

# MYTHS AND MISCONCEPTIONS ABOUT DISASTERS: DO STUDENTS IN THE FIELD KNOW BETTER?

## MYTHES ET DÉFAUTS CONCEPTUELS À PROPOS DES CATASTROPHES: LES ÉTUDIANTS DANS CETTE SPÉCIALITÉ EN SONT-ILS À L'ABRI?

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**SUMMARY.** Disaster myths pose a great challenge in disaster risk management all over the world. These misconceptions mean barriers to disaster higher education as well. This research is designed to examine these beliefs among disaster management students at the National University of Public Service, Hungary, as well as in a control group compiled from students from three other Hungarian universities. Based on the methodology of research published by David Alexander, a questionnaire was edited with 19 false statements about disaster events. Respondents had to evaluate them on a Likert scale from 1 to 5, where 1 means “completely disagree” and 5 means “completely agree”. Strong agreement was expressed for some of the misconceptions regarding disasters (e.g. unburied bodies constitute a serious health hazard), and to a lesser degree for others (e.g. disasters cannot be managed systematically). The results of the control group reached similar values to those of the test groups, however in some cases the former tend to be more skeptical about the statements. Although Hungarian students shared the same beliefs as US and Italian students, the Hungarians seem to be less critical of the statements. These disaster myths create a serious problem in disaster higher education and have a great impact on future disaster managers in the field.

**Keywords:** disaster myth, misconception, higher education, Hungary

**RÉSUMÉ.** Les mythes concernant les catastrophes obèrent leur prise en charge, ce à travers le monde et interfèrent avec la formation en médecine de catastrophe (MC). Ce travail a pour but d'évaluer les croyances de 165 étudiants en MC de l'Université Nationale de Service Public (UNSP) et de les comparer à 100 témoins (T) recrutés dans d'autres universités hongroises. Un questionnaire élaboré à partir de la méthode publiée par David Alexander, comprenant 19 assertions fausses concernant les catastrophes a été distribué. Les réponses, selon l'échelle de Likert, étaient cotées de 1 (je suis fermement en désaccord) à 5 (j'agréé complètement). Certaines croyances, comme le risque sanitaire élevé lié aux corps non enterrés, étaient largement partagées, d'autres, comme l'impossibilité d'une prise en charge standardisée, l'étant plus modestement. Les réponses étaient comparables dans les 2 groupes, les étudiants de l'UNSP étant toutefois plus sceptiques dans certains cas. Les étudiants hongrois, bien que partageant les mêmes croyances que les italiens et les américains semblent toutefois moins critiques à leurs égards. Ces fausses réalités posent le problème de la formation MC en Hongrie et de la prise en charge sub-optimale d'une catastrophe.

**Mots-clés :** catastrophe, mythes, défaut conceptuel, études supérieures, Hongrie

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## Introduction

In the winter of 2012, after the Sandy Hook Elementary School shooting, the town of Newtown, Connecticut received an enormous amount of Christmas toys, school supplies, gifts, clothing, and also 65,000 teddy bears.<sup>1</sup> The donors believed that their package would contribute to the affected population's well-being, but at the end of the day they merely created extra logistical challenges. The belief that every donation is useful after disaster events rooted misconception, which was realized through uncountable useless packages received from all over the world. This is a great example of the phenomenon called disaster myth.

In international disaster science, many studies have already examined the cultural perceptions of disasters,<sup>2-10</sup> largely applying a sociological or anthropological approach. In addition, several studies<sup>11-20</sup> investigated disaster myths, dealing with people's misconceptions about disasters. A narrow section examined the role of misconceptions in disaster management vocational training.<sup>21-24</sup>

One of these was an influential paper written by David Alexander,<sup>21</sup> published in *Prehospital and Disaster Medicine* in 2007. This research was conducted in the United States and Italy, where fundamental trends were found in student awareness. Alexander surveyed emergency manager students and trainees through a questionnaire consisting of 19 statements (*Table I*). The respondents had to evaluate these statements, which were all false. Some of them (i.e. unburied bodies constitute a health hazard) were believed by many, while other myths (i.e. disasters are truly exceptional events) were believed by fewer respondents. It is surprising that students in the US and in Italy shared the same misconceptions; the results were homogenous (*Table II*).

