Mutual Influence between Dispatchers and Callers: Experience and Perception of Iranian Service Providers

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ABSTRACT

Introduction: In emergencies, where dispatchers are not directly involved at the incident scene, little attention is paid to the adverse events on them. Caller's reactions may influence their decisions. Few studies about human aspects of emergency calls have been conducted but none of them was conducted from Iran.

Aim: To explore mutual influence between dispatchers and callers based on experiences and perceptions of the dispatchers.

Materials and Methods: The present qualitative study utilised constant comparative analysis method, recommended by Corbin and Strauss 2008 and was conducted among 15 Iranian dispatchers using semi structured in-depth interviews, from May 2016 to June 2016. The study participants were selected purposefully from four main emergency call centers in Tehran (Police, Emergency Medical Services, Iranian Red Crescent and Fire Department).

Results: Dispatchers, who have experiences in the dispatch centers and key informants, were selected for interviews. These personnel were employed as dispatchers with at least two years of experience or they were key informants. According to the participant's experiences, mutual influence between dispatchers and callers as the main concept of the study was categorised into three subcategories including human and innovative essence of the emergency dispatcher's job, psychological aspects, and surge of false emergency calls. In Iran, the multiplicity of emergency services along with their emergency numbers negatively affects the mutual influence between dispatchers and callers.

Conclusion: According to the findings, psychosocial support programs should be instituted in call centers not only for dispatchers but also for their family members and callers. Proper use of emergency numbers should become a common sense in the community. Relief agencies should move to create a national emergency number for more coordination between call centers to reduce caller's confusion. There are several factors that cause anxiety in callers and consequently lead to aggression and false calls. These factors require exploration to reduce false calls. Exploring the processes of emergency call centers in Iranian context is suggested for future studies.

Keywords: Call centers, False calls, Perception, Psychosocial support systems, Qualitative research

INTRODUCTION

In emergency situation, dispatchers are the first responders and the first and most important link in the chain between survivors and health care providers [1]. Medical dispatchers make important decisions every day that affect caller's health [2]. Dispatch process in Public Safety Access Point (PSAP) is complex and dispatcher's decision making may be affected ethically or emotionally by their feeling, although it may be contrary to their clinical judgment [3,4]. Quick decision making, nervous callers and fear of making wrong decision are some challenges that dispatchers face [2,4,5]. Because dispatchers are not directly involved in the incident scene during emergency situation, little attention is paid to the adverse events posed on them. Few studies have been carried out concerning their psychological hazards [6-9].

Most studies carried out in the field of human aspects of emergency call focus on Emergency Medical Services (EMS) and mental health of personnel [7,8,10-12]. In Iran also, EMS personnel and fire fighters, showed high levels of occupational stress which pre-disposes them to high risk of mental health problems like PTSD and lack of understanding by others was a major challenge to them [13-16].

Very few in-depth qualitative studies have focused on dispatcher's reactions during emergency call and none of these studies have focused on dispatcher's perceptions about their job and their interactions with callers [4,5,9,17].

Each relief agencies in Tehran has a dedicated PSAP. This has led to multiplicity of emergency call centers and emergency numbers.

Each dispatch has a special three-digit emergency number, such as the EMS with '115', Fire Service Department with '125', Police with '110', and the Iranian Red Crescent Society (IRCS) a non-governmental organisation with '112' [18].

In Iran, PSAPs receive a lot of calls in a year. For instance, in 2016, for every 24 hours in Tehran, an average of 30,000 calls was to the Police, 17,000 to EMS, 44,000 to the IRCS and 4,000 to the Fire service department [19-21]. Respectively, 60%, 49%, 90% and 90% of these calls were hoax or false calls that were not related to the description of the dispatches tasks [22]. These large number of calls and the multiplicity of emergency numbers and relief agencies creates complex and difficult situation regarding especial interaction between dispatchers and callers in Iran [23]. It seems that there is a knowledge gap with regard to afore-mentioned issue. Exploring mutual influence between dispatchers and callers can benefit response to emergency situations, mitigate unfavorable consequences of dispatcher's working conditions and increase caller's satisfaction.

MATERIALS AND METHODS

Study design and setting: The present study was a qualitative content analysis study that utilised constant comparative analysis method recommended by Corbin and Strauss (2008) [24]. The present study was conducted among 15 Iranian dispatchers who were selected purposively from four main PSAPs in Tehran. Semi structured and in-depth interviews were used to extract information for the study from May 2016 to June 2016.

Participants: Study participants were selected purposefully for the study from four main separate call centers in Tehran (the capital of Iran) from Police, EMS, Iranian Red Crescent and Fire Department. Dispatchers who had experiences in these dispatch centers of at least two years and/or key informants (at least four years experience on dispatching and heads of call centers) in dispatch centers were selected for interviews.

