

# Tsunami-tendenko and morality in disasters

Satoshi Kodama

## Correspondence to

Dr Satoshi Kodama,  
Department of Ethics,  
Kyoto University Graduate  
School of Letters, Sakyo-ku  
606-8501, Kyoto, Japan;  
satoshi.kodama-ky@umin.ac.jp

Received 22 June 2012

Revised 14 February 2013

Accepted 11 March 2013

Published Online First

26 March 2013

## ABSTRACT

Disaster planning challenges our morality. Everyday rules of action may need to be suspended during large-scale disasters in favour of maxims that may make prudential or practical sense and may even be morally preferable but emotionally hard to accept, such as *tsunami-tendenko*. This maxim dictates that the individual not stay and help others but run and preserve his or her life instead. *Tsunami-tendenko* became well known after the great East Japan earthquake on 11 March 2011, when almost all the elementary and junior high school students in one city survived the tsunami because they acted on this maxim that had been taught for several years. While *tsunami-tendenko* has been praised, two criticisms of it merit careful consideration: one, that the maxim is selfish and immoral; and two, that it goes against the natural tendency to try to save others in dire need. In this paper, I will explain the concept of *tsunami-tendenko* and then respond to these criticisms. Such ethical analysis is essential for dispelling confusion and doubts about evacuation policies in a disaster.

## WHAT IS TSUNAMI-TENDENKO?

The great East Japan earthquake on 11 March 2011 (also known as the 3.11 earthquake) and resultant tsunami took nearly 19 000 lives. Kamaishi (estimated population 40 000) was one of the worst-hit cities with about 1200 residents designated as missing or killed by the tsunami. Almost all 2900 elementary and junior high school students, however, survived the calamity. This 'remarkable feat', as it was reported in the media, was due not to pure luck but rather a disaster education programme started in 2005. One of the topics extensively taught was *tsunami-tendenko*, a rule of action that dictated one to 'run for your life to the top of the hill and never mind others or even your family when the tsunami comes'. (*Tendenko* is a dialectal expression that translates as 'go separately'.<sup>1</sup>)

*Tsunami-tendenko* is a traditional idea from the Sanriku region of northeastern Japan (facing the Pacific Ocean), where tsunami disasters have often occurred. The phrase itself became well known after Fumio Yamashita, a historian of Japanese tsunami disasters, described his own experience with the great tsunami of 1933. His father fled from the approaching tsunami and left behind his family, including the then 9-year-old Yamashita. When criticised by his wife afterwards, Yamashita's father would answer, 'It's *tendenko*, as they say.' He previously lost his mother (Yamashita's grandmother) in the great tsunami of 1896 because she spent time trying to save her infant daughter. Yamashita told this story to emphasise the importance of avoiding *tomo-daore*, where the rescuer loses his or her life along with the victim.<sup>2 3</sup>

*Tomo-daore* was a serious issue during the tsunami from the 3.11 earthquake. According to a central government report, more than 40% of the tsunami survivors did not evacuate immediately after the quake because they searched for family members or went home.<sup>4</sup> Most of the casualties probably fell into this category. For example, some elementary schools in tsunami-stricken areas had the disaster policy of handing students to their parents. Unfortunately, many of the students were killed by the tsunami because the parents then tried to go back home and meet up with other family members before evacuating.<sup>5</sup> Towns with the so-called policy of 'collective evacuation' also had heavy casualties because people spent potential escape time gathering and waiting at the town hall instead.<sup>6</sup> In one elementary school that had implemented the policy of collective evacuation, 74 of the 108 pupils were killed in the tsunami.<sup>7</sup>

The successful evacuation of the Kamaishi school children led to wide recognition and praise of *tsunami-tendenko*.<sup>1 8</sup> While more research is required to establish the comparative effectiveness of *tsunami-tendenko* as an evacuation policy, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) is reportedly planning to teach the maxim as a part of nationwide disaster education in elementary and secondary schools.<sup>9</sup> However, there are at least two important criticisms of *tsunami-tendenko* that should be carefully examined and dealt with before considering full implementation.

## THE TWO CRITICISMS OF TSUNAMI-TENDENKO

One criticism of the maxim is that it is egoistic. After the 3.11 earthquake, a mayor was quoted as saying, 'I wonder if it is right to teach children to run for themselves even when they have a bedridden grandmother at home.'<sup>10</sup> To be sure, 'run for your life to the top of the hill and never mind others or even your family' sounds egoistic and seems diametrically opposed to what we have been taught and what children should be taught about the moral responsibility to help others in need.

