic crisis and contamination which was mainly based on the top and middle level management mind bandwidth which was ignored afterwards and as we can see these CNHECs are as high importance. Although the Japanese mentioned that the tsunami as a disaster (meaning the occurrence of a hazard with a natural originality) has been the reason of Fukushima crisis but the true fact is that not the tsunami itself but the top and middle level management mind bandwidth and human mismanagement had caused the crisis (meaning the occurrence of a hazard with a human-based originality) which raised to a higher level by ignorance (and also ignoring ignorance) [27].

The more the disaster management process is latent (purposely or unintentionally) by the managers which in direct relation to mind bandwidth, the more the probability of error increases [27].

As we all may know considering the emergencies and with special concentration on different factors such as time, rate of surprise (suddenness) and threat which directly effects the human efficiency components as an external factors relation to the human components we usually face two different circumstances especially in sudden emergencies and metropolitan areas. Based on different models, patterns and systems under study in relation to crisis management such as TAS or TAM [1], crisis cube, etc. mainly we cannot purpose one model for better understanding the crisis but through a hybrid model there is the possibility to better understand the situation to better assess and then come to an outcome as a result.

During a sudden emergency or to better say a sudden disaster managing a crisis faces a shortage and limitation of time, for this the human efficiency components are of higher importance since there is not enough amount of time to manage the condition and the crisis manager is under high pressure to manage the situation [32, 33].

The evidence and the experience through different emergencies show that risk management is of very high importance and is for sure one of the first priorities in any system but unfortunately though risk studies, assessments and management are undertaken but still the hazards turn into sudden complex and sophisticated emergencies. The reason can be the CNHECs for example (mind bandwidth, level of management skills, ignorance, etc.) [27, 28].

Level of management (managerial level) skills

The next problem that the crisis managers face and for sure effects their level and different components of efficiency is the level of management and related to that classification of skills of different level of managers and their span of control based on their managerial level which is not been exactly clear, supervised, planned, managed which will be explained further on.

The important fact is that although there are three main levels of skills for managers which are as the following:

“Top level managers” and management (which will be needing conceptual skills)

1. “Middle level managers” and management (which will be needing human or theoretical skills)

2. “Technical and operational level managers” and management (which will be needing technical and operational skills)

for example the training and education, policies, tactics and everything is shared in the same manner for all level of managers similarly and not exactly based on each managers skills and separately which will for sure cause problems especially in time of emergencies with special focus on sudden emergencies and of course more important in crisis and disasters which are of higher importance in comparison with gradual ones! So as we can see the manager’s skills based on level of mind bandwidth meaning the level of consciousness and the status which can be mentioned from a top level management to an operational level management has a vital role for exact management! [29].

By this means the skills level of each category of crisis managers should be considered and based on these categories the education and training, job description, policies and whatsoever it may be should be assigned and all the crisis managers are not the same and equal! Crisis managers can be compared of course not completely but partially similar to the difference between the manager and the commander. The more the managers go to operational and technical level the more they get close to commanders but not completely! There are always the difference between a manager and a commander which is not the topic to discuss now [29].

5. Conclusions

Taxonomy and classification of different terms with different origins can help to at first better understand the context and then to formulate a good order to reorganize them to get to a better result by better understanding the context through reorganizing the structure to formulate a sustainable development framework.

Ethical Considerations

Compliance with ethical guidelines

There were no ethical considerations to be considered in this research.

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Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

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