

Screening China Emergency Medical Team (CEMT) Members: A Self-Leadership Perspective

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Abbreviations:

CEMT: China Emergency Medical Team
DMAT: Disaster Medical Assistance Team
SLM: self-leadership development model

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Abstract

Objective: This study aims at establishing the self-leadership development model (SLM) of China Emergency Medical Team (CEMT) members as a supplement to current selection standards of CEMT members.

Methods: Raw dataset was obtained through two ways: in-depth interviews and documentary materials (memoirs and articles). The in-depth interviews were conducted with a purposive sample of 12 CEMT members, all of whom have participated in multiple disaster relief activities and have been CEMT members for more than two years. This paper followed a grounded theory methodology dealing with all data.

Results: Based on tasks, the SLM-CEMT consists of three basic parts: (1) making plans; (2) action; and (3) outcomes. Different parts involve various self-leadership strategies, of which five are the original dimensions of previous research (goal-setting, visualizing successful performance, self-talk, self-reward, and self-correcting feedback) and three are new dimensions (role clarity, self-initiative, and self-vigilance).

Conclusions: The SLM-CEMT, with the three new parts, provides a new look at screening CEMT members as well as pondering on future research. Based on the SLM-CEMT, administrators could screen more qualified CEMT members. For the limitations, future work will be on the generalization and confirmation of this model.

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Introduction

China Emergency Medical Teams (CEMTs), similar to Disaster Medical Assistance Teams (DMATs) in the other countries, mainly deliver medical treatment and relief activities in the acute phase of disasters (48 to 72 hours after disasters occur).¹ Until 2020, the Ministry of Health of the People's Republic of China (Beijing, China) will set up 37 CEMTs across the country, which are characterized as: CEMT is a temporary organization according to the organization theory,² and as soon as the mission is completed, the CEMT would be dismissed and the staff would return to the original department. The preliminary screening selection of CEMT members have four requirements (namely: political quality, professional competence, psychological quality, and physical quality) based on International Emergency Medical Rescue Work Guide. However, these current selection standards have been unable to meet the needs of missions in extremely hazardous and unpredictable situations, and some CEMT members are bothered by some problems (ie, low self-efficacy and low creativity).^{3–5} Without doubt, these issues are of utmost importance for the overall mission that might be adversely affected, but are not yet properly addressed. Some researchers note that medical team personnel need to master some non-technical skills.^{6–8} Reviewing previous research, the authors learned that self-leadership could cope with these problems.^{9,10} The question arises: How to screen CEMT members from a self-leadership perspective?

Self-leadership is generally portrayed as a self-influence process, throughout which people seek to direct their cognitions and actions for achieving successful performances and desired goals.^{11–13} For CEMT members, the successful performances and desired goals mean that they can accomplish their mission more efficiently. Self-leadership takes into consideration individuals' specific traits and abilities, and focuses on the behaviors individuals chose. From the self-leadership perspective, administrators can expand their understanding of the behaviors of CEMT members in rescue efforts.

Consequently, the purpose of this study is to provide a practical “how-to” guide for screening CEMT members from a self-leadership perspective. More specifically, to structure the self-leadership development model (SLM) of CEMT members as the complement to the current four selection standards for further refining CEMT members. Meanwhile, it also provides theoretical support and technical help for the development of Emergency Medical Teams in other countries.

Methods

Given this study was the preliminary exploration of self-leadership in disaster medicine area, the following analysis of the SLM-CEMT was rooted in a constructivist paradigm using grounded theory methodology.¹⁴ The General Hospital of Chinese Armed Police Force (PAP; Beijing, China) Research Ethics Board has approved this research.

Sampling

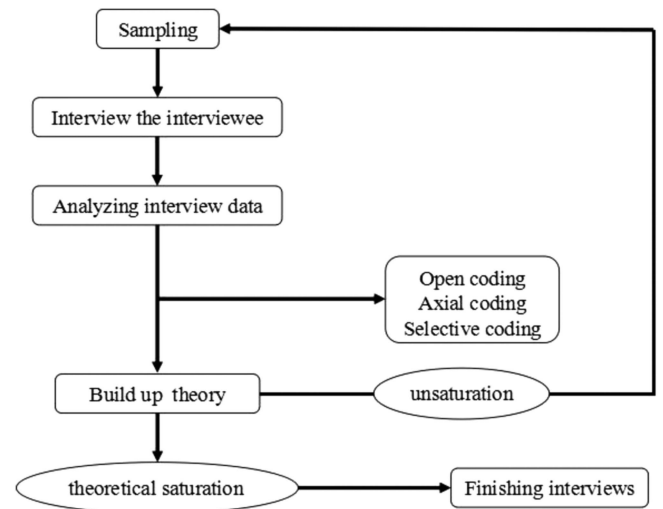
This paper conducted the in-depth interviews with a purposive sample of 12 CEMT members, all of whom have been CEMT members for more than two years and have participated in multiple disaster relief activities.