The second, and related, criticism of the maxim is that it is psychologically difficult or impossible to follow when the life of a loved one or neighbour is at stake. The 'psychological impossibility' claim may seem odd at face value as some people did follow *tsunami-tendenko* in the past, but it can be construed as an expression of agony felt by those who had to make a very difficult decision to save or discard the life of others. Thus, a volunteer firefighter who lost team mates while helping an elderly, bedridden woman to evacuate said, 'It's only our human nature to go save others when we hear the word 'Help!' It really came home to me



Editor's choice  
Scan to access more  
free content



► <http://dx.doi.org/10.1136/medethics-2013-101629>

► <http://dx.doi.org/10.1136/medethics-2013-101631>



CrossMark

To cite: Kodama S. *J Med Ethics* 2015;41:361–363.

this time that it is humanly impossible to follow *tsunami-tendenko*.<sup>11</sup> A professor was similarly quoted as saying, 'Perhaps the teaching of *tsunami-tendenko* has been told time and again precisely because it is too much against our human nature (to care for others) to follow the maxim with ease.'<sup>12</sup>

The first criticism appears to be that the maxim is morally wrong, while the second appears to be that the maxim may not be morally wrong but is psychologically difficult or impossible to follow. The next two sections will respond to these criticisms.

### IS TSUNAMI-TENDENKO EGOISTIC?

I would contend that practising *tsunami-tendenko* is not being egoistic. It is best construed as a rule that can maximise the number of lives saved if enough people follow it. In contrast, the ostensibly moral rule of 'helping others in need' may not maximise or even minimise the number of lives saved.

To illustrate this point, it may be useful to compare a tsunami disaster with the prisoner's dilemma. Both situations can be characterised as participants acting with uncertainty about the other party's behaviour. In a typical prisoner's dilemma, two suspects of a crime are placed in different interrogation rooms and given the choice either to 'confess and receive some sentence mitigation' or 'not confess and receive the full sentence' (table 1). If neither suspect confesses, the total number of years spent in prison will be much less than if both confessed. However, because each suspect does not know what the other will choose to do, they both decide to confess out of self-interest and end up worse off than if they had trusted each other not to confess.

A similar situation, which I will call the tsunami dilemma, can occur when a tsunami is expected to hit an area soon and people will be killed unless they evacuate immediately. If two separated family members decide to look or wait for each other, both will probably die in this lose-lose, *tomo-daore* situation. If each one decides to run for his or her life, however, both will be more likely than not to survive (table 2). However, because each person does not know what the other will choose to do, they may both decide to look or wait for each other and end up worse off than if they had both run for their lives.

An obvious difference between the prisoner's dilemma and the tsunami dilemma is motive. People in a tsunami dilemma do not act solely out of self-interest, which is a standard supposition in the prisoner's dilemma. Thus, while concern for oneself prevents mutual cooperation in the prisoner's dilemma, concern for others leads to *tomo-daore* in the tsunami dilemma. This does not necessarily imply, however, that those who follow *tsunami-tendenko* are egoistic (ie, acting out of self-interest). They may adopt the maxim because they are concerned for others but wish to avoid *tomo-daore*. By following *tsunami-tendenko*, they are cooperating and not betraying each other.

For *tsunami-tendenko* to work, there must be trust between the two parties to remove any doubt that one is looking out for the other. *Tsunami-tendenko* disaster education for the students

in Kamaishi included children repeatedly telling their parents, 'I will evacuate without fail. So please run away and don't come searching for me.' The parents in turn were asked by the teachers to discuss this issue with their children until they were absolutely certain the students would run away on their own initiative.<sup>13</sup>

I believe that while one can certainly follow *tsunami-tendenko* from an egoistic motive, it is not an egoistic maxim but rather a teaching justified by indirect consequentialism. It is consequentialist because the purpose of *tsunami-tendenko* is to maximise the number of lives saved. It is indirect because the rule of action individuals are expected to follow is not one of maximising the number of lives one can directly save, but of saving one's own life to collectively maximise the total number of lives saved. To achieve this goal, one needs to internalise *tsunami-tendenko* and also cultivate trust among all concerned to guarantee they will also follow the maxim. *Tsunami-tendenko* is emphatically not egoistic in disasters where the ordinary morality of helping others in need does not apply.