Data collection process: Data were collected directly from participants. Questionnaire was used to collect participant's demographic characteristics. The interviews lasted for 30 to 75 minutes. After obtaining permission from authorities of call centers, the interviews were carried out by the research team. The second interview was conducted twice with two participants with a significant amount of work experience. The second interview was conducted in order to ameliorate any probable ambiguous points pertaining to the first phase of interview analysis. General questions asked in the interviews were open questions, such as "describe your shift activity in dispatch center", "In your opinion, how is a dispatcher's job", "what factors help you stand out in your job and make you satisfied" or "what kinds of calls make you nervous and why? Please explain". All interviews were recorded, checked and transcribed verbatim. The data collected were analysed by the principle investigator using recommended Strauss and Corbin's method of constant comparative analysis, 2008 [24]. Data gathering continued until the extracted concepts were saturated.

Data analysis: Data collection and analysis were simultaneously carried out to identify new ideas, and these new ideas were used in the next interviews as navigators. At that stage, the researcher reviewed the data line by line and identified the processes and encoded them using words and phrases. By comparing codes and raw data based on the similarities and differences, similar codes were placed on the same subcategory. At the last stage, the categories were connected and set of main concepts were explored [24]. Because all interviews and coding process were done in Farsi, all categories and codes were translated into English.

Ethical considerations: The present study was a part of Ph.D. thesis which had been done by Grounded Theory methods and approved by the Medical Ethics Committee of the University of Social Welfare and Rehabilitation Sciences of Tehran, Iran (Ref.: IR.USWR.REC.1396.230). In the process of conducting the research, interviewees were informed that their information will be kept confidential; in addition, they were told that participation was voluntary. At the beginning of the interview, participants were deliberately asked to read and sign consent form for interviewing and recording.

Trustworthiness of the study: For the purpose of checking, the primary results from the first three interviews were given back to the study participants to provide their opinions regarding the extracted codes. For peer checking, the collected data were reviewed independently by the research team and were categorised. Finally compared and checked by experts who guided the research team throughout the study. They were further confirmed by three qualitative methodologists (expert check) [24,25].

RESULTS

Of the 15 participants included in this study 6 (40%) of dispatches were from EMS dispatch, 2 (13.5%) from fire department dispatch, 4 (26.5%) from IRC dispatch and 3 (20%) from the police dispatch. The average work experience of participants was 9.8 years. Participants were between the age of 22 to 52-year-old and 20% of them were females. Educational level of participants ranged from high school diploma to Ph.D [Table/Fig-1]. In the first step of the data analysis that is open coding, 79 initial codes were extracted, which were finally reduced to 38 open codes. According to participant's experiences, mutual influence between dispatchers and callers was explored as the main concept and classified into three categories

and 11 subcategories. The human innovative essence of the emergency dispatcher's job containing subcategories that point to dispatcher's job properties. Furthermore, psychological aspects were categorised into dispatcher's and caller's mental behaviours, and the last category of surge of false emergency calls was about caller's reactions to peculiar condition in Iranian dispatch centers. These findings are presented in more detail in [Table/Fig-2].

Participant No.	Age (year)	Sex	Education	Dispatch	Work Experiences (years)
1	40	Male	B.Sc.	EMS	15
2	32	Female	B.Sc.	EMS	5
3	35	Male	B.Sc.	Fire D.	12
4	40	Male	M.Sc.	Fire D.	15
5	38	Male	B.Sc.	EMS	12
6	45	Male	M.D	EMS	10
7	42	Male	B.Sc.	EMS	8
8	30	Female	B.Sc.	Police	4
9	52	Male	Ph.D.	Police	12
10	32	Female	B.Sc.	EMS	8
11	40	Male	M.Sc.	Red Crescent	14
12	45	Male	B.Sc.	Red Crescent	7
13	38	Male	B.Sc.	Red Crescent	13
14	38	Male	B.Sc.	Police	8
15	22	Male	High school Diploma	Red Crescent	3

[Table/Fig-1]: Demographic characteristics of participants in study with focus on the mutual influence between dispatchers and callers, Tehran, Iran.

The human and innovative essence of the emergency dispatcher's job: Based on the participant's experiences, Iranian dispatchers seem to be interested in their job. They believe that saving lives is the highest reward and are therefore resilient to go against all stressful situations to do their job. Moreover, it was found that the fear of making mistakes or public complaints and even humanistic emotions might lead to overestimation of emergencies by dispatchers. Iranian dispatchers consider decision making as an art of combining experience and protocols by intuitive understanding and their base of decision making is more on their experience than protocols.