Data Collection and Analysis

Raw data were divided into two parts: in-depth interviews and documentary materials (memoirs and articles). In-depth interviews uncovered new dimensions of researchers' concern,¹⁵ which offered insight into CEMT member from a self-leadership perspective. Interviewees were asked to describe in detail their experiences and perceptions of the disaster relief activities, known as a Behavioral Event Interview. At present, the research centered on emergency rescue service careers of the participants. An interview guide was developed to facilitate the interview process, mainly including a flexible evolutionary set of open-ended questions, such as: “How many disaster relief activities have you participated in?”; “Could you describe your unforgettable rescue experiences (focusing on one or two successful and/or failure cases), and closely what was in your mind or thought at the time?”; and “Looking back, what self-strategies did you think lead yourself to fulfill tasks?” Questions were continuously perfected; that is, the initial questions were raised from the original data (a pre-interview and some text materials), and then the emerging data of on-going analysis influenced subsequent questions.^{16,17} The direction of the next interview was widely influenced by the analysis of the former data. In accordance with Strauss and Corbin,¹⁷ the process of data collection and analysis was intertwined and recursive (unsaturation), and this process was continued until the final data no longer produced new insights (theoretical saturation). The simplified process is shown in Figure 1.

Face-to-face interviews with 12 CEMT members, ranging from 50 minutes to 1.5 hours (with an average session lasting approximately one hour), were tape-recorded. Meanwhile, all interviewees' interactions and behaviors were also recorded. During the process, CEMT members made meaning of their rescuing experiences differently from a self-leadership perspective. Besides, the research also gathered some supplementary documentary materials, involving 68 memoirs of disaster relief activities provided by eight interviewees and 158 relevant articles:

My memoirs and articles, both of which describe the feeling deep down my heart about these disaster relief activities. I



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Figure 1. Flow of Grounded Theory Research.

think you could seek something useful for your research from them (Interview #3).

All interviews were sound-recorded and transcribed verbatim, yielding 225 pages of single-spaced transcripts. In addition, 68 memoirs yielded 328 single-spaced pages, and 158 relevant published articles yielded 472 single-spaced pages. Consistent with the sequence of the task, all data were analyzed by grounded theory method using the RQDA software (Huang R; online program)¹⁸ which was a fundamental approach in qualitative research.^{19,20} The approach used a systematic set of analytical procedures, briefly three specific stages.²¹ To further expound this methodology: (1) open coding was used to identify the concepts and discover their properties and dimensions;²¹ the initial stage was conducted by line-by-line analysis.^{22,23} (2) Axial coding was based on the findings of the first stage; the aim of this process was to induce the categories and/or sub-categories, delineate, and extricate the relationships among them. And, (3) selective coding, according to Strauss and Corbin,²¹ was the process of integrating and structuring the theory with the purpose of refining the core categories. Part of the specific process is illustrated in Table 1.

Results

Based on interview responses of the 12 CEMT members and relevant documentary materials, as illustrated in Figure 2, the SLM-CEMT was established. This model involves three parts (that is: making plans, actions, and outcomes), and each part includes various self-leadership strategies.

Part I — Making Plans

Making plans provides blueprints for tasks, which describe specifically what needs to be done under certain circumstances.²⁴ The making-plans-orientated strategy includes role clarity, self-goal setting, and visualizing successful performance.

Data from the interviews indicate that CEMT members do not fully understand their professional role within the rescue operations, which is perceived as a challenge to tasks. Given the complexity of the emergency services, role clarity is deemed as the pre-condition of all behaviors of CEMT members. According to the goal-setting theory,^{25,26} setting goals provides the direction for CEMT members, eventually improving their performance and