*Tsunami-tendenko* is not an absolute principle and I will later suggest some limitations to its application. However, it should be closely followed by as many people as possible to fulfil the objective of maximising the number of lives saved. It should be kept simple and general so that everybody, young or old, can follow it, almost mechanically, once they have learnt the concept. Some people may want to modify the maxim so that it should be followed unless one can save many others with minor risk to oneself. This, however, may make the decision-making at the crucial moment of disaster complicated, forcing one to calculate the consequences of different options. Unless one can come up with a maxim as simple and effective as *tsunami-tendenko*, it is generally better to teach the original *tsunami-tendenko* than its modifications.

### TSUNAMI-TENDENKO AND PSYCHOLOGY: DEFENDING TSUNAMI-TENDENKO AS AN APPROPRIATE TSUNAMI PREPAREDNESS POLICY

I now turn to the criticism that *tsunami-tendenko* is psychologically difficult or impossible to follow. Human beings sometimes feel a strong urge to help those in need. This inclination often lends support to a deontological maxim known in bioethics literature as the rule of rescue: 'Our moral response to the imminence of death demands that we rescue the doomed (at whatever cost).'<sup>14</sup> This maxim directs one to help others in need and thus comes in conflict with the maxim of *tsunami-tendenko*.

This second criticism of *tsunami-tendenko* may seem slightly odd, given that some Japanese did follow the maxim during the 3.11 earthquake and that the MEXT plans to teach it to school children. Thus, it would seem that there are *some* cases in which people feel that it is difficult or impossible to follow the maxim. To further examine where the psychological difficulty

**Table 1** The prisoner's dilemma

	A does not confess	A confesses
B does not confess	Both receive 3 years in prison	A receives 1 year in prison B receives 15 years in prison
B confesses	B receives 1 year in prison A receives 15 years in prison	Both receive 10 years in prison

**Table 2** The tsunami dilemma

	A does not search for B (runs for his/her life)	A searches for B
B does not search for A (runs for his/her life)	Both likely to survive ( <i>tsunami-tendenko</i> )	B likely to survive, A likely to die
B searches for A	A likely to survive, B likely to die	Both likely to die ( <i>tomo-daore</i> )

lies, let us consider three situations where the dilemma between running to safety and helping others may occur.

In the first situation, you would not know if your loved one is safe but would know that they are able to evacuate by themselves. *Tsunami-tendenko* works best in this situation, provided that all involved parties thoroughly discussed their options beforehand in a manner similar to the disaster education of the Kamaishi schoolchildren.

In the second situation, you would not know if your loved one is safe and would know that they are *unable* to evacuate by themselves. This situation is clearly more psychologically difficult than the first because *tsunami-tendenko* could necessitate giving up on your loved one. The mayor quoted in a previous section may have been thinking of this situation when he wondered if it is right to teach children to run for themselves even with a bedridden grandmother at home. We have to bear in mind, however, that these situations are very uncertain. For example, a rescue worker may have helped your loved one evacuate. Following *tsunami-tendenko* may still be the right choice, albeit more psychologically difficult.

In the third situation, you would know that your loved one is *not* safe and that they are *unable* to evacuate by themselves. The volunteer firefighter quoted in a previous section may have been thinking of this situation when recounting the deaths of his team mates.

Now, I do not believe it is right to follow *tsunami-tendenko* when one is a professional rescue worker (eg, firefighters and police officers). The role and duty of rescue workers is to help those in need during disasters. They are, and should be, trained to rescue others while minimising the risk to their own lives. If citizens can rely on rescue workers to do their best to rescue people, all involved would be better off. Otherwise, we would all be much worse off and unable to follow *tsunami-tendenko* in the second situation if a loved one was sure to die. So, rescue workers have the duty to act according to their roles and not follow *tsunami-tendenko*. However, this does not mean that they are expected to sacrifice themselves while rescuing others.

But what if you are not a firefighter or other rescue worker, but a parent of several children? Leaving them behind would be very difficult psychologically. This psychological difficulty or seeming impossibility, however, should not be the main reason to reject *tsunami-tendenko* as the correct evacuation policy. Indeed, following the maxim in this scenario is not impossible because Fumio Yamashita's father did exactly that, as previously mentioned.

Yamashita wrote that when the tsunami hit his town in 1933, no one in his family helped him to evacuate. Nine-year-old Yamashita ran up a snowy hill alone and barefoot. He later discovered that his friends had the same experience and realised *tsunami-tendenko* was the best strategy for maximising the number of lives saved. Yamashita thus repeatedly emphasised that however cruel it might seem, one must always remember to run for one's life to prevent *tomo-daore*.<sup>3</sup> Yamashita's story shows the importance of education and trust within both the family and the community in order for *tsunami-tendenko* to be most effective.