"…A woman called and was just screaming. We understood by the condition of the callers what happened… We became aware of the urgency by the tone of speaking, and when our decision saves man's life, it seems to give us a great joy…"

"…one night, a caller who was disabled called and told that his key was stuck on the roof and he could not have access to it. He looked for a big ladder and did not get it anywhere. Although this is not in the protocols but I sent a fire fighter rescue team there…"

Psychological aspects: Because of immediate and sensitive decision making process and limited resources, dispatchers always complained of their jobs as being stressful. Daily challenges faced by ambulance crew, and the unfavorable consequences of hearing anecdotes at the scene of accidents could make them vulnerable to psychiatric disorders. There are no systems and protocols in place for psychosocial support in Iranian PSAPs. The study participants believed that they needed their family support, and felt that their families were consequently under double stress. Some callers, especially the elderly people call to talk about their problems in their lives and need psychological support too. Multiplicity of emergency numbers, stress from incidents scenes and long process of connecting to call centers all increases caller's stress. In addition, referring callers to emergency partner services and unavailable automatic address locator can also increase caller's anxiety and anger, resulting in adverse reactions such as aggression and increased complaints about PSAPs.

Main Concept (Theme)	Category	Subcat-egory	Code
Mutual influence between dispatchers and callers	The human and Innovative essence of job	Resiliency to stressful job	Getting a motive of saving people's lives
			Self-sacrificing job
			Colleagues co-operation and Sympathy
			Necessity of family support
		Intuition decision-making	Combining experience and protocol with Innovation
			Preferring experience to protocol in decision making
		over-estimate dispa-tching	Preventive dispatch to escape the mistakes
			Public complaints
			Human emotions
	Psycho-logical aspects	The stressful essence of the job	Lasting impacts of bad consequences
			Anxiety resulting from the decisions
			Daily challenging with ambulance crew
			Work pressure and workload
			Guilty conscience
		Lack of psycho-logical support	No protocol and plan for psychosocial support
			Inadequate psychological training at the beginning of employment
		Callers' seeking psycho-logical support	Psychological support needs by elderly people
			Psychological stress transfer
		Work-family conflict	Double stress on dispatcher's families
			Feeling of family cruelty
		Exace-rbation of psycho-logical pressure on callers	Long process of connecting to dispatchers
			Callers confusion with multiplicity emergency numbers
			Referring callers to the other emergency services
			Unavailable automatic address locator
			Aggression and dissatisfaction from emergency services
	Surge of false emergency calls	The nature of false emergency calls	Increase workload of dispatchers
			Increase missed calls
			Long process of legal pursuit
			Necessity for culture developing in society
		Uninte-ntional false emergency calls	Inappropriate judgement of emergency situation
			Mistake in choosing the correct emergency number (Misdials)
			Lack of understanding of services limitation
		Deliberate false emergency calls	Public telephone and contacting without SIM card: the source of telephone Hoax
			Hoax call
			Abusive
			Administrative information
			Abuse for commercial purposes
			Abuse for receiving free services
			Children playing
			Mentally unstable

[Table/Fig-2]: Categories, subcategories and codes of the mutual influence between dispatchers and callers, Tehran, Iran.

"…I always say to myself if I would have dispatched earlier, they could have been saved. Anyway, maybe justified, it's not clear, but I feel guilty a little in my heart..."

"…For example, we had a 29-year-old woman who called that she had eaten aluminum phosphide tablet and said," It's been around half an hour and now I'm regretting. I later realised that she had died in hospital. I was involved in this case for more than a week; however, the authorities did not do anything for me to forget it or provide any psychological support. Even they did not give me two days off..."

Surge of false emergency calls: Participants believed that deliberate and unintentional false emergency calls reduce level of accuracy, increase mistakes and stress among Iranian dispatchers and waste resources. In addition, due to deliberate and unintentional false emergency calls people who really need help cannot receive emergency care timely.

According to participant's opinion, increasing number of deliberate and false calls in Iran occurred because of the convenient and free access to contact numbers without identification. There are few calls in which the callers were rude or insulted call-takers. Participants also believed starting from 2-3-year-old children, up to teenagers and even cell-phone sellers, mentally unstable (psychiatric illness) patients are those people who make these calls. False caller's goals include hoaxing, getting pleasure, obtaining information and exploiting for commercial purposes (e.g., testing the new mobile phones without SIM card).