Core Categories	Categories	Concepts
Making Plans	Role Clarity	"Quite often some members do not really understand our role..." (Interview #1) "Working with other searchers, I got lost and confused sometimes." (Interview #3)
Making Plans	Self-Goal Setting	"Every sub-task was dynamic, and so every sub-task might require a different approach ... When given tasks, I was accustomed to set some sub-goals. It could give the direction of my actions ... I always thought no matter what you did, you must have your own goals. The goals left me in no doubt as to what I was trying to do. It was really important." (Interview #12)
Making Plans	Visualizing Successful Performance	"I had four times rescue experiences. Once given an assignment, I would like to predict what troubles and issues we might encounter and what should be prepared for solving them. Just as pre-planned solutions ... This way could save much more time for survivors in the 'golden window' phase." (Interview #3) "I thought I could perform the disaster relief task successfully before leaving ... Because of this, on the way to disaster sites, I would feel so dynamic." (Interview #4)
Action	Self-Initiative	"Arriving in Mianyang, there was few medical devices to cope with the large number of wounded ... I found that the bricks could be used for fixing the cervical spine injuries." (Interview #7)
Action	Self-Vigilance	"... Particularly when encountered disasters, I took pride in devoting ourselves to relief activities ... On the scene, most building might be collapse again..." (Interview #8) "The ruins and dangerous building might collapse again at any time, however, I thought rescuing was my responsibility, and I might ignore my own safety." (Interview #9)
Action	Self-Talk	"When arrived the on-site earthquake emergency, I told myself to keep calm ... In the course of the rescue, I reminded myself to keep a positive attitude. Personally, I thought this way enhanced my confidence enormously." (Interview #1) "In my first rescue task—WenChuan Earthquake, the refugee gathered round me for helping, I always told myself (in my head) to keep calm, and do what should I do and do it well ... I must confess that this strategy was very effective in the extreme reality." (Interview #4)
Action	Task-Based Natural Reward	"Okay, initially, I was proud of being a CEMT member. I was concentrating on my own task. I enjoyed the successful happiness after the rescue activity ... On the scene, I always took pride in what I did. A successful rescue for me was a reflection of personal values ... Sometimes I was overly conscious of my performance." (Interview #7)
Outcomes	Self-Correcting Feedback	"Things didn't go as planned ... What happened, and did I know why? Could I change my plans? I was used to introspecting myself when the existing problems should not emerge." (Interview #6) "... The task was ongoing picture. It's an ongoing process. During the process, I was used to introspecting myself constantly ... For these goals, did I get them or didn't I get them?" (Interview #10)

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Table 1. Coding Based on Grounded Theory (Example of Part) Abbreviation: CEMT, China Emergency Medical Team.

encouraging them to accomplish tasks successfully.²⁷ Visualizing successful performance is a positive self-prediction strategy,²⁸ and CEMT members shape their behaviors with this strategy for achieving their desired goals.

Part II — Action

Action is the process that puts plan specialization into practice for fulfilling goals. The action-orientated strategy involves self-initiative, self-vigilance, self-talk, and task-based nature reward, all of which jointly lead CEMT members to complete a sequence of actions successfully under a turbulent and unpredictable environment.

Self-initiative is described as: "an individual takes an active and self-starting approach to work for generating constructive activities."²⁹ This strategy drives CEMT members to overcome barriers on the way toward their goal, and it enhances their innovation capability in resource-limited settings. It is a vital concern to CEMT members in this phase. Self-vigilance refers to the ability to maintain concentrated attention or tonic alertness over

prolonged periods of time.³⁰ Ideally, CEMT members could be cautious to deal with everything (ie, the dangerous environment or even news media) with the usage of this strategy. Self-talk is inner speech, that is, a self-dialogue that one says to himself/herself affecting the way he/she behaves.^{31–33} For instance, self-talk is an instruction for CEMT members to initiate or perform appropriate actions. Using this strategy, CEMT members can focus on their desired thought to obtain the expected performance.^{34,35} Task-based natural reward implies that an individual places considerable emphasis on his or her own intrinsic values in tasks.³⁶

Part III — Outcomes

Outcomes aim at giving a comprehensive and systematic assessment of actions, which helps to identify one's strengths and shortcomings. The outcomes-orientated strategy focuses on self-correcting feedback, which relates to introspection of the causes of success or failure. That is to say, someone profoundly understands why he/she succeeds/fails in achieving a desired performance and/or self-setting goals. This strategy is useful for adjusting desired



Figure 2. The Self-Leadership Development Model for CEMT (SLM-CEMT).

Abbreviation: CEMT, China Emergency Medical Team.

behaviors to reach goals.³⁷ For CEMT members, whenever encountering a difficult situation, they prefer introspecting themselves.

Discussion

The initial purpose of this study was to establish SLM-CEMT based on tasks, as shown in Figure 2, consisting of various self-leadership strategies (in total, eight) in three parts (making plans, action, and outcomes).

Dimensions

The first measure of self-leadership in Chinese context was the research of Neubert and Wu,³⁸ which tested the psychometric properties and construct validity of Houghton and Neck's RSLQ³⁹ with a sample of 559 Chinese employees, and they found that the best fitting model only included the same five stable factors (goal-setting, visualizing successful performance, self-talk, self-reward, and self-punishment) as well as the results. To explain, self-punishment is the positive self-correcting feedback based on introspection of failure and misconduct, which contributes to reinventing those behaviors more effectively.⁴⁰ Therefore, the findings further strengthen that the five original dimensions are properly applied in a Chinese context.