The present research investigates these disaster misconceptions amongst Hungarian university students in the field of disaster management. In addition to Alexander's research, a control group was set up in order to examine differences among emergency management students. In Hungary, this is the first study that covers misconceptions in disaster education. Related literature has been mainly written on public hazard education,<sup>25-28</sup> disaster management

**Table I** - Typical misconceptions about disasters. Compiled by Alexander<sup>21</sup> based on PAHO47

1	Myth: <i>Disasters are truly exceptional events.</i> Reality: They are a normal part of daily life and in very many cases are repetitive events.
2	Myth: <i>Disasters kill people without respect for social class or economic status.</i> Reality: The poor and marginalized are more at risk of death than rich people or the middle classes are.
3	Myth: <i>Earthquakes are commonly responsible for very high death tolls.</i> Reality: Collapsing buildings are responsible for the majority of deaths in seismic disasters. Whereas it is not possible to stop earthquakes, it is possible to construct anti-seismic buildings and to organize human activities in such a way as to minimize the risk of death. In addition, the majority of earthquakes do not cause high death tolls.
4	Myth: <i>People can survive for many days when trapped under the rubble of a collapsed building.</i> Reality: The vast majority of people brought out alive from the rubble are saved within 24 or perhaps even 12 hours of impact.
5	Myth: <i>When disaster strikes, panic is a common reaction.</i> Reality: Most people behave rationally in a disaster. While panic is not to be ruled out entirely, it is of such limited importance that some leading disaster sociologists regard it as insignificant or unlikely.
6	Myth: <i>People will flee in large numbers from a disaster area.</i> Reality: Usually, there is a "convergence reaction" and the area fills up with people. Few of the survivors will leave and even obligatory evacuations will be short-lived.
7	Myth: <i>After disaster has struck, survivors tend to be dazed and apathetic.</i> Reality: Survivors rapidly start reconstruction. Activism is much more common than fatalism (this is the so-called "therapeutic community"). Even in the worst scenarios, only 15-30% of victims show passive or dazed reactions.
8	Myth: <i>Looting is a common and serious problem after disasters.</i> Reality: Looting is rare and limited in scope. It mainly occurs when there are strong preconditions, as when a community is already deeply divided.
9	Myth: <i>Disease epidemics are an almost inevitable result of the disruption and poor health caused by major disasters.</i> Reality: Generally, the level of epidemiological surveillance and health care in the disaster area is sufficient to stop any possible disease epidemic from occurring. However, the rate of diagnosis of diseases may increase as a result of improved health care.
10	Myth: <i>Disasters cause a great deal of chaos and cannot possibly be managed systematically.</i> Reality: There are excellent theoretical models of how disasters function and how to manage them. After >75 years of research in the field, the general elements of disasters are well known, and they tend to repeat themselves from one disaster to the next.
11	Myth: <i>Any kind of aid and relief is useful after a disaster providing it is supplied quickly enough.</i> Reality: Hasty and ill-considered relief initiatives tend to create chaos. Only certain types of assistance, goods and services will be required. Not all useful resources that existed in the area before the disaster will be destroyed. Donation of unusable materials or manpower consumes resources of organization and accommodation that could be more profitably used to reduce the toll of the disaster.
12	Myth: <i>In order to manage a disaster well it is necessary to accept all forms of aid that are offered.</i> Reality: It is better to limit acceptance of donations to goods and services that are actually needed in the disaster area.
13	Myth: <i>Unburied dead bodies constitute a health hazard.</i> Reality: Not even advanced decomposition causes a significant health hazard. Hasty burial demoralizes survivors and upsets arrangements for death certification, funeral rites, and, where needed, autopsy.
14	Myth: <i>Disasters usually give rise to widespread, spontaneous manifestations of antisocial behavior.</i> Reality: Generally, they are characterized by great social solidarity, generosity and self-sacrifice, perhaps even heroism.
15	Myth: <i>One should donate used clothes to the victims of disasters.</i> Reality: This often leads to accumulations of huge quantities of useless garments that victims cannot or will not wear.
16	Myth: <i>Great quantities and assortments of medicines should be sent to disaster areas.</i> Reality: The only medicines that are needed are those used to treat specific pathologies, have not reached their sell-by date, can be properly conserved in the disaster area, and can be properly identified in terms of their pharmacological constituents. Any other medicines are not only useless but potentially dangerous.
17	Myth: <i>Companies, corporations, associations and governments are always very generous when invited to send aid and relief to disaster areas.</i> Reality: They may be, but in the past disaster areas have been used as dumping grounds for outdated medicines, obsolete equipment and unusable goods, all under the cloak of apparent generosity.
18	Myth: <i>Technology will save the world from disaster.</i> Reality: The problem of disasters is largely a social one. Technological resources are poorly distributed and often ineffectively used. In addition, technology is a potential source of vulnerability as well as a means of reducing it.
19	Myth: <i>There is usually a shortage of resources when disasters occur and this prevents them from being managed effectively.</i> Reality: The shortage, if it occurs, is almost always very temporary. There is more of a problem in deploying resources well and using them efficiently than in acquiring them. Often, there is also a problem of coping with a superabundance of certain types of resource.