"…I answered a call and I was sure that she was a paramedic and she used medical terminology well and gave a complete history of her father's disease and I really came to the conclusion that they needed urgent aid. A few minutes later, the ambulance crew who went to the scene, said they were standing in front of the home and waited to carry them to a clinic for heart checkup…"

"…Most mobile phone sellers in Iran, especially in Tehran, will dial 112 (an emergency number) to test the new phone because it does not need a SIM card, which will cause missed calls. Such calls are incredibly large, really huge…"

DISCUSSION

The present study was intended to explore the relationships between dispatchers and caller's reactions during emergencies in Iran. Results of the study showed that there are three important factors that affect these relationships. These factors are clarified as dispatcher's job properties, dispatcher's and caller's mental behaviours, and caller's reactions [Table/Fig-2].

According to the results, Iranian dispatchers are subjected to mental pressure due to their sacrificial efforts to save people's lives. Therefore, families and co-worker's support is important. Some studies showed that positive relationship exists between receiving social support and self-efficacy and psychological resiliency among emergency services workers and co-workers [9,26]. In UK, study among dispatchers concluded that dispatch personnel often feel overlooked, misunderstood and marginalised by family member, friends and coworkers in the teams working with them [5]. This difference between results of these two studies could be due to cultural differences.

Results showed that Iranian dispatchers make decisions by their experiences and innovation more than using protocols. A study in Sweden confirmed these results [4]. It is necessary to improve dispatch protocols to reduce stress among dispatchers. Dispatchers are exposed to mental health risks in Iran, with no quantitative or qualitative research conducted on dispatchers. Only few studies have been carried out on EMS and fire department operation personnel. Their results showed that there is an increased risk of mental health problems among them [15,16]. Some studies show the high risk of PTSD in the American 9-11 dispatchers [11,12]. Therefore, designing studies to determine risk of PTSD in Iranian dispatchers is necessary.

Guilty conscience by dispatcher's due to mistakes, daily dispatcher's challenges faced by ambulance crew, and overestimating emergencies were several Iranian PSAPs challenges. These finding were similar to findings of a Swedish study [4]. Despite these finding very few studies have recommended the needs for expanding and developing national and local levels programs to identify and reduce mental disorders among dispatchers who are first responders to emergency scenes [7,9,27].

Work-family conflict was also explored in the study. Iranian dispatcher's believed that they were not satisfied with their family rights due to the essence of their job and felt they are being victimised. Results from a study among Italian nurses showed that shift work affects family life considerably [28]. This aspect of family-work conflict was explored in the study particularly because of Iranian culture. Iranian paid much attention to their families. Therefore, this aspect should be considered in planning. Iranian caller's especially elderly people call to dispatch centers for non-urgent needs or just to receive psychological support. Kawakami C et al., in Japan concluded that many socioeconomic factors such as age and living alone were associated with increasing non-emergency calls [29]. It is better to assign a special call number for caller's who want to call for such non-urgent needs and mental supports.

From the results it is noted that multiplicity of emergency numbers and variety of emergency relief service agencies, call answering methods, and difficulty to understand different people dialects were factor that increase aggression, stress and false calls in Iranian callers. These findings were confirmed by some other studies in Iran [18,23,30]. In some studies, it was recommended that increasing knowledge and awareness of people about service limitation and duties of various emergency relief service agencies were very crucial in reducing psychological tension among callers [31-33].

All Iranian PSAPs are affected by surge of false emergency calls; however, some are more affected than others. People can easily call to emergency numbers (for example 112) with phones without SIM card. False calls may have cultural context; people have not learned for what should be called to emergency services. A set of measures to promote culture and create cost or punishment for prank or hoax calls at the local and national levels would be effective step to reduce such actions [34]. In Iran, legal actions have long and difficult procedure therefore, it is necessary to approve strict rules or punishment for harassment or hoax calls. In addition, if it is possible black list should be created to identify pranks or hoax calls [35]. Improvement of culture and economic development to increase utilisation of alternative agencies like private ambulance and nursing home services for non-urgent calls would also be important and crucial to reduce unintentional false calls [31,32]. The present study did not delve into caller's perceptions in calling emergency numbers. Hence, their experiences in calling emergency numbers or nervousness during conversations should be compared with dispatcher's experiences.

LIMITATION

Perspective of process owners was first in its kind and this research is purely for Iranian context and can not necessarily be extended to other cultures. Because we could not explore the impact of each component of this important relationship in the study, further investigation is recommended. The caller's experiences in calling to emergency numbers may be affected by the relationship and it is better to explore and compare with the results in future studies.

CONCLUSION

Based on study results human aspects of emergency calls should be considered more. Since, dispatcher has a completely stressful job, developing national and local levels mental health programs to support dispatchers, would be necessary for stress management. Relief agencies should also move to create one national emergency number. It is suggested that further studies should explore the impact of each of the components of mutual influence of dispatchers and callers especially caller's aggression and unurgent calls. Finally, in addition a Grounded Theory study should be adopted to explore process of PSAPs according to Iranian context bond.

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