Of the eight dimensions, the other three are new dimensions (namely: role clarity, self-initiative, and self-vigilance), all of which reflect the characteristics of CEMT. According to previous research,^{41,42} role clarity is a contributing factor to the success of emergency operations (ie, multi-agency coordination arrangements). As temporary groups, roles are self-prescribed,⁴³ and the role clarity means that CEMT members reduce the interdependence of one organizational member upon another.⁴⁴ Whenever objectives and the appropriate role structure for an emergency situation change, they are either moved into newly created roles or discharged (relatively formal organizations);⁴⁵ this

is based on the premise that what they can do as CEMT members “are inextricably tied to who they are.” Then, in terms of the resource-poor settings, CEMT members need to take their initiative on tasks (or, be self-initiative). For example, the response of CEMT members should not be hampered by the lack of some equipment and supplies. Lastly, regarding to the risky environment and/or the pressure of opinion, CEMT members ought to have a keen awareness of possible events and dangers (that is, be self-vigilance), whatever happens.

All in all, the eight dimensions are positive strategies, and the interaction of them jointly could help CEMT members correctly and moderately address rapidly fluctuating environmental contingencies. The CEMT needs self-leadership in the application of talent, and only the young with such qualities and talents can meet the demands of CEMT development.

The Cyclic Model

The SLM-CEMT, as a cyclic and grounded theory model, mainly includes three sequential parts: making plans, actions, and outcomes. In general, the former makes a preparation for the latter. As previous research^{46–48} suggest, that from an individual's own awareness, the individual chooses goals (making plans), then doggedly pursues them (action), ultimately assesses his or her own actual ideas or actions (outcomes) for the next better performance. On the basis of outcomes, one makes plans for the next sub-task or task. The cyclic model reveals that self-leadership strategies could run through each sub-task as well as the task. In summary, the findings indicate, either in sub-tasks or in tasks, how various self-leadership strategies lead CEMT members to complete their tasks during the disaster relief activities. Moreover, if the CEMT members could use these self-leadership strategies to master themselves and their environment correctly and moderately, they would keep making progress. Briefly, this model provides excellent guidance for screening CEMT members from the perspective of tasks.

Implications of the Current Study

China is one of the countries in the world which suffers many kinds of serious disasters with high frequency and intensity.^{49,50} There is no doubt that the present study makes valuable contributions to the development of disaster medicine.

On the practical level, SLM-CEMT highlights the dynamic development of self-leadership strategies on the mission. According to it, administrators can figure out the strengths and weaknesses of self-leadership strategies of CEMT members, and ulteriorly screen more appropriate CEMT members. On the theoretical level, the current study is the first attempt to apply self-leadership analysis to disaster medicine from the view of task. The findings would be a solid foundation for the long-term research.

Limitations of the Current Study

It is pointed out that this study has two limitations. The first is the generalization of the findings. Given CEMT members are special workers under the extreme situation, the SLM-CEMT might not be applied to the general Chinese population. Besides, considering the cultural difference, not all nations' DMATs can make use of this model. Future research ought to be based on the verification of the model applying to the other samples of interest. The second limitation is the validity of the findings. The CEMT members as interview subjects are relatively new. This research on qualitative data produces the subjective results, whose quality and

completeness depends heavily on researchers. The future empirical research should specify this model.

Conclusions

Disasters can be caused either by natural or man-made factors, which will result in extensive loss. In China, disasters are highly frequently occurred and of a number of types.^{49,50} It makes it necessary that CEMT keeps improving in response to the ever-changing and dynamic circumstance. This study makes the first attempt to establish the SLM-CEMT for screening more qualified CEMT members from a self-leadership perspective. The model (SLM-CEMT) is composed of making plans, actions, and outcomes, and each contains various dimensions, respectively. It is concluded that CEMT members show self-leadership of eight dimensions, all of which work during tasks in disaster relief and its sub-tasks. Five of the eight are proposed in previous research. The other three are newly-discovered dimensions, reflecting the features of CEMT, and are motivated by this study. By combining

with the new discoveries, administrators will have specific, accurate, and comprehensive evaluations on the self-leadership of CEMT members. Most studies only remove original dimensions on the basis of previous research, with little or no consideration of domain-specificity.^{38,40} This study introduces an effective method with more consideration of the specific domains, making a valuable contribution to future research. However, some limitations of this study also need to be addressed to push the research forward. In a word, although impaired by certain limitations, the model presented in this article provides fresh concepts and ideas for researchers in the future.

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