**Table II** - Summary of results for the previous studies, the sample study and the Hungarian study groups

Proposition	250	510	Milan	Florence	Empoli	Consensus?
1. Exceptional events	SD	SD	DD	SD	IR	Disagreement
2. Respect for status	DA	PR	PR	DA	DA	Agreement?
3. Earthquake deaths	SD	DD	PR	DA	DA	None
4. Survive under rubble	PR	DA	DD	DD	PR	None
5. Panic is common	DA	DA	DA	DA	DA	Strong agreement
6. People flee	SA	SA	SD	PR	DA	Weak agreement
7. Survivors are dazed	SA	DA	SD	DD	IR	None
8. Looting is common	DA	DA	DA	DA	DA	Strong agreement
9. Epidemics are common	IR	SA	DA	IR	SA	Slight agreement
10. Cannot be managed	SD	DD	DD	DD	SA	Disagreement?
11. Any aid is useful	DA	PR	PR	DA	SA	Agreement?
12. Accept all aid	DA	DD	DD	DD	PR	None
13. Unburied bodies	DA	DA	DA	DA	DA	Strong agreement
14. Antisocial behavior	IR	IR	DD	PR	PR	None
15. Donate clothes	DA	DA	IR	DD	PR	None
16. Send medicines	DA	PR	PR	DD	DA	None
17. Governments are generous	IR	DD	PR	DA	PR	None
18. Technology saves	DD	DD	PR	PR	PR	Some disagreement?
19. Resources are scarce	--	--	--	PR	DA	--
Number of respondents (n)	203	15	33	21	33	

DA = definite agreement; SA = some agreement; IR = indeterminate results; SD = some disagreement; DD = definite disagreement; PR = polarized results. Compiled by Alexander<sup>21</sup>

higher education and vocational training,<sup>29–37</sup> while the role of disaster myths in vocational training was not included at all.

The main question consists of two parts: (1) the role of misconceptions and (2) cultural differences in relation to these myths. According to the first hypothesis, the frequency of misconceptions is irrespective of whether or not someone receives professional training (H<sub>1</sub>). This is based on Alexander's results, where emergency workers also shared these beliefs. According to the second hypothesis, among Hungarian students, misconceptions will be similar to US and Italian students (H<sub>2</sub>). This prediction is based on previous research in disaster myth, which indicates that these myths spread through mass media that cover Italy, and also Hungary. This presumption was con-

firmed by Alexander's research, which observed similar results in the United States and in Italy.

### *Theory – disaster myth*

The myth of the Fukushima triple disaster in 2011 is an example of a disaster myth.<sup>37</sup> Before the events, there was a misconception about nuclear safety in not only Japanese society, but in national disaster management organization and in political decision-making: that nuclear power plants are not a risk to society. Despite the fact that Japanese public hazard education is very thorough and in-depth,<sup>38</sup> the potential failures of the nuclear power plant had not been considered. Due to this situation, the government had to act quickly, and improvisation was needed during response.<sup>39</sup> Numerous human and material losses could have been prevented if disaster relief organizations had been prepared for a potential power plant accident. Due to the emergency, many countries outside Japan – mainly in Asia – have reassessed their nuclear strategy.<sup>40</sup>

In today's practice of disaster risk management, the so-called disaster myth is a major drawback. The term refers to misconceptions that impede effective disaster management through strong intervention. These myths are so deeply rooted in societies that they can be found among professional personnel in the field of disaster management. Practitioners learn "practice" during emergencies, but this accelerated learning could be bridged by a universal and more effective educational methodology.<sup>41</sup>

The question may arise: where do these misconceptions come from? There is no doubt that the general answer to this question is that myths might come from many direct (i.e. news, journals) and indirect (i.e. popular culture, socialization) sources. This was proved to be certain after having examined social responses during emergencies.<sup>42–44</sup> However a more detailed explanation is needed if we are to do something to eliminate the misconceptions. According to Quarantelli,<sup>17</sup> the media and documentaries will be the main sources of information for the perception of the disasters.