I would dare to suggest that *tsunami-tendenko* is the right evacuation policy in all the situations described above, unless you are a rescue professional with a duty to save others. Tsunami disasters are exceptional, and as such our psychological response may not be the best guide in finding a maxim to follow. Any psychological barriers to following *tsunami-*

*tendenko* may need to be overcome through education and advance disaster planning for people unable to evacuate by themselves. Widespread obedience towards government recommendations would be easier to achieve if special attention were paid to the disadvantaged.<sup>15</sup> In this sense, the government has an obligation not only to teach *tsunami-tendenko* to its citizens but also to do its utmost to plan for rescuing those who cannot run to safety on their own. In other words, *tsunami-tendenko* should be considered as one pillar of a comprehensive disaster plan by the government.

## CONCLUSION

The maxim of *tsunami-tendenko* has the beauty of simplicity but needs some clarifications and limitations. When teaching this concept, the importance of trust among loved ones must be emphasised to achieve the aim of maximising the number of lives saved. It is also important to emphasise that *tsunami-tendenko* is not an egoistic maxim. Finally, a different maxim may need to be articulated for rescue professionals.

This ethical analysis is essential for dispelling confusion and doubts about evacuation policies. My elucidation on *tsunami-tendenko* may require further development, but I firmly believe this discussion will better prepare people to save more lives in tsunami-prone areas around the world.

**Author note** This paper was originally presented at the 2012 Uehiro Carnegie Oxford Conference in Tokyo, and I am grateful to those who offered helpful comments.

**Acknowledgements** I would like to thank Robert Sparrow and Satoshi Eguchi for comments and discussion that enhanced the analysis. I also gratefully acknowledge the many helpful comments and suggestions that I received from the anonymous reviewers. Finally, my appreciation goes to Julian Savulescu for his encouragement in publishing this paper.

**Competing interests** None.

**Provenance and peer review** Commissioned; externally peer reviewed.

## REFERENCES

- 1 Komine S, Kaneko Y. The wisdom of Sanriku region that saved the children. *Yomiuri Shimbun*, 29 May 2011 (in Japanese).
- 2 Shishido M. The teaching was "Tsunami-tendenko". *Mainichi Shimbun Evening edition*, 19 Apr 2011 (in Japanese).
- 3 Yamashita F. *Tsunami-tendenko: a history of tsunami disaster in Modern Japan*. Tokyo: Shinnihon Publishing Company, 2008 (in Japanese).
- 4 40% of tsunami survivors didn't evacuate quickly. *Daily Yomiuri*, 18 Aug 2011 <http://www.yomiuri.co.jp/dy/national/T110817006318.htm> (accessed 5 Jun 2012).
- 5 Nemoto T, Horie T. Thanks to the swift decision, all the lives were saved at Kamaishi East Junior High School. *Mainichi Shimbun*, 12 Aug 2011 (in Japanese).
- 6 Nagano H, Sakai Y. Many lives were lost in Rikuzen-takata, where the mayor and others opted for collective evacuation instead of "Tsunami-tendenko". *Mainichi Shimbun*, 25 Apr 2011 (in Japanese).
- 7 The head teacher of Okawa elementary school acknowledged the mistakes with apologies. *Yomiuri Shimbun*, 23 Jan 2012 (in Japanese).
- 8 Futagi K. "Tendenko" that saved many lives. *Mainichi Shimbun*, 6 Jul 2011 (in Japanese).
- 9 MEXT's new policy: there must be at least one teacher in every school in charge of disaster education. *Yomiuri Shimbun*, 15 Nov 2011 (in Japanese).
- 10 The true meaning of Tendenko. *Asahi Shimbun Evening Edition*, 14 Feb 2012 (in Japanese).
- 11 Witness of the 3.11 Great East Japan Earthquake: No consensus on "Tendenko". *Mainichi Shimbun*, 3 Jul 2011 (in Japanese).
- 12 Ishizuka T. The maxim of "Tsunami-tendenko". *Mainichi Shimbun*, 23 Sep 2011 (in Japanese).
- 13 Aono Y. How to deal with the dilemma posed by "Tendenko". *Mainichi Shimbun*, 25 Sep 2011 (in Japanese).
- 14 Jonsen AR. Bentham in a box: technology assessment and health care allocation. *Law Med Health Care* 1986;14:172–4.
- 15 Uscher-Pines L, Duggan PS, Garoon JP, et al. Planning for an influenza pandemic: social justice and disadvantaged groups. *Hastings Center Report* 2007;37:32–9.