While this is far from proven, it can be logically argued that an important source of disaster beliefs comes from popular culture. Popular culture refers to movies, novels, comics, music, tel-

evision and radio entertainment, and other non-media products distributed in the mass media. Such news sources are “responsible” for the misconceptions that have emerged in the public, in political decision-making, and even in disaster management.<sup>17,45</sup>

These beliefs have dominated the press and the donor community during past disaster events,<sup>22</sup> affecting perception of the victims as well. It is clear that disaster myths are resilient enough to exist amongst the public. Furthermore, emergency managers have to be aware of what is good practice during disasters in order to reach a higher preparedness level. Therefore, these myths are great barriers in disaster risk management. That is to say, the role of misconceptions in education is also not negligible, as instructors must first give guidelines before embarking on basic disaster education. The misconceptions of students can also be an indicator of the quality of education, as it is a non-negligible phenomenon. Fischer and Drain found that education, training and experience are associated with a more accurate perception of the behavioral response to disaster.<sup>15</sup> This raises the question: how far can these myths be found in higher education comparing the results with civil society? This research seeks to answer this question.

## Methods

Based on the methodological framework applied by Alexander, the present research was carried out at the Institute of Disaster Management at the National University of Public Service based in Budapest, the capital of Hungary. This is the only higher education institute in Hungary that has a disaster management curriculum, both at BSc and MSc level. The aim of the programs is to train disaster managers who, employed by full-time professional, local governmental or industrial fire brigades, are capable of carrying out tasks related to disaster management, fire fighting, and industrial safety. The curriculum covers topics such as legislation, standards, principles, procedures and tools applied in disaster risk management, fire protection, and industrial safety management. After graduation, students are

mostly employed by the national organization of disaster management.

BSc and MSc students were surveyed by questionnaire during fall courses (from September until January) in 2019. As all of the students are officer cadets of the Hungarian disaster management organization, their service is regularized under Act No. 42/2015 on the Service of the Professional Staff of Organizations Performing Law Enforcement Tasks.<sup>46</sup> Therefore the conducting of research relating to officer cadets is subject to the permission of their commander, the Head of Institute of Disaster Management. Dr. habil. Gyula Vass, Firefighter Colonel – as the Head of the Institute – approved this study on September 18<sup>th</sup>, 2019.

In the distributed questionnaire, the students had to rate 19 misconceptions on a five-point Likert scale, depending on how much they agree with the statement. The 19 statements were compiled by Alexander<sup>21</sup> based on a list of the most common disaster myths collected by the Pan American Health Organization in 1982.<sup>47</sup> The items are presented in *Table I*. The numeric values of the possible answers ranged from 1 (completely disagree) to 5 (completely agree). As the statements are disaster misconceptions, the “right” answers are all 1, so the respondents have to mark that they disagree with the items. The results were analyzed by IBM SPSS Statistics Software Version 23 (Armonk, NY: IBM Corp).

As the target population for the first part of the survey was disaster management students, all of the students majoring in disaster management fell under the scope. At BSc level, 310 students were enrolled, 53 in full-time and 257 in part-time education. There are three different specializations: (1) fire protection, (2) disaster operation, and (3) industrial safety. First-year students (119 persons) were excluded from the survey as they did not necessarily have any educational background regarding the topic. This means that the BSc population consisted of 244 persons. At MSc level, 67 students were enrolled on a course, which is only part-time, without specialization. Therefore the population of disaster management students consisted of 311 persons. A total of 165 students responded to the survey ( $n_{UNI} = 165$ ), that is, 53% of the population. At BSc level, 109 respon-

dents ( $n_{\text{BSC}} = 109$ ; 44.7% of the total BSc students) participated, and at MSc level 56 students were reached ( $n_{\text{MSC}} = 56$ ; 83.6% of the total MSc students).

The average age of the BSc students was  $33.22$  years  $\pm 7.88$  and 29% were female. A great part (72.0%) of the responders had taken part in some kind of disaster relief activity, and half of them (53.3%) had personally experienced a disaster event as well. That is to say, a major part of the students had direct experience related to disasters. Among the MSc course students, both first- and second-year students were interviewed as their educational background is mostly disaster management on the same BSc course. The sample consisted of 56 persons (83.6% of the population), which is a significant part of the sample. The average age was  $34.40 \pm 7.55$  and only 14.8% were female. Experience was gained similarly to the BSc classes: a major part (72.7%) of the masters' students had taken part in some kind of disaster relief activity, while half of them (49.1%) had personally experienced some kind of disaster event.

Moreover, in order to differentiate the results, a control group (CG) was set up. The control group was made up of students from other universities in Hungary: Széchenyi István University, Pannon University, and Semmelweis University. Participants did not study or only occasionally studied courses in the field of disaster management. This group allows the research to investigate whether disaster management courses change the common-sense misconceptions about disaster events. The control group consisted of 110 students ( $n_{\text{CG}} = 110$ ) majoring in engineering, agricultural and medical fields.

The questionnaires were sent via the intranet of the following universities: Széchenyi István University ( $n_{\text{CG1}} = 32$ ), to students majoring in engineering sciences such as mechanical engineering and civil engineering, Pannon University ( $n_{\text{CG2}} = 75$ ) where respondents attended classes related to environmental technology such as agricultural or environmental engineering, and Semmelweis University ( $n_{\text{CG3}} = 3$ ) where majors were not specified but the institution is specialized in medical education. As regards educational background, 35 respondents had attended some courses related to disaster management, mostly occupational safety and food security. On the other hand, 71 students

did not have any background in disaster education, and four students left the respective question blank. The average age was  $25.28 \pm 7.13$  and the female students' rate was 58%. Only 17 (15.5%) had taken part in some kind of disaster relief (mostly as a volunteer) and 16 persons (14.5%) had personally experienced a disaster event.

## Results

Results from the questionnaire are shown in *Fig. 1a-c*. The horizontal bars on the graphs represent the mean values on the Likert scale and the vertical bars indicate  $\pm 1$  standard deviation (SD). Recognizably distinct patterns emerged from the study. The BSc respondents (*Fig. 1a*) strongly agreed with the following misconceptions: disasters are exceptional events (4.69); disasters kill people without respect for social class or economic status (4.51); unburied dead bodies constitute a health hazard (4.81), and great quantities and assortments of medicines should be sent to disaster areas (4.50). They were less convinced about the following myths: panic is a common reaction after disasters (4.46); survivors tend to be dazed and apathetic (4.05); looting is a common and serious problem (4.03); disease epidemics are an almost inevitable result of the disruption and poor health (4.07); any kind of aid and relief is useful (4.17); one should donate used clothes to the victims (4.07). The respondents were more critical about the following statements: people can survive for many days when trapped under the rubble of a collapsed building (3.81); it is necessary to accept all forms of aid that are offered (3.54); there is usually a shortage of resources when disaster occur (3.71). They were more skeptical of the following cases: people will flee in large numbers from a disaster area (3.38); disasters usually give rise to widespread, spontaneous manifestations of antisocial behavior (3.22); companies, corporations, associations and governments are always very generous when invited to send aid and relief to disaster areas (3.18). The respondents strongly doubted three misconceptions: earthquakes are commonly responsible for very high death tolls (2.9); disasters cause a great deal of chaos and cannot possibly be managed systematically (2.72); and technology will save the world from disaster (2.31).

The MSc students (*Fig. 1b*) produced similar results. They only fully agreed with two cases: disasters are ex-

ceptional events (4.70); and unburied dead bodies constitute a health hazard (4.85). The students also accepted the following statements: disasters kill people without respect for social class or economic status (4.39); panic is a common reaction (4.43); survivors tend to be dazed and apathetic (4.34); any kind of aid and relief is useful (4.13); great quantities and assortments of medicines should be sent to disaster areas (4.32). They were more skeptical about some beliefs: people can survive for many days when trapped under the rubble of a collapsed building (3.54); people will flee in large numbers from a disaster area (3.52); looting is a common and serious problem (3.95); disease epidemics are an almost inevitable result of the disruption and poor health (3.91); one should donate used clothes to the victims of disasters (3.95); there is usually a shortage of resources when disaster occur this prevents them from being managed effectively (3.82). The responses were more critical regarding some myths: earthquakes are commonly responsible for very high death tolls (3.04); it is necessary to accept all forms of aid (3.16); disasters usually give rise to widespread, spontaneous manifestations of anti-social behavior (3.42); companies, corporations, associations and governments are always very generous when invited to send aid and relief (3.30). The students disagreed with only two statements: disasters cannot possibly be managed systematically (2.79) and technology will save the world from disaster (2.29).

The control group (*Fig. 1c*) gave similar answers to the test groups. The students strongly agreed with two statements: panic is a common reaction (4.54) and unburied dead bodies constitute a health hazard (4.62). They also shared some myths like: disasters are exceptional events (4.48); disasters kill people without respect for social class or economic status (4.34); any kind of aid and relief is useful (4.07); one should donate used clothes to the victims of disasters (4.04); great quantities and assortments of medicines should be sent (4.19). The respondents roughly agreed that: people can survive for many days when trapped under the rubble of a collapsed building (3.52); survivors tend to be dazed and apathetic (3.70); looting is a common and serious problem (3.75); disease epidemics are an almost inevitable result of the disruption and poor health (3.55); it is necessary to accept all forms of aid (3.56). They were more critical with the following questions: people

will flee in large numbers from a disaster area (3.45); disasters cause a great deal of chaos (3.05); disasters usually give rise to widespread, spontaneous manifestations of antisocial behavior (3.12); there is usually a shortage of resources when disaster occur (3.44). They disagreed with three statements: earthquakes are commonly responsible for very high death

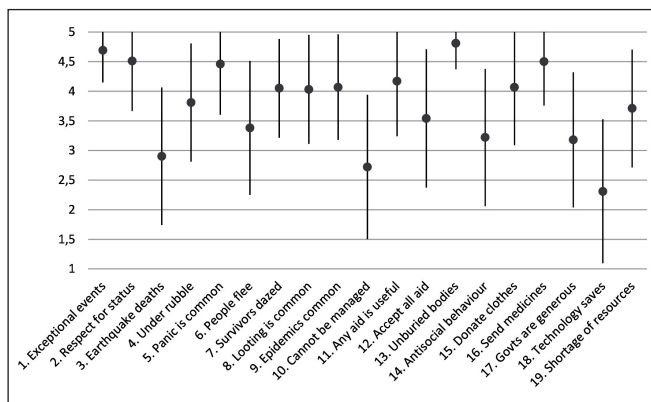


Fig. 1a - BSc responders (± means standard deviation) Source: Author

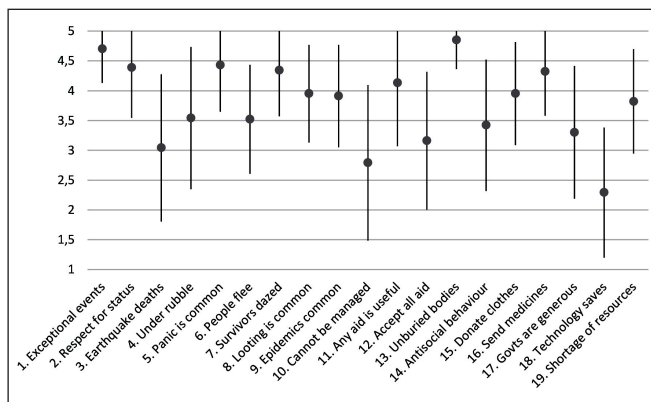


Fig. 1b - MSc responders (± means standard deviation). Source: Author

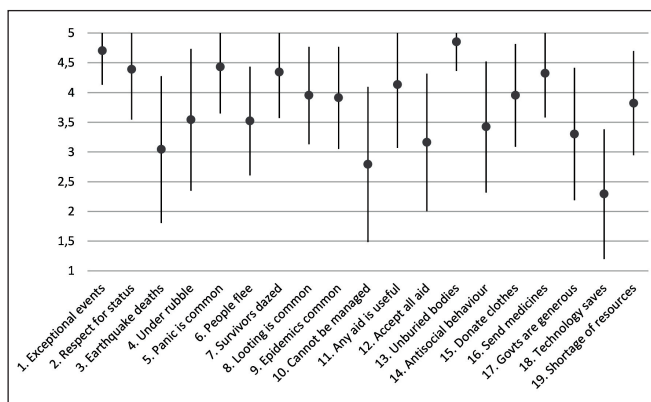


Fig. 1c - Control group responders (± means standard deviation). Source: Author

tolls (2.91); companies, corporations, associations and governments are always very generous (2.94); technology will save the world from disasters (2.25).

### Discussion

There are some interesting signs of consensus between the BSc and MSc groups. Generally, the most popular belief was that disasters are truly exceptional events and that unburied bodies are a threat to public health. It can be stated that these two are the strongest myths among the test groups. Weaker, but still enduring misconceptions are that disasters kill people without respect for social class or economic status and that great quantities and assortments of medicines should be sent to disaster areas. Surprisingly, the respondents shared most of the beliefs. No other incontrovertible agreement was identified, but there did appear to be some consensus on three statements: (1) earthquakes do not cause very high death tolls; (2) disasters can be managed systematically; and (3) technology will not save the world from disasters. To a modest degree, the MSc students who had a lot of experience regarding disaster risk management appeared to be more skeptical than BSc students.

The control group was compiled from students who had less experience regarding disaster events than the test groups, however, the CG respondents shared the same beliefs. Their main misconceptions included the belief that disasters are truly exceptional events and that unburied dead bodies are a great health hazard. Most of the misconceptions appeared among them as well, only the proposition of the earthquakes' high death tolls, the governments' generosity, and technology's role were less believed. Surprisingly, they tended to be more skeptical regarding eight statements: the results reached a significantly lower value in these cases, which means they had a much more critical attitude than the test groups. The surveyed disaster myths imply that they can even be found in practitioners; sometimes they are deeper rooted among them than among average citizens.

If the results are compared with Alexander's US and Italian respondents (*Table II*), we see that among practitioners and students surveyed by him, dis-

agreements and neutrality can be observed in some cases. However, the Hungarian groups mostly agreed with the statements or produced polarized results due to high deviation. Although the myths were deeply rooted among Alexander's respondents, the Hungarian students seem to be even less skeptical. Nevertheless, the strongest disaster myths produced similar results in all groups: the unburied bodies threat is commonly believed, while technology's role is definitely doubted.

### Limitations

Although the point of the research was to reproduce Alexander's methodology, it has to be noted that the project had certain intrinsic limitations. First, the test had only false statements. The students were clearly not prepared for a test where they should mark "1" for all questions.

Second, some of the proposed disaster myths are questionable. For example, the role of technology in disaster prevention,<sup>48</sup> or the earthquake as a cause for high mortality<sup>49</sup> is not commonly agreed.

Third, the cultural context created some misunderstandings. The applied questionnaire has some points that have different interpretation in Hungary. First, the word *disaster* is defined as an exceptional event in law,<sup>50</sup> and as students majoring in disaster management learn this definition first, they might consider disasters as exceptional events. Second, earthquakes rarely happen in Hungary,<sup>51</sup> therefore their main perception is likely from mass media representations on large-scale seismic catastrophes. This may explain why some or many would consider earthquake as the deadliest hazard type.

### Conclusion

This research showed the role of disaster myths in Hungarian higher education. Disaster management students were interviewed by questionnaire, and a control group was compiled, consisting of students with different majors. Based on the results, it can be concluded that these myths mean great barriers for disaster education as students in the field seem to be less critical about these beliefs. Furthermore, in some cases, even students majoring in dis-

aster management might be less skeptical than those who did not receive disaster education.

According to the first hypothesis, the frequency of misconceptions is irrespective of whether someone receives professional training ( $H_1$ ). This hypothesis is proved as respondents gave similar results to the CG groups; furthermore, in some cases they were less skeptical regarding the myths. The second hypothesis stated that among the Hungarian students, the misconceptions will be similar to US and Italy ( $H_2$ ). This statement is not confirmed, however it is not disproved either. The Hungarian students shared similar preconceptions; however, they tend to have a less critical attitude. Obviously, there is an

apparent failure in the education of the students who were surveyed. If properly educated, the referenced myths should have been addressed by the time the students were surveyed and the agreement that the myths were untrue should have been learned.

This paper argues that we have to make efforts to include a critical approach in disaster education and practitioners should acquire a skeptical attitude against these false preconceptions. Misconceptions are deeply rooted to such an extent among societies that only critical thinking and critical approaches can fight them. That is to say that even in practical training, there is a great need for a theoretical approach and a critical educational system.

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